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The Heart of Aotearoa New Zealand

HEART DISEASE IN AOTEAROA: Morbidity, mortality and service delivery

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ABBREVIATIONS

AFF	Atrial fibrillation and flutter
AMI	Acute myocardial infarction
IHD	Ischaemic heart disease
NSTEACS	non-ST elevation acute coronary syndrome (includes non-STEMI and unstable angina)
Non-STEMI	non-ST elevation myocardial infarction
SMI	Subsequent myocardial infarction
STEMI	ST elevation myocardial infarction

EXECUTIVE SUMMARY

KEY FINDINGS

Heart disease has an extensive impact on the health of people in Aotearoa. In the most recent data, 4.5% of the population were estimated to have ischaemic heart disease, and 2.5% to have heart failure; 16% of the population were issued a prescription likely connected to heart disease; 1% of the population were hospitalised, making up 4% of all hospitalisations; and 20% of deaths were due to heart disease. In 2020, heart disease cost the healthcare system at least \$600 million, within an overall annual cost of at least \$13.8 billion. These are minimum costs and do not include the direct cost of emergency department visits, nor indirect costs of workdays lost to emergency department and outpatient visits, nor years lost to disability.

Aotearoa has seen substantial and sustained reductions in heart disease hospitalisation and mortality rates over the past two decades. However, these improvements have not been equitably distributed. This analysis finds that heart disease continues to affect Māori and Pacific populations disproportionately, and people living in areas of high deprivation or regions with lower health resources. These inequities are evident across the various measures reported here, including an earlier age of onset, limited access to interventions, and a lower median age at death.

The majority of heart disease was experienced by people over 50 years of age. There were significant differences by sex, as well as ethnic, socio-economic and regional inequities.

Male rates were higher than females across all indicators except atrial fibrillation and flutter (AFF) and heart failure mortality, where rates were not significantly different.

Māori indicator rate ratios compared to European/Other varied from 1.32 for statin prescription rates, to 2.30 for total mortality, and as high as 5.49 for cardiomyopathy mortality. Māori were also significantly less likely than European/Other to receive primary percutaneous coronary intervention within 140 minutes (STEMI).

For Pacific Peoples, rate ratios ranged from 1.83 for total mortality to 2.15 for IHD prevalence. Asian Peoples rates and prevalence were generally lower than European/Other, but statin prescription rates were higher (rate ratio 1.43).

For both Māori and Pacific Peoples, the median age of hospitalisation or death was more than 10 years younger than for European/Other. Differences between NZDep 9 – 10 (the most deprived quintile) and NZDep 1 – 2 varied from 1.50 for statin prescriptions, to 2.27 for IHD prevalence.

Tairāwhiti, Lakes, and Whanganui health districts had the highest levels of heart disease hospitalisation, and also particularly high mortality rates, along with Taranaki. In Tairāwhiti and Whanganui, while patients were more likely than in other areas to get medical contact within 60 minutes of first symptoms, they were significantly less likely to receive primary percutaneous coronary intervention within 140 minutes (STEMI) or to go into the cath treatment within 3 days (NSTEACS), despite the fact national percentages of patients meeting these timeframes were already lower than ideal, at less than 65%. It should be noted that Aotearoa's 3-day treatment target for catheter treatment is already two days longer than the 24-hour target in Europe and the USA.¹

Although these regions had high heart disease health burdens, there were fewer, if any, cardiac staff (nurses, sonographers, or physiologists working in cardiology, or cardiologists) in Whanganui, Lakes, Tairāwhiti or Taranaki, and subpar cardiologist staffing levels in all health districts (except Auckland), and sonographer shortages across the country.

Heart failure prevalence has increased in 2023/24 compared to 2018/19. It was the leading heart-related cause of hospitalisation among Māori and Pacific Peoples. Hospitalisation rates were nearly 4 times higher than European/Other for both ethnic groups, and increased over time for Pacific Peoples, despite not increasing in other ethnic groups. While heart failure mortality rates decreased overall, Māori rates remain around 2 times higher than European/Other. Māori who died of heart failure lost an average of 12.1 years of life, more than twice the 5.3 years for European/Other; Pacific Peoples lost an average of 10.1 years.

Finally, we note the rise in the hospitalisation and mortality burden of atrial fibrillation and flutter, especially among older adults.

KEY RECOMMENDATIONS

- Action is needed to address inequities in levels of heart disease for people living with socio-economic deprivation, and for Māori and Pacific peoples.
 - Note that ethnic group and socio-economic quintile were separate, independent, and cumulative risk factors
 - Consider implementing equity-focused funding models to directly resource regions and populations with the highest burden
- Action, funding, and investment in cardiac staff are needed to ensure equitable access to appropriate heart healthcare and treatment regardless of where we live.
 - Prioritise recruitment and retention of cardiac specialities in regions with high health need and severe service shortfalls.
- Central government action is needed to properly assess and address the full extent of cardiac workforce shortages
 - Cardiac workforce levels should be better monitored in future, to identify whether levels are improving or getting worse
- Fund regional infrastructure in Midland and Central regions to improve treatment timeliness
- Monitor changes in rates of conditions where rates show risk of increase, i.e. atrial fibrillation and heart failure.

INTRODUCTION

BACKGROUND

This report was commissioned by the Kia Manawanui Trust. The Trust aims to raise awareness about cardiac health issues, promote equitable access to cardiac care, resources and treatments, and advocate for better cardiac healthcare for providers and patients.

Heart disease is a major contributor to poor health and death in Aotearoa, New Zealand, making up 5% of hospital admissions and 20% of deaths. Nearly a fifth of the population is taking some kind of heart-related medication.

Previous research has established that Aotearoa has substantial inequities in heart disease distribution by ethnicity and socio-economic status.²⁻⁷ Ethnic and geographical differences have also been reported in heart health service access and delivery,^{8,9} and staffing.¹⁰

AIMS

This report identifies and measures potential indicators of cardiac conditions to serve as markers for changes in levels and treatment of heart disease in Aotearoa.

The underlying aims of the report are to:

1. provide key indicator data which can be used as an advocacy tool to raise the profile of heart disease regionally and nationally; and
2. provide key indicator data to guide the Trust in the best use of resources in the future.

The report therefore aims to:

3. Identify a useful set of key indicators for ongoing monitoring of heart disease in Aotearoa, including trends, disparities, health impacts, and service delivery; and
4. choose indicators that are able to be measured and reported regularly.

STUDY SCOPE

The report was scoped to include

- Total heart disease
- Leading causes of Years of Life Lost (YLLs)
- Leading causes of hospitalisation
- Intervention/treatment timeliness
- Statin and other heart disease prescriptions
- Workforce adequacy

INDICATOR SELECTION AND DATA SOURCES

CONDITIONS

Conditions for monitoring were identified as part of the development of this report, in consultation with the Trust. Conditions were selected based on measurability and contribution to Aotearoa's heart disease burden.

Classification of Heart Disease

For this report, heart disease was classified in three ways. The author first consulted with Dr Sarah Fairley to distinguish heart disease ICD-10 codes in Chapter IX (Diseases of the Circulatory System) from other circulatory illnesses. These codes were aggregated to "total heart disease". Next, the author carried out a preliminary analysis to identify ICD-10 codes with the largest burden of hospitalisation and/or death, including consideration of different burdens across genders and ethnic groups.

Hospitalisation and years of life lost showed different distributions across ICD-10 codes, as shown in Figure 1, Figure 2, and Table 1. Key differences were that "I25 - subsequent myocardial infarction" appeared much less frequently in hospitalisations than in deaths; and while "heart failure" and angina were common causes of hospitalisation, they were less commonly assigned as causes of death.

Figure 1. The eight largest categories of heart disease hospitalisation for the total population, each ethnic group, and males and females, 2013 - 2022

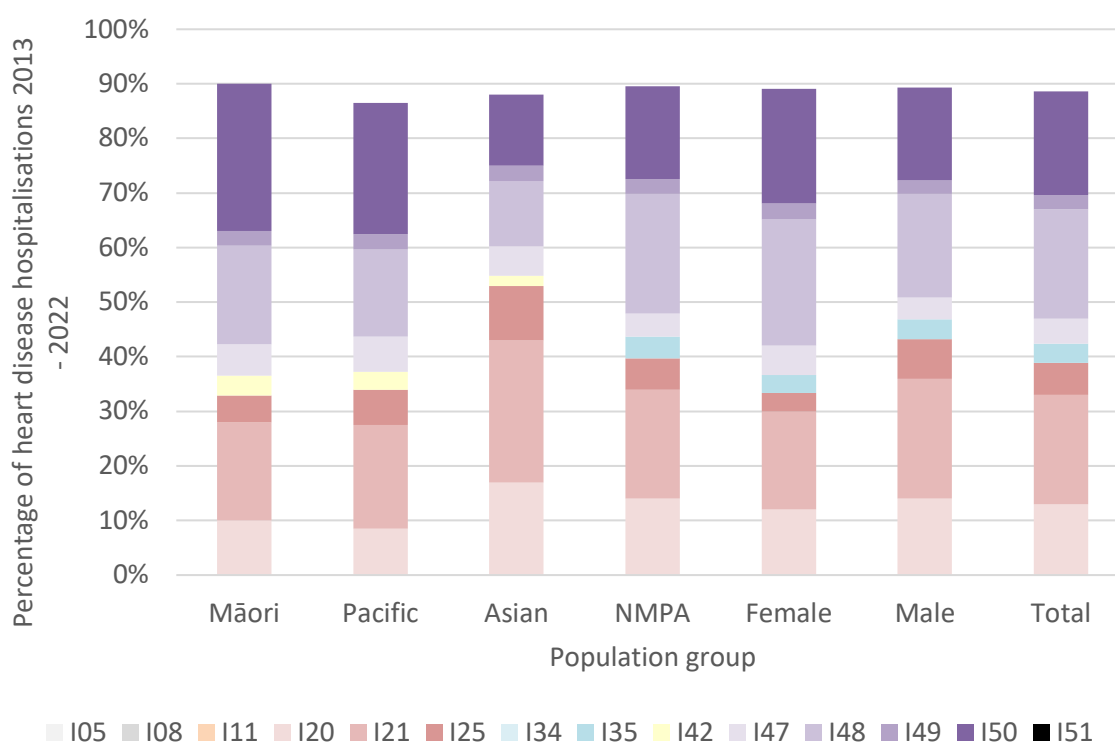


Figure 2. The eight largest categories of years of life lost to heart disease for the total population, each ethnic group, and male and female, 2011 to 2020

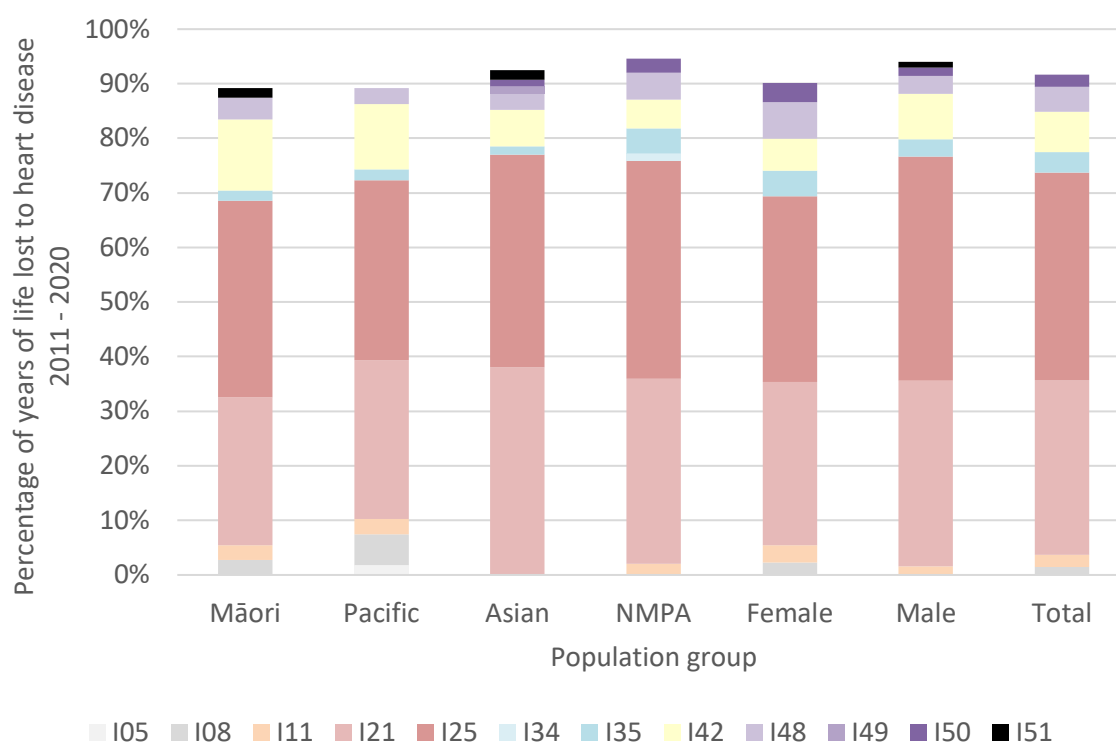


Table 1. The eight largest heart disease categories for the total population, each ethnic group, and males and females.

	Māori	Pacific	Asian	NMPA	Female	Male	Total
Years of life lost 2011 - 2020							
1	I25 (36%)	I25 (33%)	I25 (38%)	I25 (40%)	I25 (34%)	I25 (41%)	I25 (38%)
2	I21 (27%)	I21 (29%)	I21 (38%)	I21 (34%)	I21 (30%)	I21 (33%)	I21 (32%)
3	I42 (13%)	I42 (12%)	I42 (7.1%)	I42 (5.4%)	I48 (7.0%)	I42 (8.5%)	I42 (7.5%)
4	I48 (4.3%)	I08 (5.7%)	I48 (3.1%)	I48 (5.2%)	I42 (5.8%)	I48 (3.4%)	I48 (4.8%)
5	I08 (2.8%)	I48 (3.1%)	I51 (1.9%)	I35 (4.6%)	I35 (4.8%)	I35 (3.2%)	I35 (3.8%)
6	I11 (2.8%)	I11 (2.8%)	I49 (1.7%)	I50 (2.6%)	I50 (3.5%)	I11 (1.7%)	I11 (2.2%)
7	I35 (1.9%)	I35 (2.0%)	I35 (1.7%)	I11 (2.0%)	I11 (3.2%)	I50 (1.4%)	I50 (2.2%)
8	I51 (1.7%)	I05 (1.8%)	I50 (1.2%)	I34 (1.2%)	I08 (2.2%)	I51 (1.1%)	I08 (1.5%)
Deaths 2011 – 2020							
1	I25 (37%)	I25 (36%)	I25 (38%)	I25 (40%)	I25 (36%)	I25 (42%)	I25 (39%)
2	I21 (28%)	I21 (31%)	I21 (38%)	I21 (32%)	I21 (29%)	I21 (34%)	I21 (32%)
3	I42 (9.5%)	I42 (7.8%)	I48 (5.5%)	I48 (7.4%)	I48 (9.3%)	I48 (5.3%)	I48 (7.2%)
4	I48 (6.4%)	I48 (4.8%)	I42 (4.1%)	I35 (5.8%)	I35 (6.0%)	I42 (4.8%)	I35 (5.2%)
5	I11 (3.1%)	I11 (3.5%)	I50 (2.6%)	I50 (4.4%)	I50 (5.5%)	I35 (4.6%)	I50 (4.0%)
6	I50 (2.7%)	I08 (3.3%)	I35 (2.2%)	I42 (2.8%)	I11 (3.6%)	I50 (2.8%)	I42 (3.8%)
7	I35 (2.3%)	I35 (3.2%)	I11 (1.5%)	I11 (2.6%)	I42 (2.5%)	I11 (1.8%)	I11 (2.6%)
8	I08 (2.1%)	I50 (2.1%)	I51 (1.3%)	I34 (1.1%)	I34 (1.2%)	I34 (0.9%)	I34 (1.1%)
Hospitalisations 2013 - 2022							
1	I50 (27%)	I50 (24%)	I21 (26%)	I48 (22%)	I48 (23%)	I21 (22%)	I48 (20%)
2	I48 (18%)	I21 (19%)	I20 (17%)	I21 (20%)	I50 (21%)	I48 (19%)	I21 (20%)
3	I21 (18%)	I48 (16%)	I50 (13%)	I50 (17%)	I21 (18%)	I50 (17%)	I50 (19%)
4	I20 (10%)	I20 (8.5%)	I48 (12%)	I20 (14%)	I20 (12%)	I20 (14%)	I20 (13%)
5	I47 (5.8%)	I47 (6.5%)	I25 (10%)	I25 (5.7%)	I47 (5.4%)	I25 (7.2%)	I25 (5.9%)
6	I25 (4.9%)	I25 (6.5%)	I47 (5.4%)	I47 (4.2%)	I25 (3.4%)	I47 (4.1%)	I47 (4.6%)
7	I42 (3.6%)	I42 (3.2%)	I49 (2.8%)	I35 (4.0%)	I35 (3.3%)	I35 (3.6%)	I35 (3.5%)
8	I49 (2.7%)	I49 (2.8%)	I42 (1.8%)	I49 (2.6%)	I49 (3.0%)	I49 (2.4%)	I49 (2.6%)

Key

I05	Rheumatic mitral valve diseases	I34	Nonrheumatic mitral valve disorders
I08	Multiple valve diseases	I35	Nonrheumatic aortic valve disorders
I10	Essential (primary) hypertension	I42	Cardiomyopathy
I11	Hypertensive heart disease	I47	Paroxysmal tachycardia
I12	Hypertensive renal disease	I48	Atrial fibrillation and flutter
I20	Angina pectoris	I49	Other cardiac arrhythmias
I21	Acute myocardial infarction (AMI)	I50	Heart failure
I25	Subsequent myocardial infarction	I51	Complications and ill-defined descriptions of heart disease

Based on these contributions to the burden of heart disease, categories shown in Table 2 were selected for inclusion in this report. An aggregate group of total ischaemic heart disease (IHD) was included to allow continuity of data with the NZ Health Survey; while service delivery for non-STEMI (within NSTEMI) and STEMI AMI were included using data from ANZACS-QI.

Table 2. Included heart disease categories and outcomes

Outcome				Hosps	Deaths, YLLs	Service delivery	NZHS (15+ years)
Heart disease	Total I05 – 09; I11; I20-25; I30-I52			✓	✓		
	IHD	Total I20 – I25		✓	✓		✓*1
		AMI	Total I21.0 - I21.4	✓	✓	✓	
			STEMI I21.0 - I21.3			✓	
			Non-STEMI I21.4			✓	
		SMI	Total I25		✓		
	AFF	Total I48		✓	✓		
	Cardiomyopathy	Total I42			✓		
	Heart failure	Total I50		✓	✓		✓*2

*1 Defined as “Yes” response to either “Have you ever been admitted to hospital with a heart attack?” or “Have you ever been told by a doctor that you have angina?”

*2 Defined as “Yes” response to “Have you ever been told by a doctor that you have heart failure? That is inadequate heart pumping, or a build-up of fluid in the lungs or legs.”

DATA

Data for this report were sourced from administrative datasets, government publications, and Te Whatu Ora. Datasets used for health outcomes are listed in Table 3. The report also includes workforce data, provided by Te Whatu Ora under the Official Information Act, and sourced from the Health Workforce Information Programme* extracted 11 March 2025 and current to 30 September 2024.

Table 3. Data sources for indicator conditions and risk factors.

Data source	Measure	Conditions	Years	Risk factors/determinants
Te Whatu Ora Mortality Data Web tool	Mortality rates	Ischaemic heart disease	1948 - 2022	Sex
			1996 - 2022	Māori/non-Māori
Mortality Collection	Mortality rates, Years of life lost	Total heart disease IHD AMI Cardiomyopathy AFF Heart failure	2000 - 2020	Age/age-group Gender Ethnicity NZDep quintile Health region (x4) Health district (x20, most recent year only) GCH (most recent year only)
NMDS (Hospitalisations)	Hospitalisations (excluding transfers)	Total heart disease IHD AMI AFF Heart failure	2000 - 2022	
Pharmaceutical Collection	Statins, Other medications	Total heart disease	2005 - 2022	
ANZACS-QI	Time from symptom to first medical contact; time from first medical contact to treatment	Acute MI STEMI and non-STEMI (included in NSTEMI)	2015 - 2024	Age/age-group Gender Ethnicity Health region (x4) Health district (x20)
NZ Health Survey	Prevalence	IHD; Heart failure	2011/12 - 2023/24	Age group (15 – 24, 25-34 ... 75+) Gender Ethnicity NZDep quintile Health region (x4)

MEASUREMENT OF HEART DISEASE

Heart disease in Aotearoa has been measured in three ways: incidence, prevalence, and costs of illness. Incidence is measured as the number of events per 100,000 people per year. Incidence of hospital events and deaths are reported for different indicator conditions depending on health burden.

Prevalence is the percentage of people in a population who have a particular condition. We have reported the prevalence of doctor-diagnosed IHD and doctor-diagnosed heart failure, as measured and reported by the NZ Health Survey.

* <https://www.tewhatauora.govt.nz/our-health-system/health-workforce-information-programme/>

ANALYSIS

For ANZACS-QI data, differences between population sub-groups in likelihood of receiving treatment within target timeframes were modelled in Stata 17, using a Poisson model with robust standard errors. Model result coefficients are reported for differences between sub-groups, and rate ratios are reported for differences between 2023-24 and 2015-2022. Results in the body of the report are presented as raw percentages, with coefficients in appendices. For data outputs more accessible for consumers,¹¹ we recommend the ANZACS-QI dashboard for acute coronary syndrome care quality indicators, at

<https://public.tableau.com/app/profile/hqi2803/viz/Howhearthealthyisyourhealthservice/Dashboard>.

Hospitalisation and mortality data were used with Statistics NZ population data to produce standardised rates and confidence intervals using Tiwari et al's gamma distribution.*

POPULATION DISAGGREGATION

Rates and rate ratios were, where possible (see next section) disaggregated by age, sex, ethnic group, neighbourhood socio-economic deprivation (NZDep quintile), health district or region, and geographical classification for health (GCH).

Hospitalisation distributions are shown by single year of age. Rates are provided by age group. Gender is reported as "male" or "female", as only prescription data included anyone with "Other" gender reported (79 people in 2020).

Ethnicity is variously reported as total ethnicity (NZ Health Survey); modified total ethnicity (prescriptions, hospitalisations, deaths), which uses total ethnicity for Māori, Pacific Peoples, Asian Peoples, and MELAA, and a residual non-Māori/Pacific/Asian/MELAA group which is predominantly NZ European; and prioritised ethnicity (ANZACS-QI), which assigns only one ethnic group per person prioritising, in order, Māori, then Pacific, then Asian, with everyone else categorised as "European/Other".

Socio-economic deprivation is measured using the Ministry of Health domicile code at the time of hospitalisation, or death, or the current domicile code for prescription data; and the Census Area Unit NZDep quintile for the closest census year for which a quintile could be assigned.¹² Health region and geographical classification of health (GCH) were assigned using these same domicile codes. GCH is divided into five categories: U1 and U2 are both urban, and reflect urban area population size; while R1, R2 and R3 are rural areas classified according to their drive time to the closest major, large, medium and small urban areas.[†]

* <http://fmwww.bc.edu/repec/bocode/d/distrate.html>

† <https://rhrn.nz/gch/about-gch> accessed 30 June 2025

COSTS

We report costs for 2020, as the most recent year with individual-level mortality data available. The cost of heart disease to Aotearoa has not previously been estimated. The method below is substantially similar to the method used to assess costs of respiratory disease in Telfar Barnard et al 2024.¹³ We aggregate rather than distinguishing between public and private costs.

Health system costs have been estimated using pharmaceutical, hospitalisation and mortality data, and additional costs extrapolated from the Statistics New Zealand data on the working age population and total population estimates, and the New Zealand Health Survey. Mortality costs are estimated from years of life lost based on average life expectancy at age of death¹⁴, multiplied by the 2024 value of a life year of \$179,643. The life year value is estimated from the 2020 NZTA value of a statistical life (\$4.42m)* and a 3% discount rate,^{15 16} using the formula

$$VSLY = \frac{VSL \cdot (1 + r)^{t-1} \cdot r}{(1 + r)^t - 1}$$

where VSL= the value of a statistical life, r = the discount rate (3%), and t=the remaining life years of the average-aged member of the population, sourced from Statistics NZ cohort life tables and population data – in this instance, estimated at 44.86.

Hospitalisation costs are summed from all 2020 publicly-funded hospital discharges, using the appropriate 2019/20 or 2020/21 Ministry of Health cost weight multiplier.

ESTIMATING PRESCRIPTION AND PRIMARY CARE VISIT COSTS

The method for calculating the total cost of pharmaceuticals is described in Telfar Barnard et al 2011¹⁵. The total pharmaceutical cost is the sum across all included prescriptions of:

Dispensing fee + retail subsidy - estimated 2020 Pharmac rebate

The estimated Pharmac rebate for 2020 was \$625.2m total rebates/\$1,646.9m expenditure¹⁷ = 37.96%.

We assign an estimated average cost of \$80 to each first dispensing of a prescription to represent a visit to primary care. As no studies were found assessing the proportion of statins or anticoagulants prescribed for heart disease as opposed to other conditions. In the absence of other evidence or guidance, we took a conservative approach to included prescriptions, and included only scripts predominantly prescribed for heart disease, rather than all scripts that might be prescribed for heart disease. A list of included and non-included heart disease scripts is provided in Table A181.

ESTIMATING THE COST OF DAYS OFF WORK.

First, in the absence of other data, we assume one day of work missed per year per person aged 15 to 64 years with ischaemic heart disease, using NZ Health Survey estimated numbers, which total 76,000. We cost these using the June 2020 median weekly income of \$1,189 for full-time work, and the 2020 labour force participation rate of 69.7%.

Second, we add days missed due to heart attack. The Heart Foundation of New Zealand advises that most individuals can return to work within 2 to 4 weeks after a heart attack. We have used 2 weeks as a defensible minimum. We apply this cost to 69.7% (the employed proportion) of adults aged 18 to 64 following any myocardial infarction (acute, I21; or subsequent, I22). We also excluded heart attacks where the patient died

* <https://www.transport.govt.nz/about-us/news/social-cost-of-road-crashes-and-injuries-2020-update>

within 14 days of hospitalisation, as the cost of lost work was assumed to be accounted for in the cost of life years lost.

Third, for other heart hospitalisations, we add 5/7 of days spent in hospital for heart disease among patients aged 18 to 64 years, and again apply this cost to 69.7% of the median weekly wage.

We note that these estimates of time off work are substantially less than if we had applied the longer periods of days off work reported in some earlier studies.^{18 19}

FURTHER RESEARCH NEEDED

We were not able to assign costs for emergency department (ED) or outpatient (OP) visits, as no data were available for average numbers of ED or OP visits per patient.

Similarly, no data were available to include the cost of years lost to disability for heart disease.

COST SUMMARY

The total cost of heart disease deaths in 2020 was \$13.09 billion, from 74,708 life years lost.

The total cost of heart disease hospitalisations in 2020 was \$538.8m.

The total cost to New Zealand (whether paid by patients or the State) of heart-disease-associated prescriptions in 2020 was estimated at \$61.9m.

The cost of primary care visits for heart disease was estimated at \$65.2m.

Costs for work days lost was estimated at \$18.00m, made up of \$12.60m (calculated from first prescriptions as proxies for primary care visits) plus \$5.40m (time off work following a heart attack) and \$4.19m (time off work in hospital).

Therefore, for 2020 we estimate the minimum total cost of heart disease to the New Zealand economy to be:

Work days lost	\$	17,996,766
Primary care visits:	\$	65,166,640
Prescriptions:	\$	61,906,660
Hospitalisations:	\$	538,790,541
<u>Mortality:</u>	<u>\$</u>	<u>13,094,819,487</u>
TOTAL:	\$	13,778,680,094

These are minimum costs. They do not include the direct cost of emergency department visits, nor indirect costs of workdays lost to emergency department and outpatient visits, nor years lost to disability.

LITERATURE

We conducted a focused literature review seeking evidence on Aotearoa rates and prevalences of indicator conditions.

Criteria for inclusion in the review were that the literature report original research measuring the rate or prevalence of an indicator condition in general, age, sex, or ethnic-specific populations of Aotearoa; and that the data for the study was collected after 31 December 1999. Reviews and studies not in English were excluded.

We searched PubMed using the search terms in the Title or Abstract, limited to humans, with a publication date between 1 January 2000 and 31 May 2025:

Zealand

AND (cardiomyopathy OR angina OR heart OR coronary OR cardiac OR atrial OR ischemic OR ischaemic)

AND (“years of life lost”)

OR (mortality OR morbidity OR hospital* OR death)

AND (incidence OR prevalence OR rate)

The search returned 353 results.

334 papers were excluded based on title and abstract as not meeting inclusion criteria, or meeting exclusion criteria.

8 further papers were excluded based on full text appraisal.

The 11 remaining papers are tabled in Appendix 1. They included total or total or combination CVD, including coronary heart disease (7); ischaemic heart disease (1); MI or AMI (2); heart failure (2); angina (2); and atrial fibrillation (1). Summaries are included in the relevant section of the report.

MINISTRY OF HEALTH DATA

Data provided by the Ministry of Health under the Official Information Act 1982 (see Appendix 3 and Table 4) indicated that in 2024 there were no cardiac staff at all (nurses, sonographers, or physiologists working in cardiology; or cardiologists) in the Wairarapa or Whanganui health districts; and no cardiologists or sonographers/cardiac physiologists in Lakes, West Coast, or South Canterbury; and no cardiologists in Tairāwhiti.

Table 4. Ministry of Health-sourced cardiology workforce by job title and health region as at 30 September 2024.

		Total	Northern	Midland	Central	Southern
Cardiologist	Count	183	92	33	30	28
	FTEs	173.2	93.8	28.2	24.6	26.6
	FTEs/M	32.8	46.3	27.0	25.3	21.4
Sonographers/ cardiac physiologists	Count	204	102	24	30	48
	FTEs	178.2	91.9	20.6	26.2	39.6
	FTEs/M	33.7	45.3	19.7	27	31.8
Nursing	Count	1188	606	181	249	152
	FTEs	967.8	502.8	152.8	191.3	121.0
	FTEs/M	183.1	248.3	146.3	196.2	97.4
Total	Count	1554	800	238	309	228
	FTEs	1319.2	688.4	201.6	242.2	187.2
	FTEs/M	249.5	339.9	193.0	248.5	150.6

FTEs/M=FTEs per million people.

OTHER DATA SOURCES

Healthpoint

Contradicting the Ministry of Health data, in July 2025 healthpoint.co.nz indicated:

- Taranaki has two cardiologists and two cardiac nurse practitioners, and reports echocardiograms are available, which implies the presence of sonographers; and
- Lakes has two cardiologists.

Medical Council

The Medical Council 2025 Workforce Survey may not have included all doctors, but also contradicted the Ministry of Health data, finding more public hospital cardiologist FTEs in all regions, including 2.2 FTEs in Lakes, 1.4 FTEs in Taranaki, and 0.4 FTEs in Tairāwhiti.

Australasian Sonographers

The ASA surveyed members in a year. However, only 5 respondents were Aotearoa-based, meaning findings for Aotearoa were not necessarily representative.²⁰

However, ASA have separately noted extreme sonographer workforce shortages in Aotearoa.²¹

Regional staff

In personal correspondence, local staff reported 1.2 cardiologist FTEs in Taranaki – loosely consistent with the Medical Council data – and 1.8 cardiologist FTEs in Tairāwhiti (as well as 3.0 FTEs for cardiac sonographers/physiologists, 1.8 for nurse practitioners, and 1.7 for other cardiac nurses).

WORKFORCE DATA ANALYSIS AND COMMENT

Cardiologists

Although Ministry of Health data are incomplete, they show a large variation in cardiac staffing between regions, and no region with healthy staffing levels. Across Aotearoa, Ministry of Health data show 173.2 cardiologist FTEs, or 32.8 per million people. This rate was less than all 55 countries measured by the European Society of Cardiologists (ESC), except the UK, Uzbekistan, and Ireland.²² Only Auckland, with 96.3 cardiologist FTEs per million people, was comparable to the ESC region average of 95.0. The health district with the second highest ratio (47.5 per million people), Waikato, had only half the ESC region level, similar to the 47 per million reported for Australia in 2016.²³ At a health region level, the Northern region's level of 46.3 per million was also similar to Australia, but other regions were substantially less, ranging from 21.4 to 27.0 per million.

Meanwhile, Medical Council 2025 Workforce Survey data show 295.6 cardiologist FTEs, which would equate to roughly 56 per million people – roughly the level of Portugal and Ukraine, and still in the bottom third of ESC countries measured. Auckland's Medical Council-measured 62.6 FTEs – 127 per million people – is somewhat healthier, sitting in the top third of ESC measures, and their 98 FTEs per million for Waikato is slightly above the ESC average. However, even the higher Medical Council figures show FTEs per million at very low levels compared to both the ESC region and Australia.

Sonographers

The Ministry of Health reported 43.5 cardiac sonographer FTEs in 2024, 38% less than the 70.4 reported for 2013,¹⁰ despite the 17% increase in population over that period. These numbers suggest sonographer FTEs per million people have potentially halved, from 16 in 2013¹⁰ to 8.2 in 2024. The Australasian Sonographers Association also report extensive staff shortages, both locally and internationally, with systemic issues that impede training new staff locally, and heavy competition for attracting new migrant staff.

Conclusion

It is clear not only that there are serious regional inequities in staffing levels, with only Auckland approaching adequate staffing levels, but also that the Ministry of Health is not tracking cardiac staffing levels accurately. It is therefore unclear how the Ministry of Health proposes to address cardiac staffing inadequacies when it is unaware of their extent.

STATIN PRESCRIPTIONS

AGE

For the period 2019 – 2022, the median age of people prescribed statins was 67 years, and peaked at 70 years. Less than 10% of people prescribed statins were aged less than 50 years, and less than 1% were aged less than 35 years (Figure 3).

When population prescription rates by year of age are examined, we see an unusual dip in rates in 76-year-olds (Figure 4). We have no explanation for this dip, which is apparent in both genders and is also apparent to some degree across ethnic groups (rates not shown). The dip has been tested using both 2018 and 2023 census populations, as well as the aggregate population, and neither removes the dip, so it does appear to be real rather than a data artefact.

GENDER

Women were less likely than men to be prescribed statins. However, there was a curious gender difference in statin prescribing practices. While men and women were dispensed similar total quantities of statins, women were prescribed more total scripts than men, with smaller average quantities of medication dispensed per script. The difference is not large, and does appear to have reduced over time, but is still apparent in the most recent data, and is not resolved by controlling for age (Table 5).

Table 5. Gender differences in statin prescriptions and quantities per person prescribed; and quantity per prescription, 2005 to 2022.

Period	Scripts per person prescribed		RR to male*	Quantity per person prescribed		RR to male*	Quantity per prescription		RR to male
	Female	Male		Female	Male		Female	Male	
2005 - 2010	6.46	5.42	1.12	311.0	314.3	0.97	74.3	80.9	0.94
2011 - 2016	6.39	5.55	1.10	314.9	313.3	0.99	73.1	77.1	0.96
2017 - 2022	5.97	5.43	1.07	295.1	293.0	0.99	69.9	72.9	0.97
Total	6.23	5.46	1.10	305.7	304.7	0.99	72.1	76.2	0.96

*RRs are age-standardised. All p-values <0.01

However, despite receiving more prescriptions with less quantity per script, women averaged less patient contribution than men, with an average contribution of \$8.34 ex GST per patient per year, compared to \$9.13 for men.

ETHNIC GROUP

The proportion of the population prescribed statins rose for all ethnic groups (Figure 7). Inequities also rose, but with different patterns by group. Compared to NZ European, the rate ratio for Māori peaked in 2013 at 1.42, and has since fallen to 1.32 in 2022. For Pacific Peoples, it may have peaked in 2019 at 2.11 – in 2022 it was 2.05 (Figure 8). The difference for Asian Peoples has continued to increase, from 1.13 in 2005, to 1.43 in 2022 – Asian People's statin prescription rates are now higher than Māori.

SOCIO-ECONOMIC DEPRIVATION

Statin prescription rates increased between 2005 and 2013, but increased more for NZDep 9 – 10 than for other quintiles. We therefore see reduced inequities in prescription rates for the middle quintiles, but greater inequity for NZDep 9 – 10. Rates continued to rise for NZDep 1 – 2 and 3 – 4 after 2013, but fell for other quintiles.

As this pattern is roughly similar to that seen in heart disease hospitalisations, it is likely that it is due to worse cardiac health, rather than greater access to primary care and/or medication.

HEALTH REGION

Statin prescription rates were highest in the Midland/Te Manawa Taki health region from 2005 until 2020, when they were overtaken by Northern region rates, which had previously been similar to the national average. Prescription rates were lowest in the Southern/Te Waipounamu health region. Prescription rates in the Central/Te Ikaroa region were similar to the national average throughout the 2005 to 2022 study period.

HEALTH DISTRICT

Statin prescription rates were highest in Counties Manukau, where statin prescription rates were 31% higher than in the rest of the country, followed by Taranaki, Tairāwhiti, and Auckland. Rates were lowest in Canterbury, where prescription rates were 23% lower than elsewhere.

GCH

Statins were prescribed to a greater proportion of people in large urban areas than in other GCH regions. However, it should be noted that these rates are age-standardised only, and at least some of the difference will likely be attributable to differences in ethnic makeup and NZDep distribution between different GCH areas. As the GCH measure becomes more established, subsequent reports may be able to unpick this question.

Figure 3. Age distribution and median age for statin prescriptions, 2022.

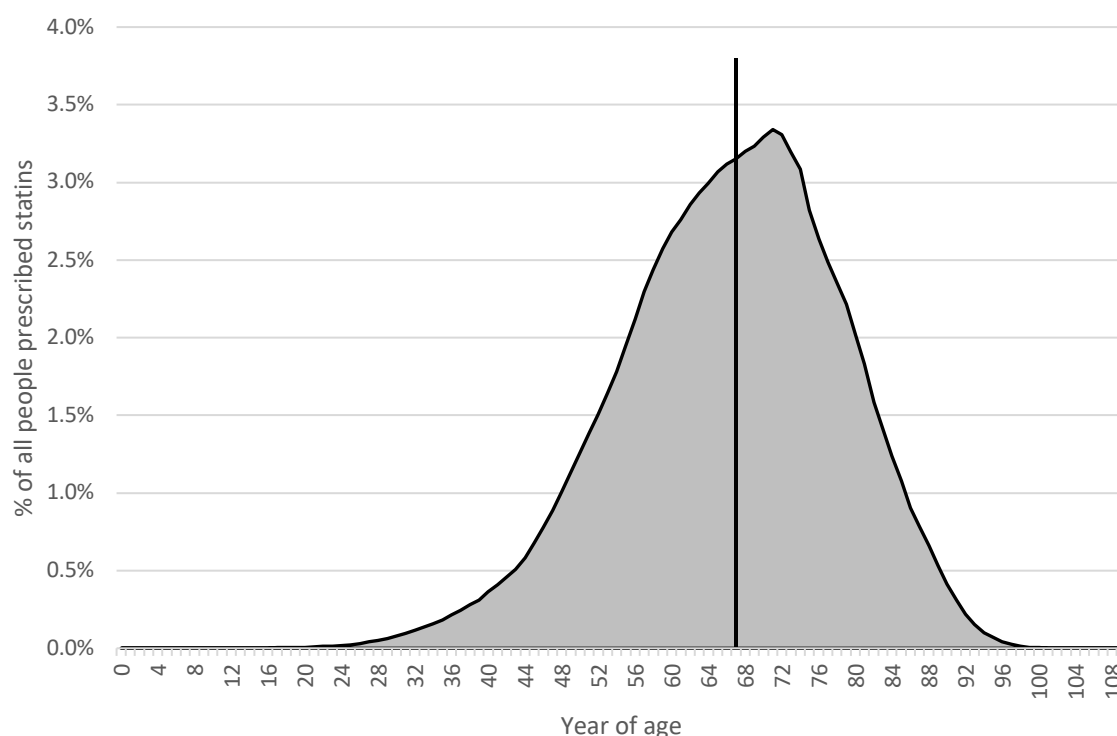


Figure 4. Statin prescription rates by year of age, 2022.

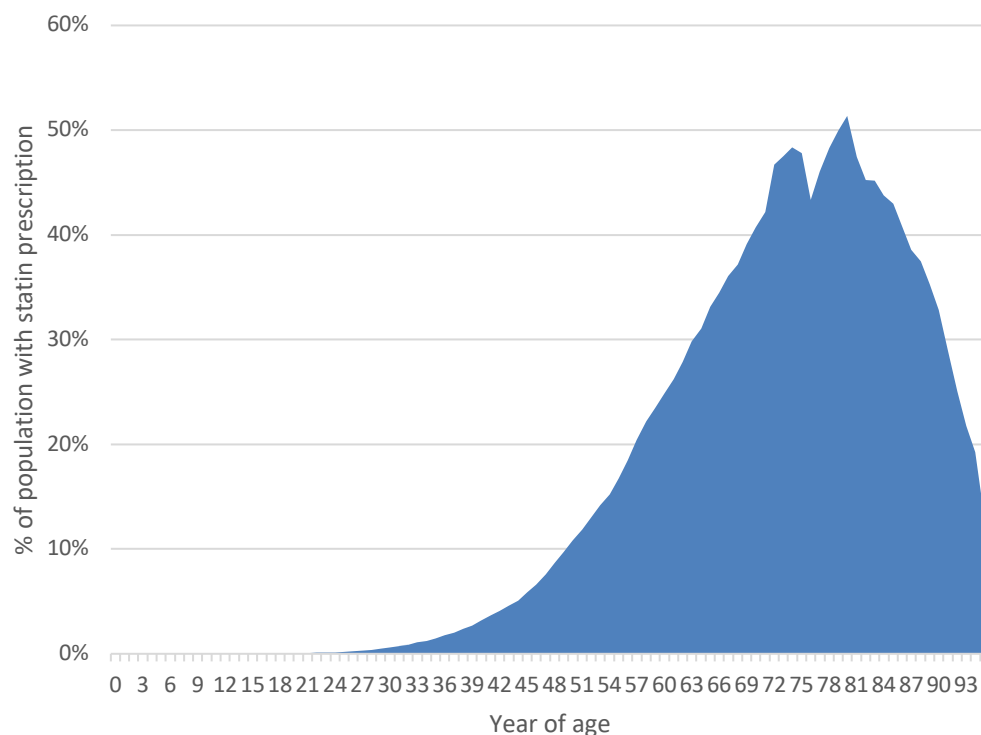


Figure 5. Statin prescription distribution by year of age and gender, 2022.

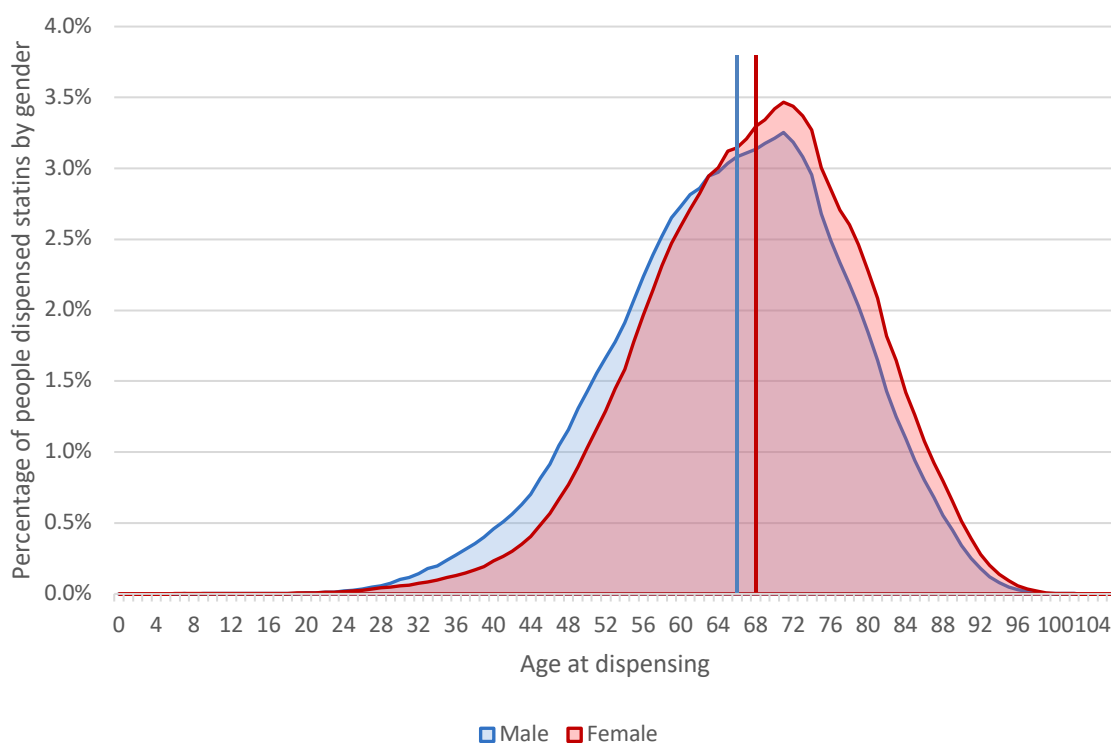
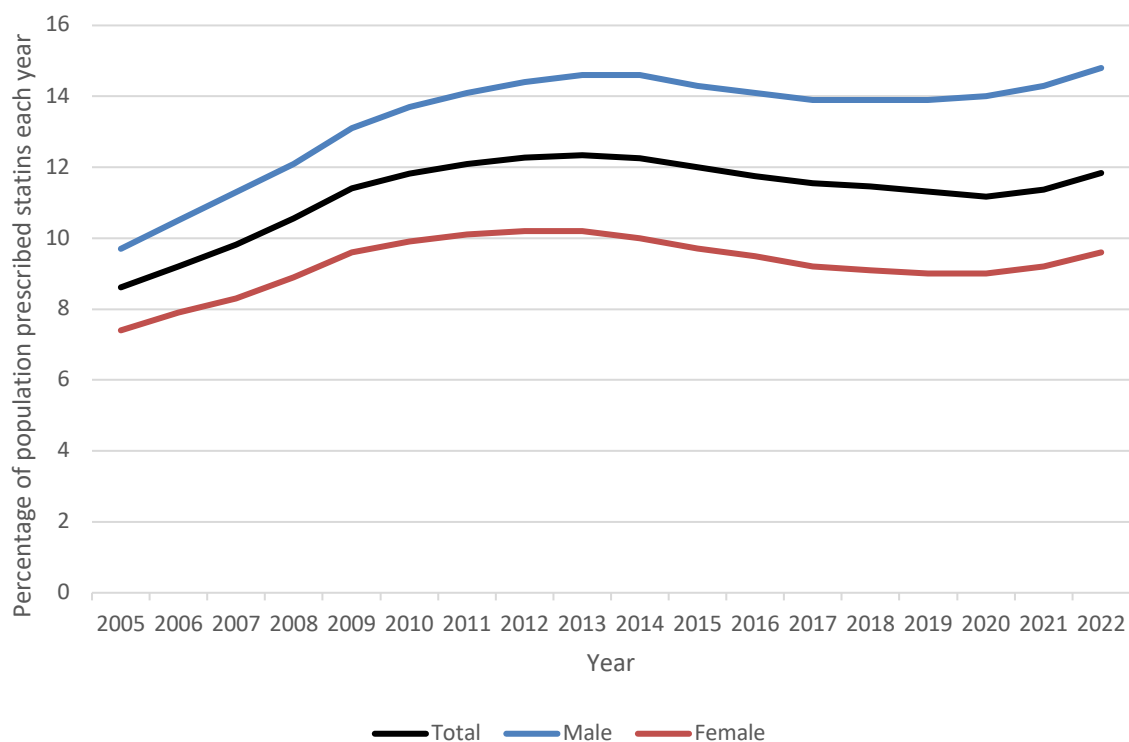
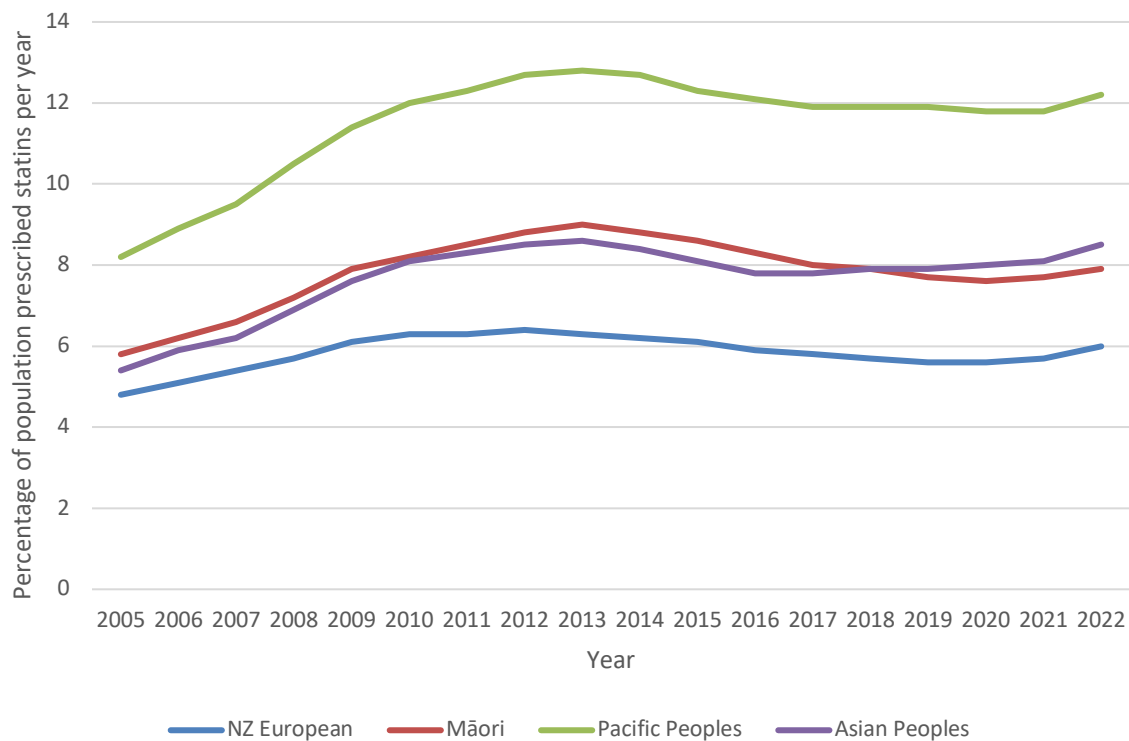


Figure 6. Percentage of population with statin prescription, by gender and year, 2005 - 2022.



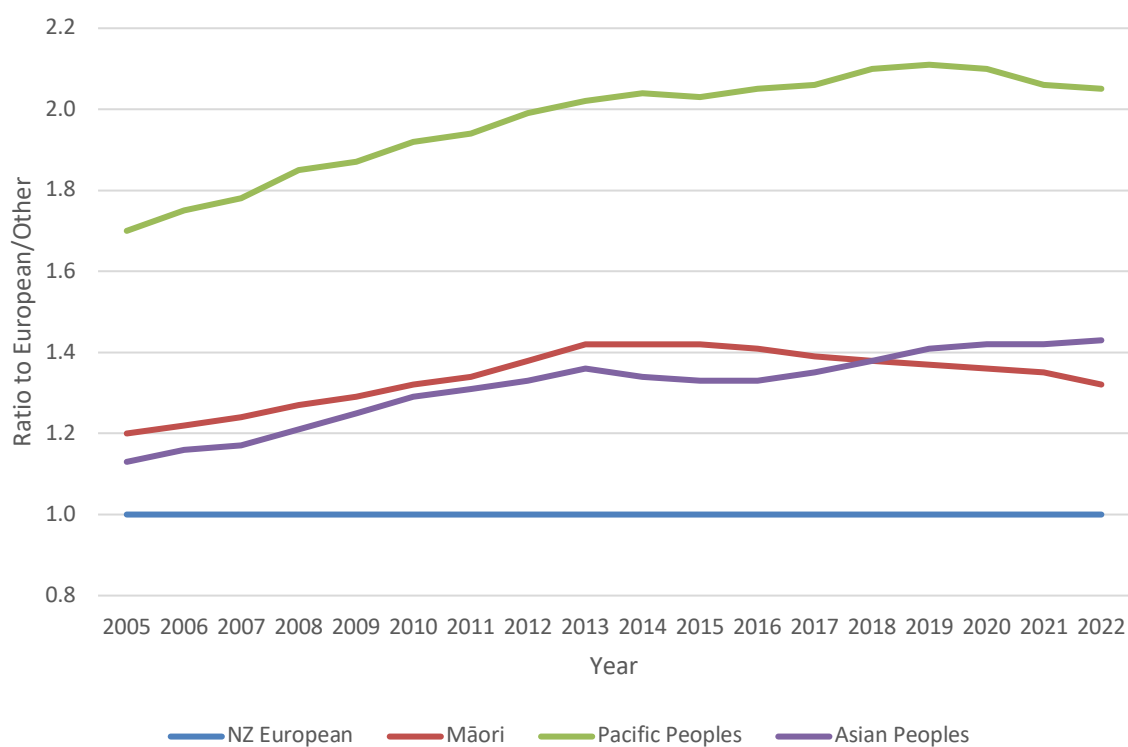
See Table A5 for data.

Figure 7. Percentage of population with statin prescription, by year and ethnic group, 2005 - 2022.



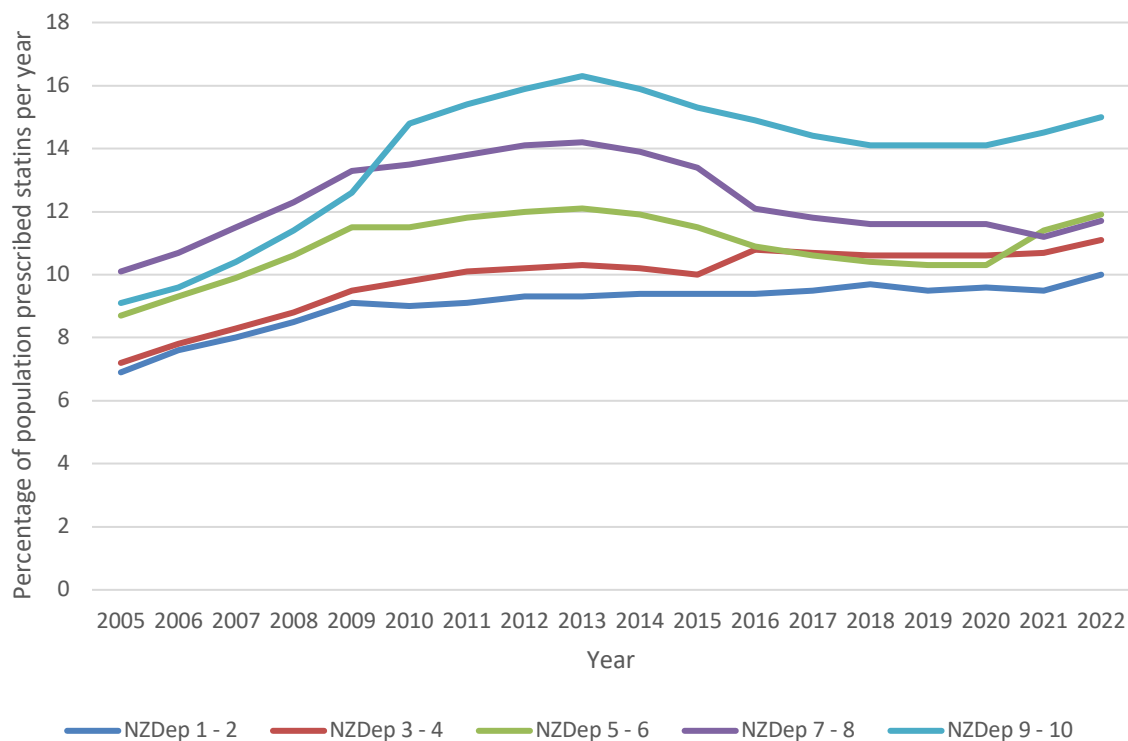
See Table A7 for data.

Figure 8. Percentage of population with statin prescription, ratio to NZ European, by year and ethnic group, 2005 - 2022.



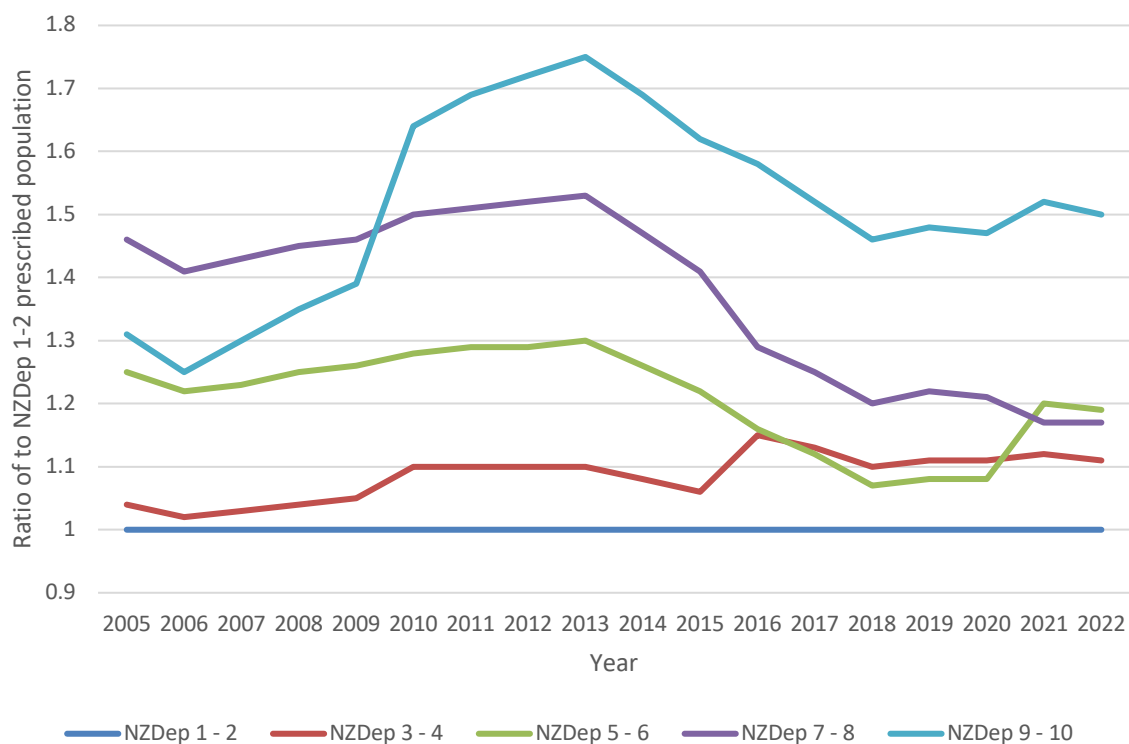
See Table A8 for data.

Figure 9. Percentage of population with statin prescription, by year and NZDep quintile, 2005 - 2022.



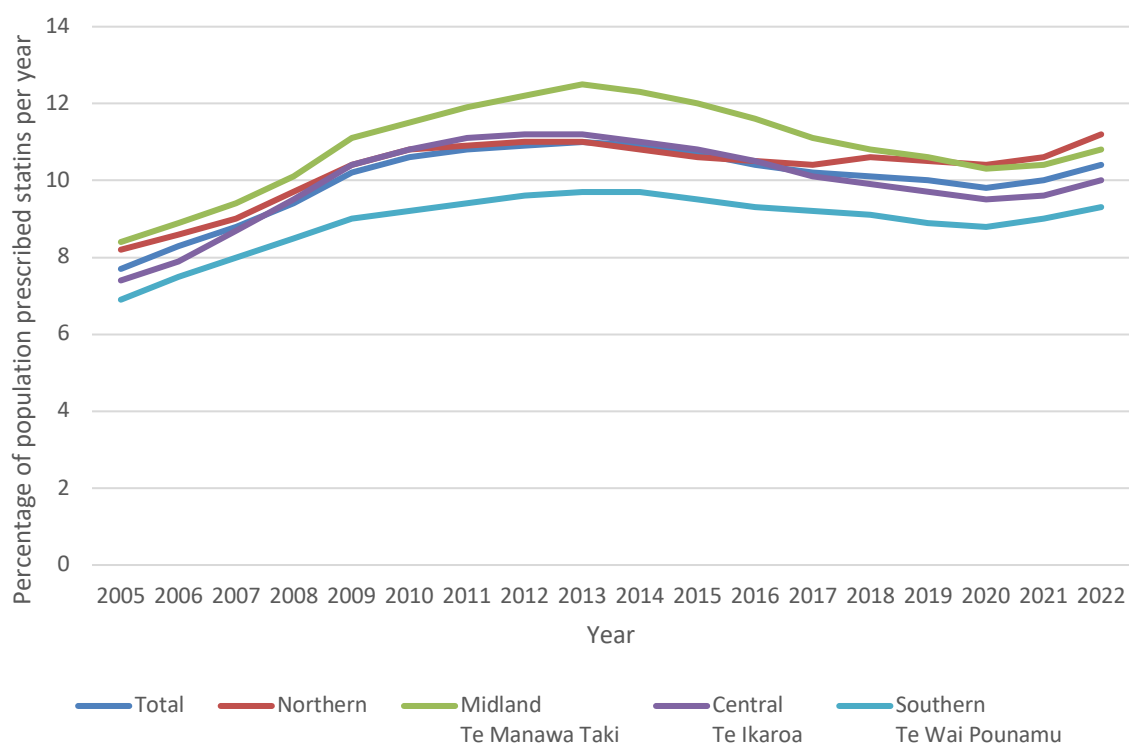
See Table A9 for data.

Figure 10. Statin prescription rate ratios to NZDep 1 – 2, by NZDep quintile, 2005 - 2022.



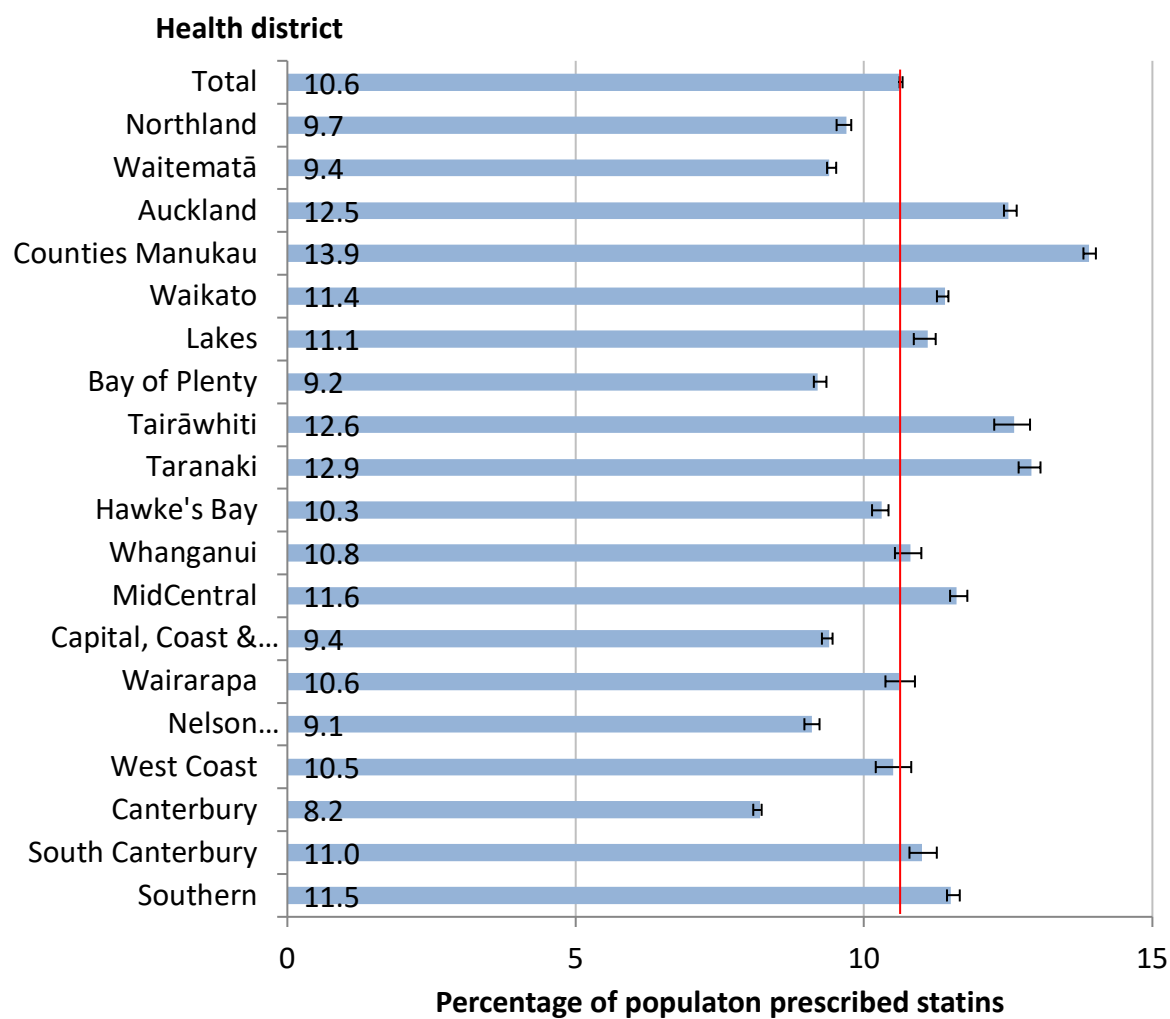
See Table A10 for data.

Figure 11. Percentage of population with statin prescription by health region, 2005 - 2022.



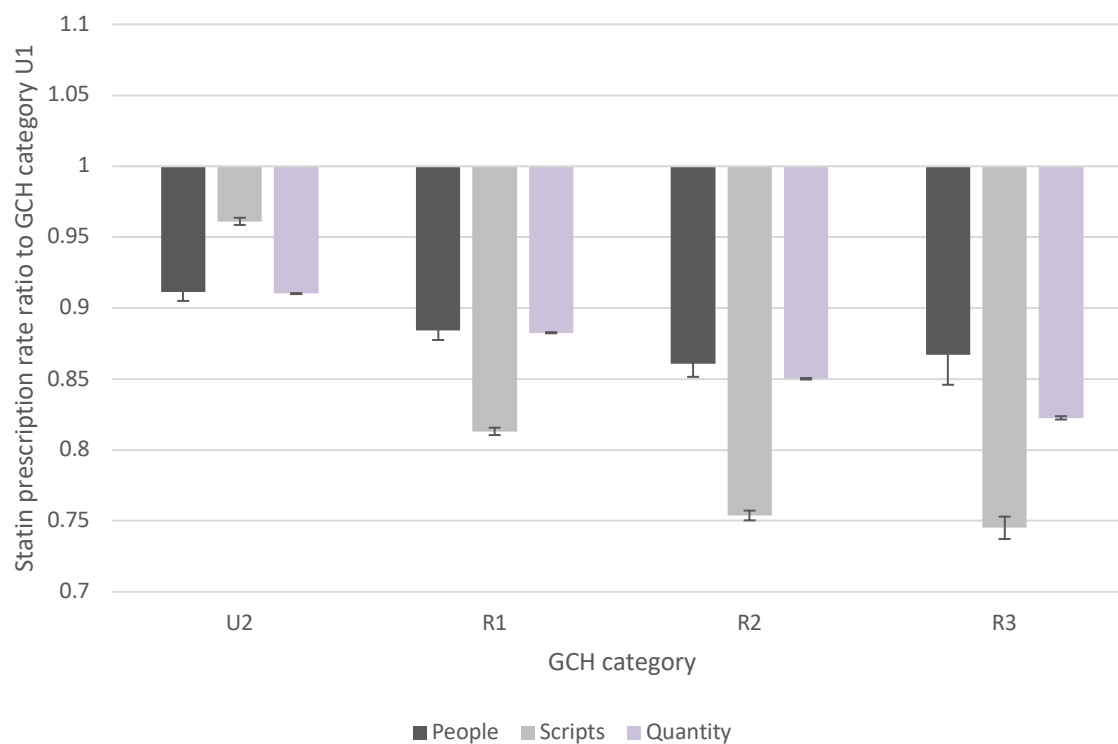
See Table A5 for data.

Figure 12. Statin prescription rates by health district, 2022.



See Table A13 for data.

Figure 13. Statin prescription rate ratios to U1 by GCH category, 2022.



See Table A14 for data.

IHD AND HEART FAILURE PREVALENCE (NZ HEALTH SURVEY)

The NZ Health Survey provides an annual measure of prevalence for ischaemic heart disease and heart failure among those aged 15 years and over, by age group, gender, ethnic group, disability status, NZDep quintile, and health region. It also reports rates over time (2011/12 – 2023/24) for all these categories except NZDep quintile. It reports differences within these categories for 2023/24, but not over time. Data are not reported in a way that allows us to meaningfully calculate these differences over time.. Rates over time by NZDep quintile and health region are reported here, but should be treated with caution as it is not clear whether they have been age-standardised over time.

ISCHAEMIC HEART DISEASE 2023/24

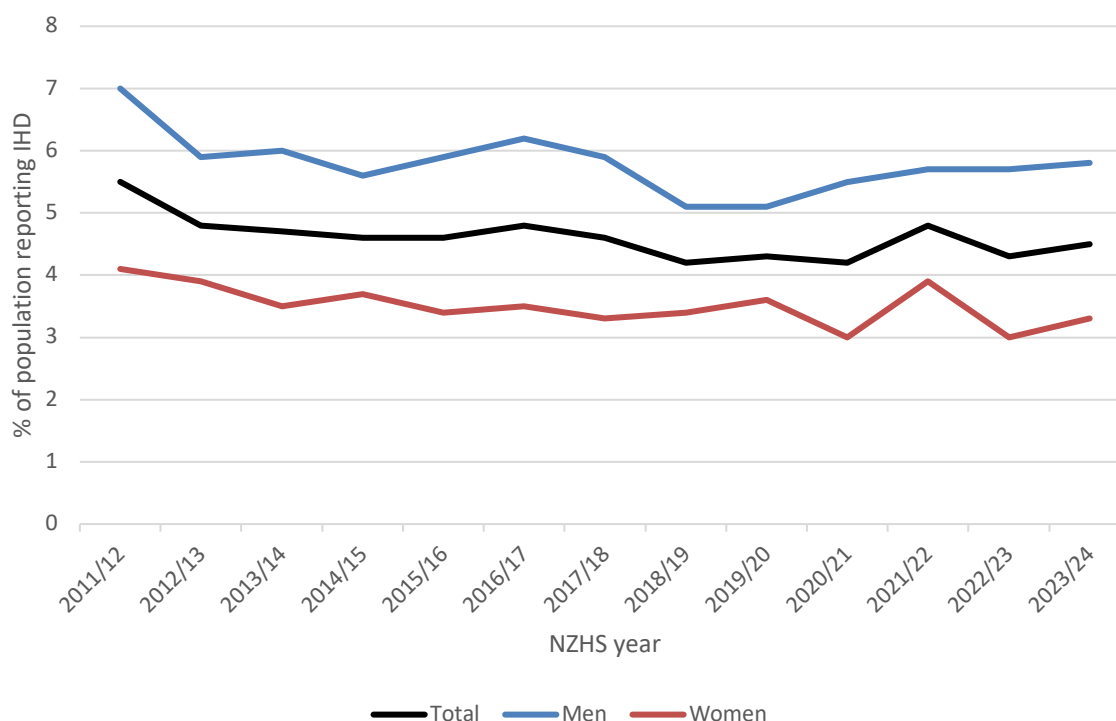
The prevalence of ischaemic heart disease in the population was estimated at 4.5% in 2023/24. The rate was consistently higher in males than females (Figure 14), but had not changed significantly since 2013/14, 2018/19, or 2022/23.

Both Māori (crude prevalence 4.6%) and Pacific Peoples (crude prevalence 5.9%) had significantly higher IHD prevalence compared to non-Māori and non-Pacific, with age-standardised rate ratios of 1.59 and 2.15, respectively. IHD prevalence among Asian Peoples was 1.6%, but survey numbers were too small to identify statistical significance. The significance of differences in previous years was not reported. Crude prevalence by ethnic group over time is shown in Figure 15.

NZDep 9 – 10 (the most deprived quintile) had a prevalence of 5.8%, which, after age-standardisation, was 2.27 times higher than NZDep 1-2 (3.0%). Significance of changes over time in prevalence or difference in prevalence by NZDep quintile was not reported.

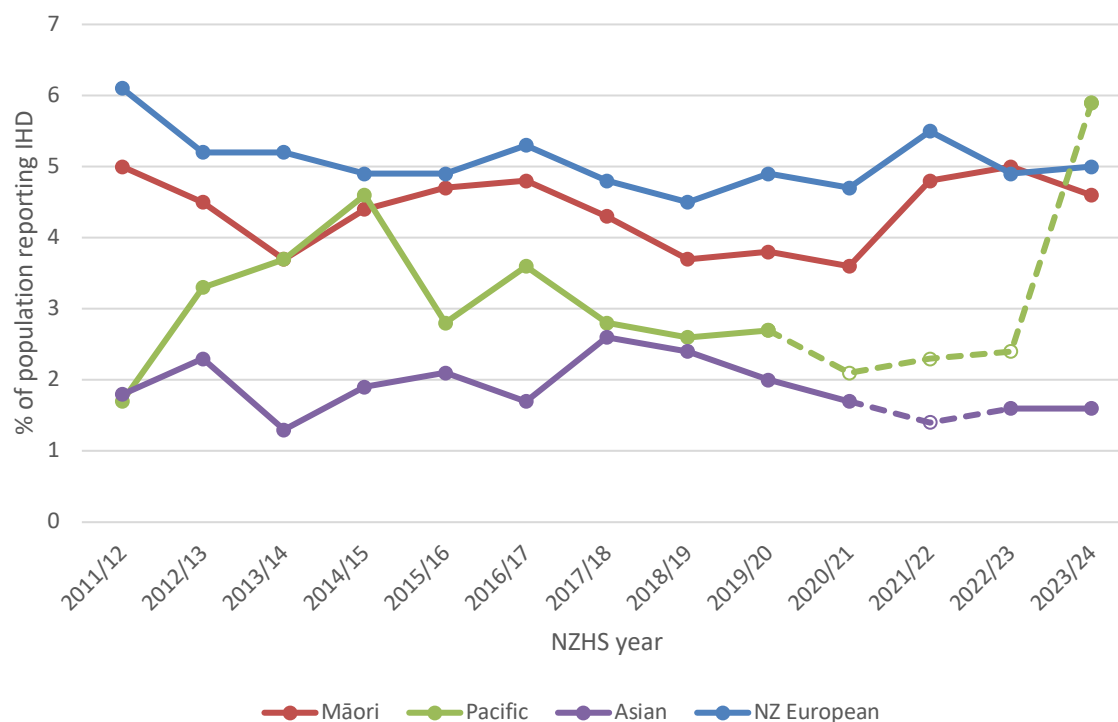
While rates varied between health regions, the statistical significance of these differences was not reported. Changes for each health region over time were not statistically significant.

Figure 14. NZHS IHD prevalence total and by gender, 2011/12 to 2023/24.



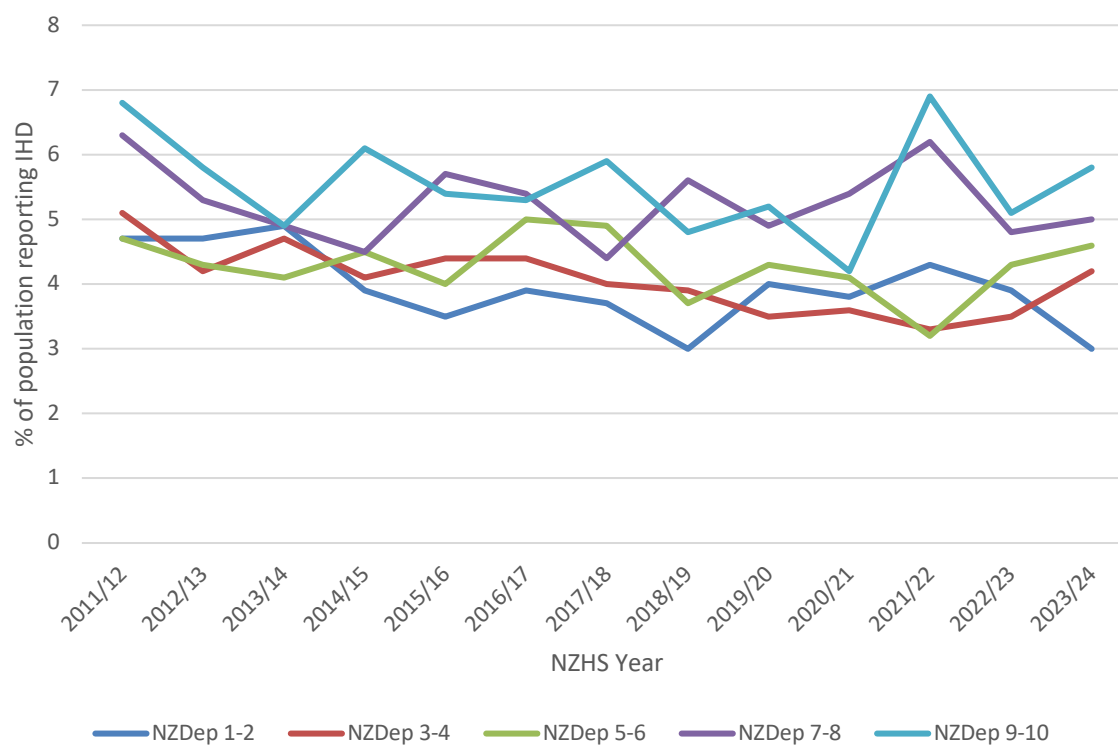
N.B. These rates are not age-standardised. See Table A15 for data.

Figure 15. NZHS IHD prevalence by ethnic group, 2011/12 to 2023/24.



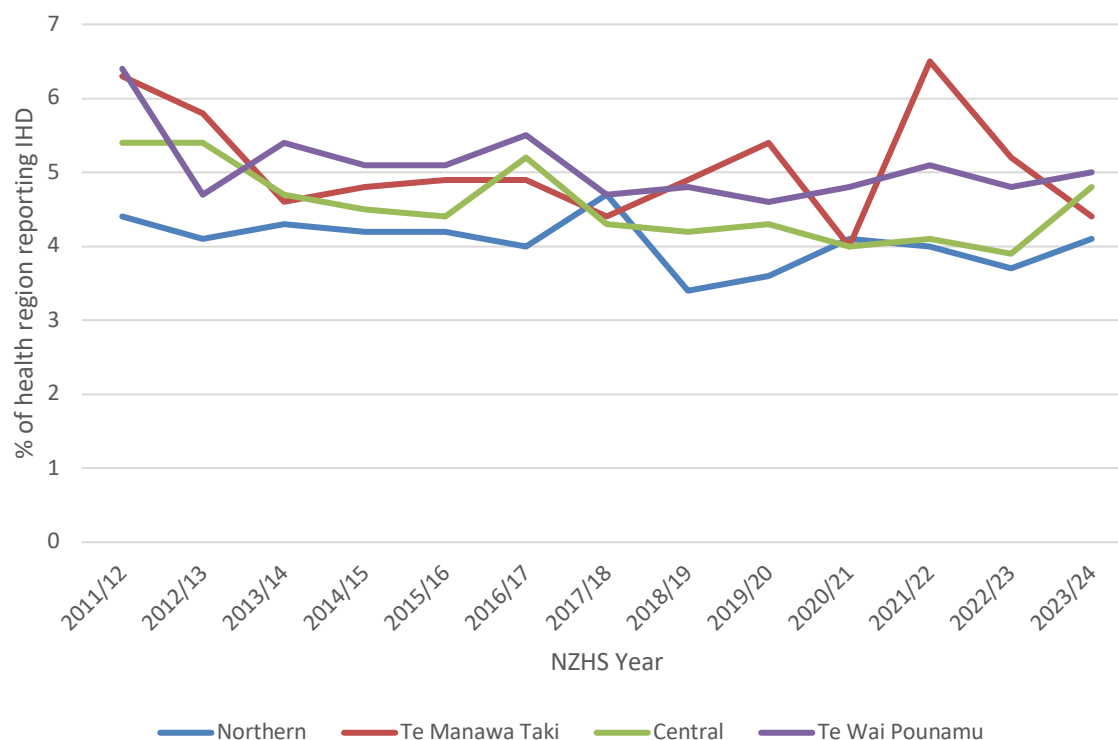
N.B. These rates are not age-standardised. Dotted lines (empty markers) are unreliable due to low numbers. See Table A16 for data.

Figure 16. NZHS IHD prevalence by NZDep quintile, 2011/12 to 2023/24.



N.B. These rates are not age-standardised. See Table A17 for data.

Figure 17. NZHS IHD prevalence by health region, 2011/12 to 2023/24.



N.B. These rates are not age-standardised. See Table A18 for data.

HEART FAILURE 2023/24

The population prevalence of heart failure was estimated at 2.5% in 2023/24 (Figure 18), a statistically significant increase of nearly a third (31%) since 2018/19.

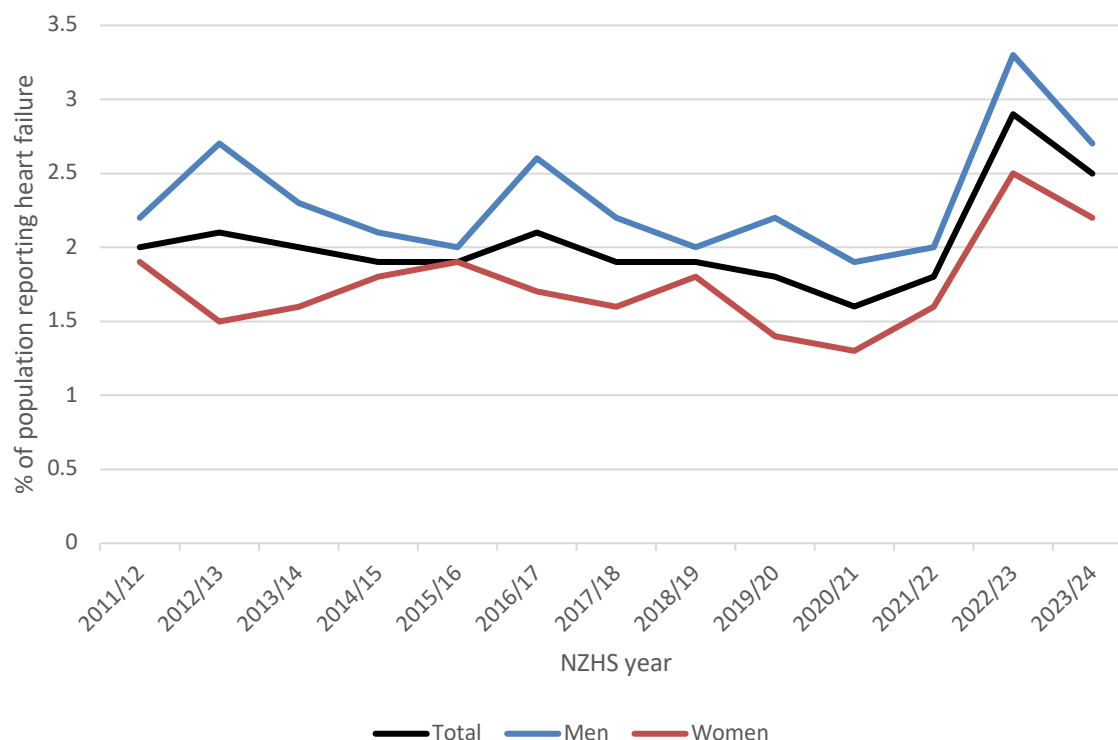
While rates appear to have been higher for males than females in all years reported, the difference between male and female rates was not reported to be significant for 2023/24, the only year for which significance test results were shown.

2023/24 prevalence of heart failure for Māori was 2.5%, which, after age-standardisation, was significantly higher than non-Māori, with a rate ratio of 1.62. Prevalence was estimated at 2.5% for Pacific Peoples, 1.1% for Asian Peoples. Neither of these were significantly different from other ethnic groups. The prevalence for NZ European was 2.6%.

3.2% of NZHS respondents in NZDep 9 – 10 had heart failure. After age-standardisation, this prevalence was 2.14 times higher than the 1.9% found for NZDep 1-2.

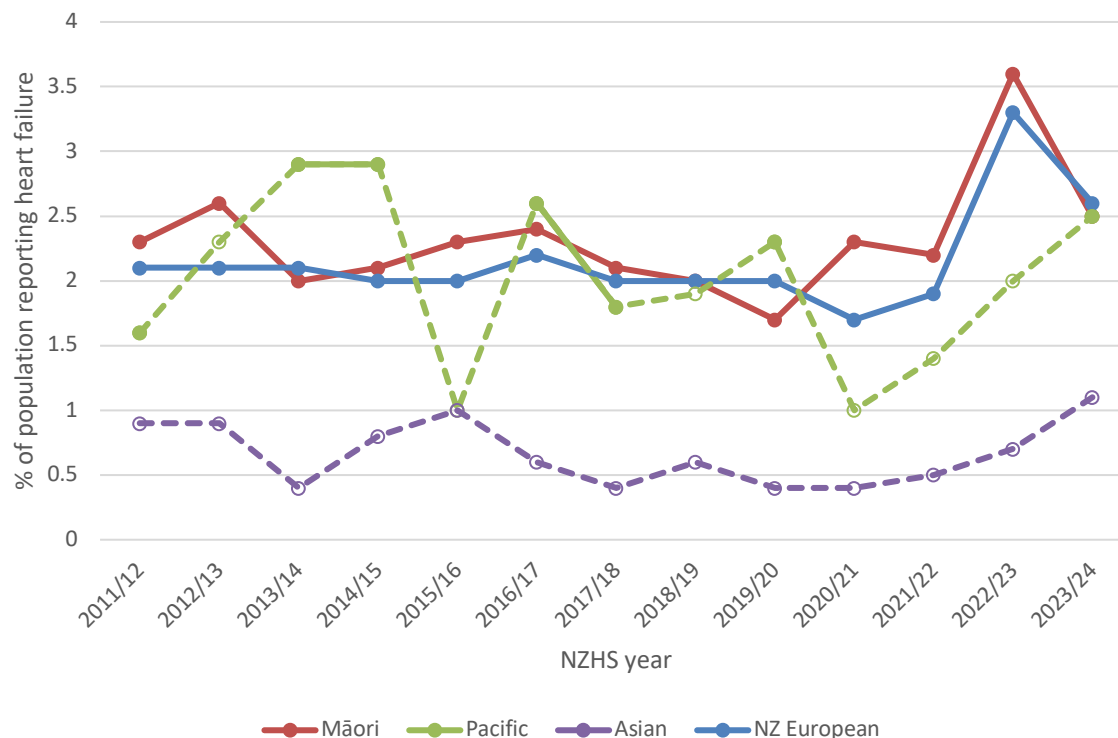
As with IHD, differences in rates between health regions were not tested for statistical significance. Prevalence rates in Te Waipounamu were significantly higher in 2023/24 than in 2013/14, but differences over time for other regions were not statistically significant.

Figure 18. NZHS heart failure prevalence total and by gender, 2011/12 to 2023/24.



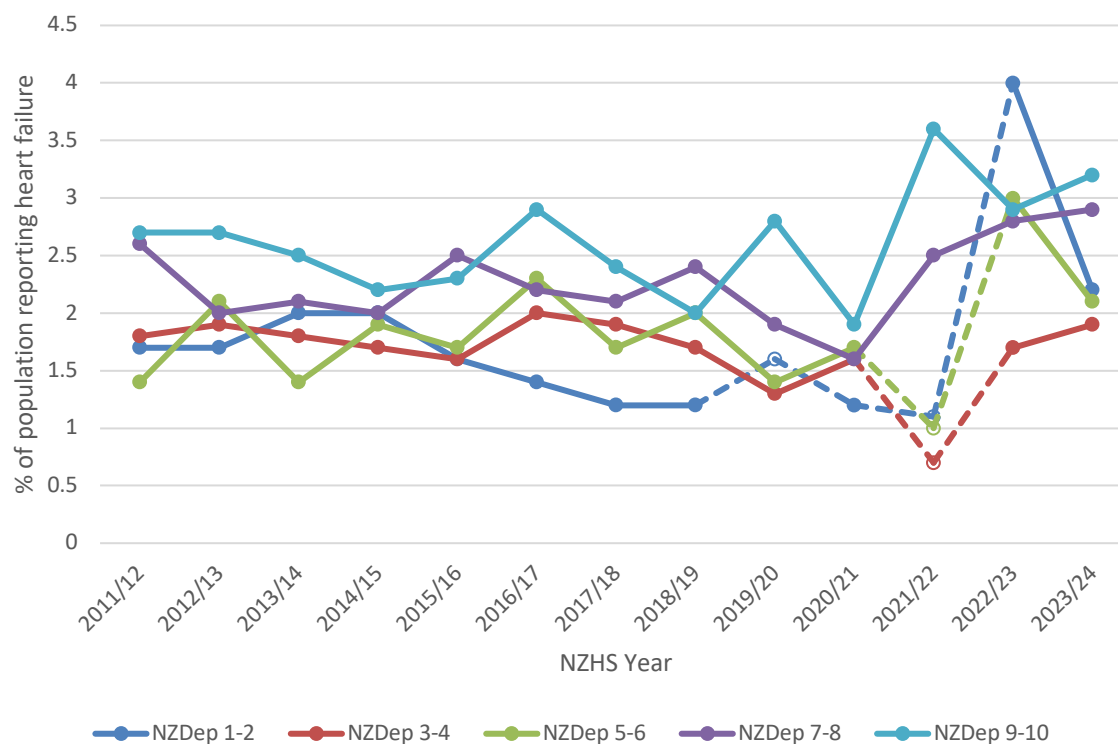
N.B. These rates are not age-standardised. See Table A19 for data.

Figure 19. NZHS heart failure prevalence by ethnic group, 2011/12 to 2023/24.



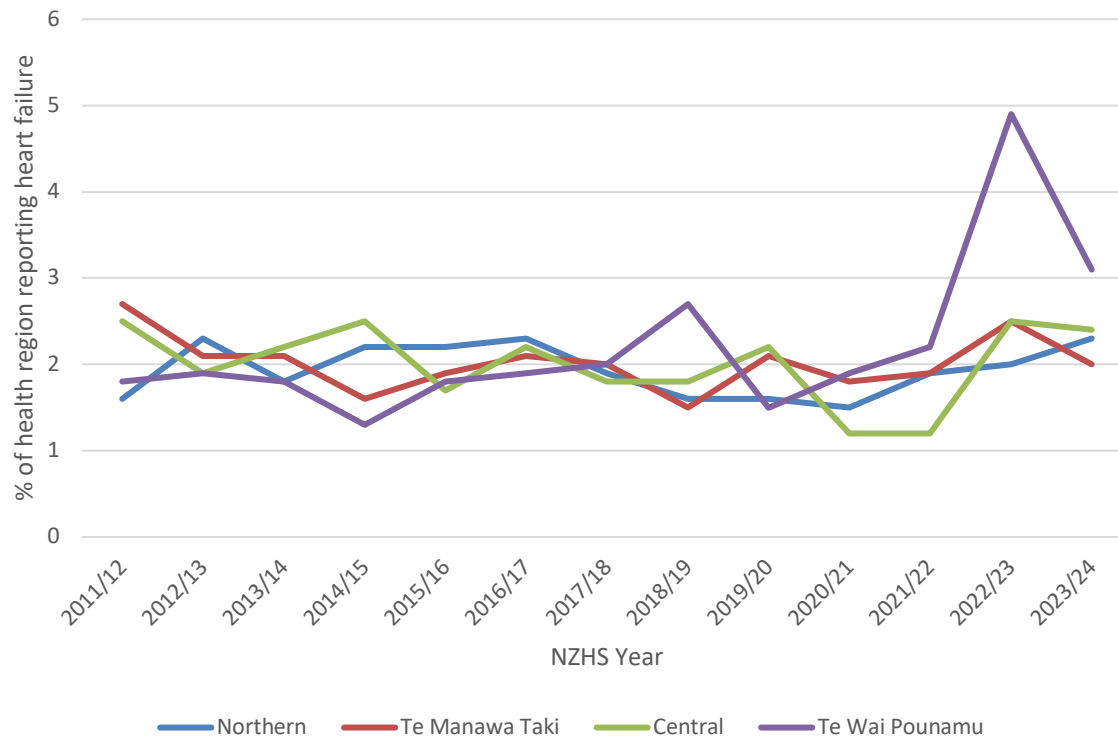
N.B. These rates are not age-standardised. Dotted lines (empty markers) are unreliable due to low numbers. See Table A20 for data.

Figure 20. NZHS heart failure prevalence by NZDep, 2011/12 to 2023/24.



N.B. These rates are not age-standardised. Dotted lines (empty markers) are unreliable due to low numbers. See Table A21 for data.

Figure 21. NZHS heart failure prevalence by health region, 2011/12 to 2023/24.



N.B. These rates are not age-standardised. See Table A22 for data.

INTERVENTION TIMELINESS

For 2023 and 2024 (see Table 6), ANZACS-QI data showed that about half the population (50.2%) had first medical contact (FMC) within 60 minutes of symptom onset. Nearly two-thirds (64.7%) of NSTEMI patients received a cardiac catheterisation procedure within 3 days of arrival at hospital (“door to cath”). For STEMI patients, similar levels were seen for accessing fibrinolytic therapy (“fibrinolysis”) within 60 minutes of FMC (61.2%), and receiving primary percutaneous coronary intervention (“primary PCI”) within 140 minutes of FMC (62.0%).

GENDER

- About half of men (52.3%) and women (50.4%) had FMC within 60 minutes of symptom onset. There was no significant difference between the two genders.
- Just under half of men (49.1%) and women (46.0%) had fibrinolysis within 60 minutes of FMC. This difference was not statistically significant.
- Less than 60% of women (59.7%) received primary PCI within 140 minutes of FMC, compared to 68.4% of men. This difference was statistically significant.
- About two-thirds of women (68.1%) received door-to-cath treatment within 3 days, compared to 71.5% of men. This difference was statistically significant.
- None of these differences changed meaningfully over time from 2015 to 2024.

AGE GROUP

There were no significant differences in the timeliness of treatment or intervention by age group, except that the likelihood of receiving door-to-cath within 3 days decreased as age increased.

ETHNIC GROUP

Controlling for age group and gender, and compared to European/Other, Māori were:

- As likely to have FMC within 60 minutes of symptom onset. This had not changed over time.
- Significantly less likely to receive door-to-cath within 3 days. This inequity grew over time.
- Significantly less likely to receive fibrinolysis within 60 minutes of FMC. This inequity grew over time.
- Significantly less likely to receive primary PCI within 140 minutes of FMC. There was no change over time in this inequity.

Pacific Peoples were:

- Significantly less likely to have FMC within 60 minutes of symptom onset.
- Significantly less likely to achieve door-to-cath within 3 days.
- As likely to receive fibrinolysis within 60 minutes of FMC.
- As likely to receive primary PCI within 140 minutes of FMC.
- None of these differences changed significantly over time.

Asian Peoples were:

- Significantly less likely to have FMC within 60 minutes of symptom onset.
- As likely to receive door-to-cath within 3 days
- As likely to receive fibrinolysis within 60 minutes of FMC
- Significantly more likely to have received primary PCI within 140 minutes of FMC
- None of these differences changed significantly over time.

HEALTH REGION

Compared to people in other regions, controlling for age, gender, and ethnicity,

- People in the Central region were significantly more likely to receive FMC within 60 minutes of symptom onset. Other regions were not significantly different.
- People in Northern and Southern regions were significantly more likely to receive door-to-cath within 3 days, but people in Midland and Central were significantly less likely than other regions.
- There was no significant difference in the likelihood of receiving fibrinolysis within 60 minutes of FMC.
- People in the Midland region were significantly less likely to receive primary PCI within 140 minutes of FMC, those in the Central region were significantly more likely, and those in Northern and Southern regions were not significantly different from the rest of the country.
- People in the Midland region were significantly less likely than people in other regions to receive fibrinolysis or primary PCI within specified timeframes. There was no significant difference for other regions.

DHBS

Compared to people in other DHBS, controlling for age, gender, and ethnicity,

- People in Northern and Southern DHBS were significantly less likely to have FMC within 60 minutes of symptom onset. Tairāwhiti and Capital and Coast were significantly more likely.
- People in Auckland, Bay of Plenty, Nelson Marlborough, Canterbury, and Southern DHBS were significantly more likely to receive door-to-cath within 3 days. Likelihood for MidCentral, West Coast, and South Canterbury DHBS was not significantly different. For all other DHBS, door-to-cath within 3 days was significantly less likely.
- People in Nelson Marlborough DHB were more likely to receive fibrinolysis within 60 minutes of FMC.
- Northland, Waikato, MidCentral, and South Canterbury were significantly less likely to receive primary PCI within 140 minutes of FMC; Hutt Valley, Nelson Marlborough, were significantly more likely.

CHANGES IN TIMELINESS

For 2023 and 2024, compared to 2015 to 2022, there was no significant change in the likelihood of access to FMC within 60 minutes of symptom onset, except for people aged younger than 55 years, where the timeliness of accessing FMC deteriorated.

For NSTEMI patients, the likelihood of achieving door-to-cath within three days deteriorated significantly for almost all population groups except people aged 85 years and over, Pacific Peoples, Asian Peoples, and people in Te Waipounamu health region, for whom results were non-significant; and people in Northland DHB, for whom timeliness improved.

On the other hand, access to fibrinolysis within 60 minutes of FMC improved significantly for most demographic groups, except for people aged 85 years and older; Pacific Peoples; Asian Peoples; and people in the Northern health region, for whom results were non-significant.

While the national rate for access to primary PCI within 140 minutes of FMC deteriorated, no results for individual demographic reached statistical significance, except for Midland health region.

Table 6. ANZACS-QI percentages of people receiving treatment within specified timeframes, 2023-2024, by age group, gender, ethnic group, and health region.

	Symptoms to FMC within 60 minutes	NSTEACS door to cath within 3 days	FMC to fibrinolysis within 60 minutes	FMC to primary PCI within 140 minutes	FMC to fibrinolysis/ primary PCI within 60/140 minutes
Age group ¹	%	%	%	%	%
<55 years	45.6%	71.5%	64.7%	64.2%	64.3%
55 - 64 years	53.3%	67.1%	57.8%	67.0%	64.5%
65 - 74 years rate	50.3%	62.8%	66.3%	62.4%	63.6%
75 - 84 years	50.5%	60.5%	57.9%	53.4%	54.7%
85+ years	51.4%	54.3%	52.8%	55.1%	54.4%
Gender²					
Male rate	50.8%	65.4%	59.7%	64.2%	62.9%
Females	48.6%	63.3%	65.1%	56.0%	58.8%
Ethnic group²					
Euro/Other rate	51.6%	66.1%	61.5%	61.3%	61.3%
Māori	48.7%	56.2%	58.4%	50.3%	52.8%
Pacific	46.1%	62.3%	42.9%	64.9%	63.6%
Asian	45.5%	68.4%	68.0%	73.7%	73.1%
Health region³					
National rate	50.2%	64.7%	61.2%	62.0%	61.8%
Northern	47.0%	68.9%	53.9%	65.4%	64.6%
Midland	52.2%	49.8%	63.4%	40.3%	52.6%
Central	55.6%	55.6%	57.2%	66.0%	62.4%
Te Waipounamu	48.8%	82.0%	65.1%	63.2%	63.7%

Non-percentage results show how much more or less likely people in each group were to receive timely treatment compared to the reference group. For example, -0.08 means the group was 8% less likely to get timely treatment than the reference group, after accounting for age, gender, and ethnicity.

Grey cells are baseline rates. Green/red cells are significantly better/worse than baseline ($p < 0.05$). Blue shaded cells had <10 total patients (treated or untreated)

1. Models include age groups (as shown), gender, and ethnic group.

2. Models include 5-year age group (to 95 – 99), gender, and ethnic group.

3. Models include 5-year age group (to 95-99), gender, ethnic group and health region

Table 7. ANZACS-QI percentages of people receiving treatment within specified timeframes, 2023- 2024, by DHB.

DHB ¹	Symptoms to FMC within 60 minutes %	NSTEACS door to cath within 3 days %	FMC to fibrinolysis within 60 minutes %	FMC to primary PCI within 140 minutes %	FMC to fibrinolysis/ primary PCI within 60/140 minutes %
National rate	50.2	64.7	61.2	62.0	61.8
Northland	43.8	74.1	52.3	41.1	46.0
Waitemata	49.8	58.1	100.0	63.7	63.9
Auckland	47.1	82.2	60.0	70.9	70.6
Counties Manukau	46.2	66.3	50.0	68.6	68.4
Waikato	53.1	43.1	57.5	42.6	46.0
Bay of Plenty	51.8	71.7	63.2	34.5	55.2
Taranaki	52.5	39.0	61.0	0.0	56.8
Lakes	39.3	35.5	73.0	33.3	70.0
Tairāwhiti	80.0	28.5	66.7	0.0	62.5
Whanganui	65.9	27.2	66.7	0.0	60.6
MidCentral	56.1	67.7	56.8	22.7	49.0
Hawkes Bay	45.8	42.5	49.1	66.7	50.0
Capital and Coast	59.7	75.5	56.3	65.7	64.8
Hutt Valley	53.3	35.7	50.0	79.1	78.5
Wairarapa	47.4	30.8	68.2	66.7	67.7
Nelson Marlborough	50.4	91.4	71.7	77.1	73.9
West Coast	59.1	65.0	33.3	60.0	47.4
Canterbury	51.2	83.6	64.3	63.7	63.7
South Canterbury	51.1	72.1	74.2	10.0	58.5
Southern	41.2	79.1	60.0	62.1	61.2

Grey cells are baseline rates. Green/red cells are significantly better/worse than baseline ($p < 0.05$). Blue shaded cells had < 10 total patients (treated or untreated). Model includes 5 year age group (to 95 – 99), gender, ethnic group and DHB.

Table 8. ANZACS-QI changes in treatment timeliness, 2015 – 2022 vs 2023/2024.

	Change				
	Symptoms to FMC within 60 minutes	NSTEACS door to cath within 3 days	FMC to fibrinolysis within 60 minutes	FMC to primary PCI within 140 minutes	FMC to fibrinolysis/primary PCI within 60/140 minutes
Age group¹					
<55 years	-15%	-7%	+42%	-7%	-4%
55 - 64 years	+1%	-9%	+30%	-7%	-1%
65 - 74 years rate	-1%	-11%	+46%	-4%	+7%
75 - 84 years	+1%	-9%	+33%	-13%	-2%
85+ years	-8%	-12%	+14%	+13%	+13%
Gender²					
Male rate	-3%	-10%	+29%	-7%	0%
Females	-5%	-8%	+62+	-9%	+6%
Ethnic group²					
Euro/Other rate	-3%	-9%	+35%	-7%	+3%
Māori	-5%	-13%	+62%	-14%	+4%
Pacific	-2%	-5%	-11%	-9%	-9%
Asian	-7%	-7%	+59%	-5%	-4%
Health region					
National rate	-3%	-9%	+37%	-7%	+1%
Northern	-4%	+1%	+30%	-6%	-5%
Midland	-2%	-24%	+50%	-25%	+9%
Central	+2%	-19%	+27%	-5%	+7%
Southern	-6%	-1%	+36%	-6%	+3%

Green/red cells were significantly better/worse in 2023/24 than in 2015 to 2022.

Changes by DHB generally trended in the same direction as above, and were non-significant, except for the following:

Health district

Northland	+19%		
Waitemata	-12%		
Waikato	-29%		
Bay of Plenty	-16%	+81%	
Taranaki	-31%		
Lakes	-35%	+74%	+76%
Tairāwhiti	-51%		
Whanganui	-49%	+100%	+78%
Hawkes Bay	-27%		
Capital and Coast	-14%		
Hutt Valley	-42%		
Wairarapa	-52%		

HOSPITALISATIONS

LARGEST CATEGORIES OF HEART DISEASE HOSPITALISATION

As detailed in the indicator selection section, the four largest heart disease hospitalisation ICD-10 codes (see Table A1 for full list) were I21 (AMI); I20 (Angina pectoris); I48 (AFF); and I50 (Heart failure). See Table 9 for hospitalisation numbers.

Table 9. Hospitalisation largest conditions and totals 2000 – 2022, 2000, and 2022..

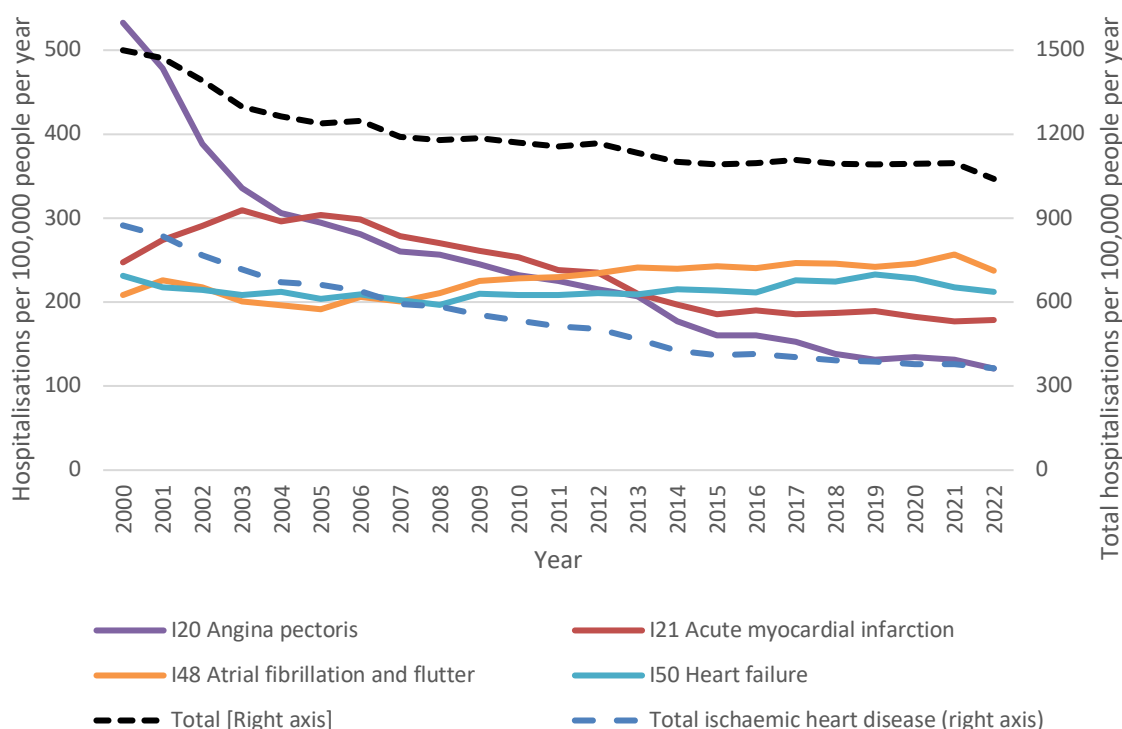
ICD-10 code (description)	Hospitalisations 2000 - 2022	2000	2022
Total heart disease	1,090,684	45,577	54,020
Total ischaemic heart disease (IHD)	480,715	26,409	18,679
I20 Angina pectoris	209,113	16,091	6,627
I21 Acute myocardial infarction (AMI)	213,138	7,472	9,032
I48 Atrial fibrillation and flutter (AFF)	212,857	6,336	12,130
I50 Heart failure	196,990	6,868	11,273

N.B. These numbers exclude transfers and same-day readmissions. Conditions in bold are detailed in subsequent sections.

The relative contributions of these codes to total heart disease changed over the study period (Figure 22). Angina pectoris was the most frequent single code cause of heart disease hospitalisation in 2000, but by 2022 had fallen to fourth, while AFF rates had risen (slightly) to become the most common single cause of heart disease hospitalisation, having started as the least frequent of the four codes. AMI rates initially rose but have since declined; and heart failure rates have generally remained static.

As angina is a subset of IHD, it is not described further in the main report, though disaggregated hospitalisation data are available in Appendix 2.

Figure 22. Total and largest categories of heart disease hospitalisation rates per 100,000 people per year, 2000 to 2022.



See Table A24, Table A36, Table A48, Table A60, Table A72 and Table A84 for data.

AGE

The age distributions of angina, AMI, and AFF were roughly similar, with median ages of 69 to 70 years and peaks at 74 years, but heart failure hospitalisations generally happened at older ages, with a median of 78 years and a maximum of 80 years (Figure 23).

GENDER

Hospitalisation rates were significantly lower for females than males for all conditions (Figure 24) but particularly so for ischaemic heart conditions.

ETHNIC GROUP

For all indicator conditions, Māori and Pacific Peoples' hospitalisation rates were significantly higher than NZ European/Other; while Asian Peoples' hospitalisation rates were lower (Figure 25).

SOCIO-ECONOMIC DEPRIVATION

Hospitalisation rates increased with increasing deprivation for all indicator conditions – however, for AFF there was no significant difference across the first four quintiles, but rates were significantly higher in NZDep 9-10 than NZDep 1-2.

GEOGRAPHICAL CLASSIFICATION FOR HEALTH (GCH)

Rates of AMI were higher in GCHs outside large urban areas (U1) than within them. AFF and heart failure were also higher in secondary urban areas (U2). Differences between U1 and rural areas (R1, R2, R3) were not significant for AFF or heart failure.

Figure 23. Age distribution and median age for total, IHD, and four largest categories of heart disease hospitalisations, 2018 - 2022.

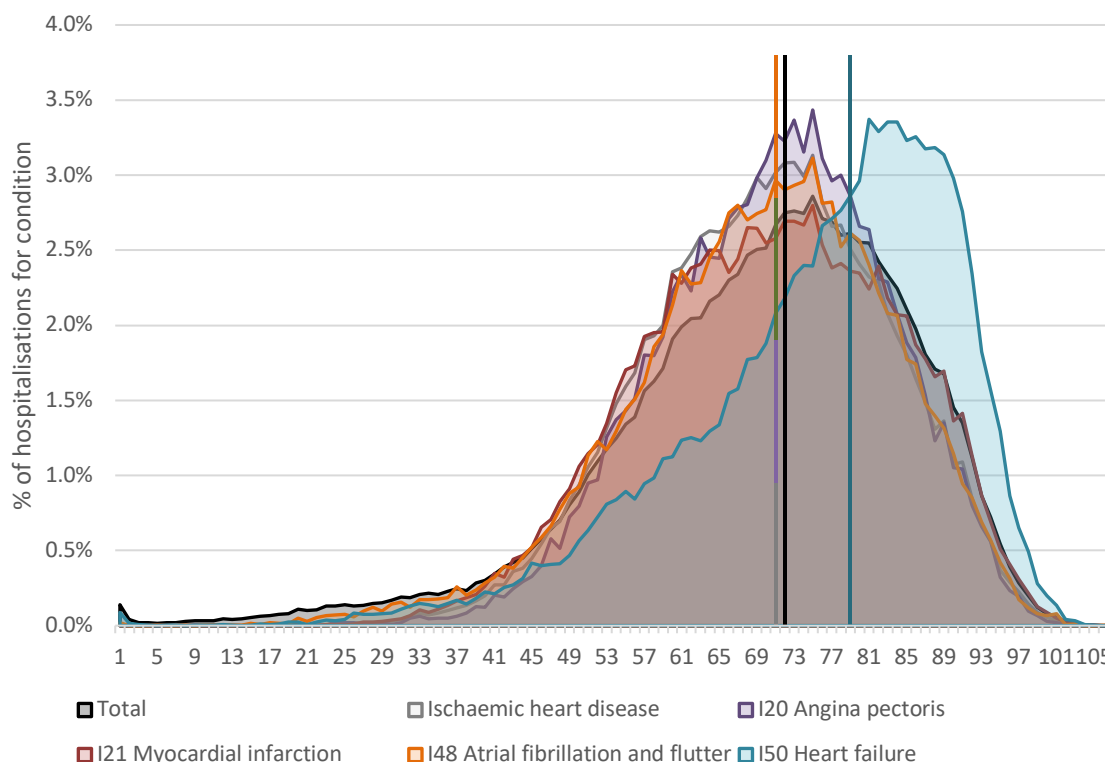
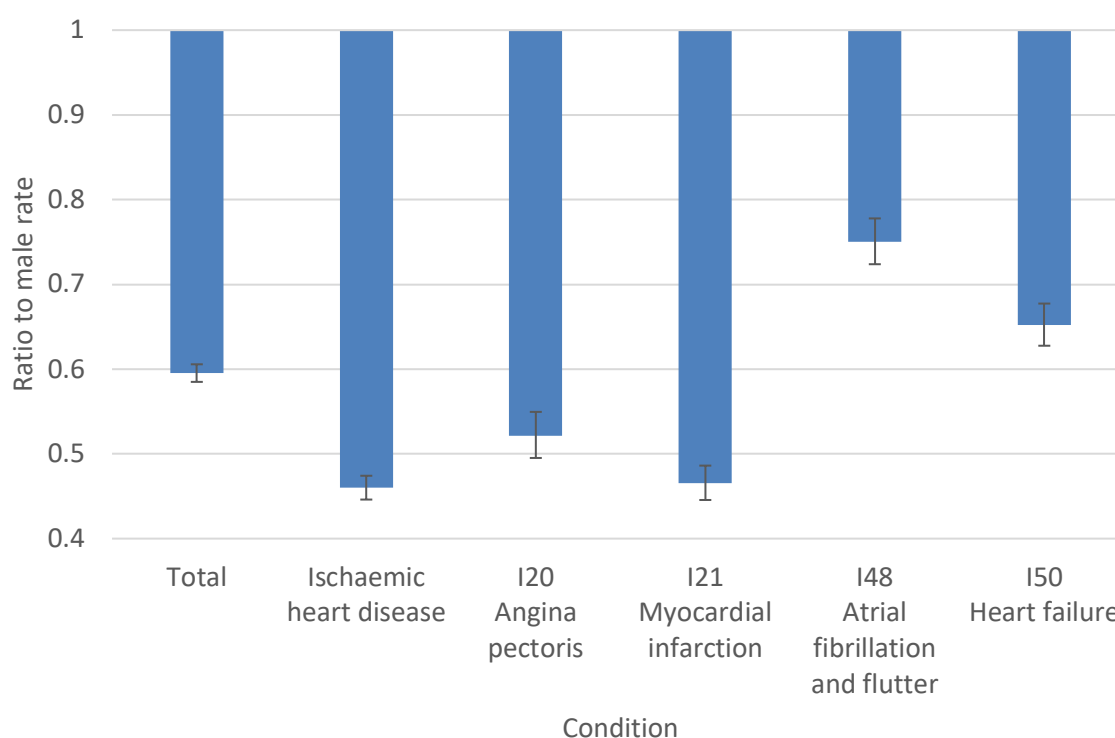
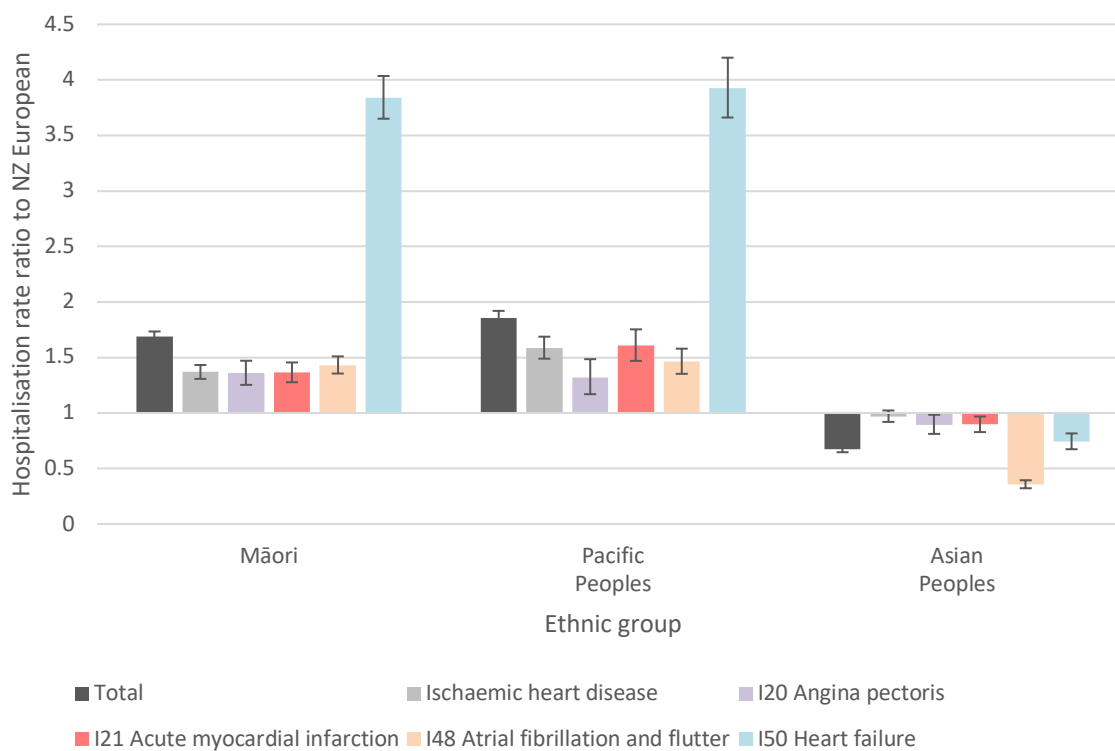


Figure 24. Female to male rate ratios for total, IHD, and four largest categories of heart disease hospitalisations, 2022.



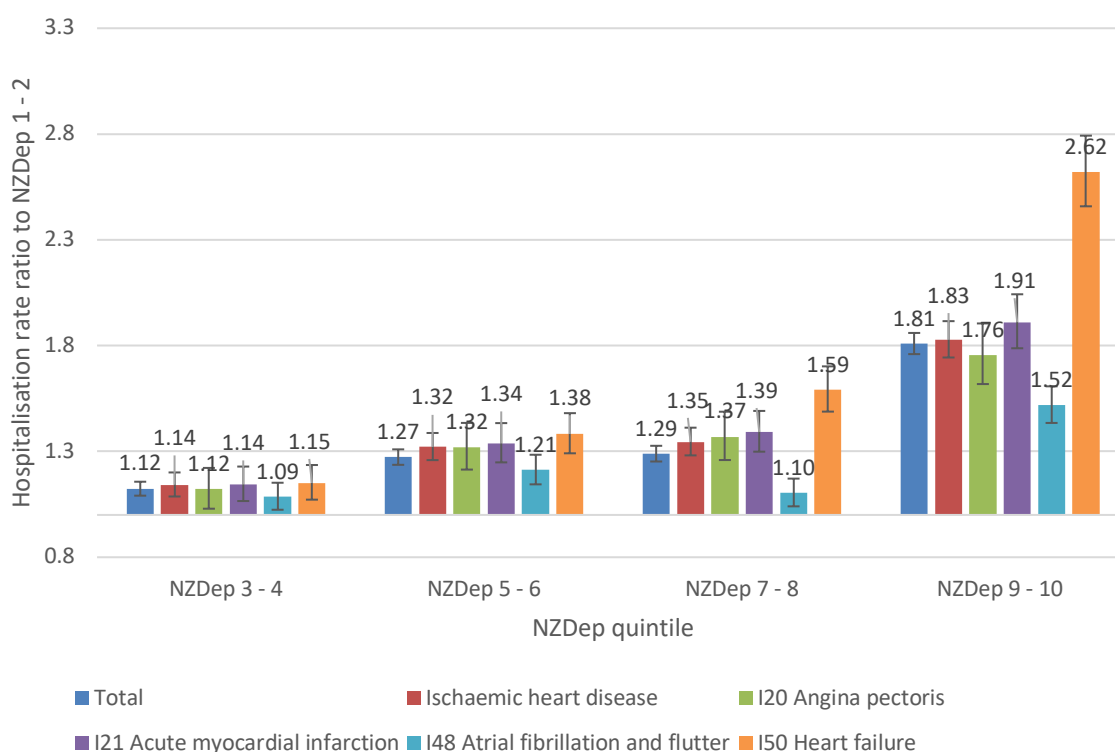
See Table A23 for data.

Figure 25. Ethnic group rate ratios for total, IHD, and four largest categories of heart disease hospitalisations, 2022.



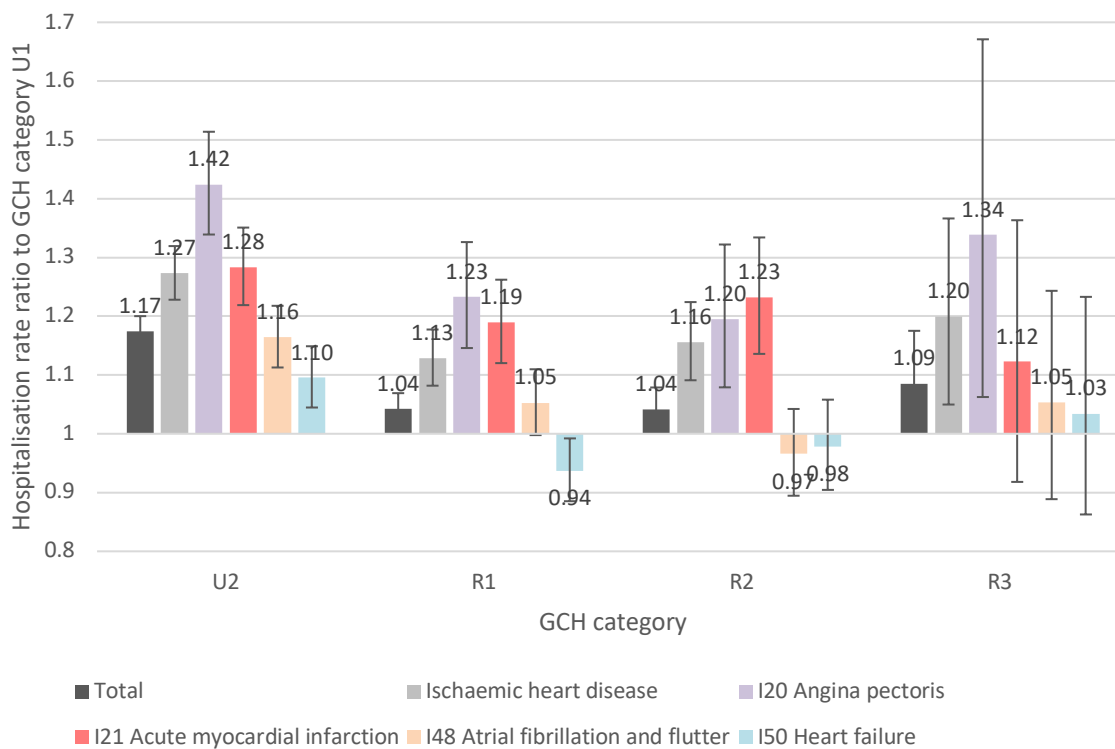
See Table A28, Table A40, Table A52, Table A64, Table A76, and Table A88 for data.

Figure 26. Total, IHD, and four largest categories of heart disease hospitalisation rate ratios to NZDep 1 - 2, 2022.



See Table A31, Table A43, Table A67, Table A79, and Table A91 for data.

Figure 27. Total, IHD, and four largest categories of heart disease hospitalisation rate ratios to GCH 2018 category U1, 2022.



See Table A35, Table A47, Table A59, Table A71, Table A83, and Table A95 for data.

TOTAL HOSPITALISATIONS

LITERATURE

Total heart disease was covered in only one publication: Scragg et al 2017²⁴ found an annual incidence of 7.7% in the placebo group for a Vitamin D trial among 50 to 84 year olds. Studies of coronary heart disease (which includes more CVD than IHD, but less than total CVD) found varying, non-comparable risks across different age groups, sexes, and ethnic groups.^{4 5 25-28}

OVERALL RATES

From 2000 to 2022 there were 1,090,684 hospitalisations for heart disease. Hospitalisation rates reduced from 1499.7 hospitalisations per 100,000 people per year in 2000, to 1040.3 in 2022.

GENDER

Heart disease hospitalisation rates declined for both males and females over the study period. The rate ratio of female to male heart disease hospitalisations remained much the same, at 0.62 in 2000, and 0.60 in 2022.

Females hospitalised for heart disease were also generally older than males. The median age of heart disease hospitalisation for females was 73, higher than the male median of 69 (Figure 29).

ETHNIC GROUP

Total heart disease hospitalisation rates have declined since 2000 for all ethnic groups except Pacific Peoples', whose rates have increased slightly. Rates are now highest among Pacific Peoples, followed by Māori; and lowest among Asian people (Figure 30).

As shown in Figure 31, heart disease hospitalisation occurs earlier for Māori (median age 60 years), Pacific Peoples (59 years), and Asian Peoples (64 years) than NZ European/Other (73 years).

SOCIO-ECONOMIC DEPRIVATION

Heart disease distribution showed greatest reduction in the NZDep 5 – 6 and NZDep 7 – 8 quintiles, and also some reduction in NZDep 9 – 10, particularly over the last decade. However, rates increased for people in NZDep 1 – 2. Although there was less difference between rates in NZDep 1 – 2 and NZDep 9 – 10 in 2022 (rate ratio 1.54) than in 2012 (rate ratio 2.38, part of the reduction is due to rates worsening in NZDep 1 – 2).

The median age for the two least wealthy quintiles was lower than the median age for the three wealthier quintiles. There was less difference in heart disease hospitalisation age distributions across NZDep quintiles (Figure 33) than across ethnic groups (Figure 31).

MEDIAN AGE, ETHNICITY, AND SOCIOECONOMIC DEPRIVATION

Ethnicity was a more important predictor than NZDep for the age-distribution of heart disease hospitalisations (Figure 34).

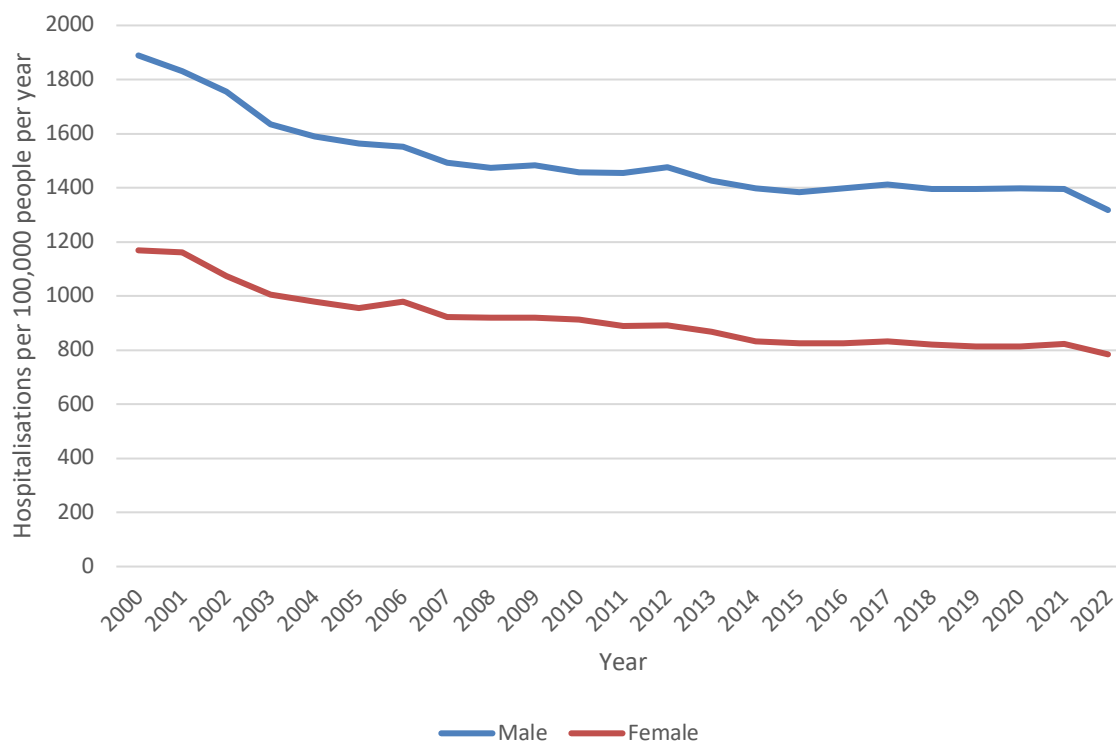
HEALTH REGIONS

Total heart disease rates were higher than the national rate in Midland/Te Manawa Taki, lower in Southern/Te Waipounamu, and not consistently higher or lower in Central/Te Ikaroa or Northern health regions (Figure 36)

HEALTH DISTRICTS

Heart disease hospitalisation rates were highest in the Whanganui health district, and lowest in Canterbury health district. All differences from the national average were significant except for Counties Manukau and MidCentral (Figure 37).

Figure 28. Total heart disease hospitalisation rates by gender, 2000 - 2022 .



See Table A25 for data.

Figure 29. Total heart disease hospitalisation age distribution by gender, 2018 - 2022 .

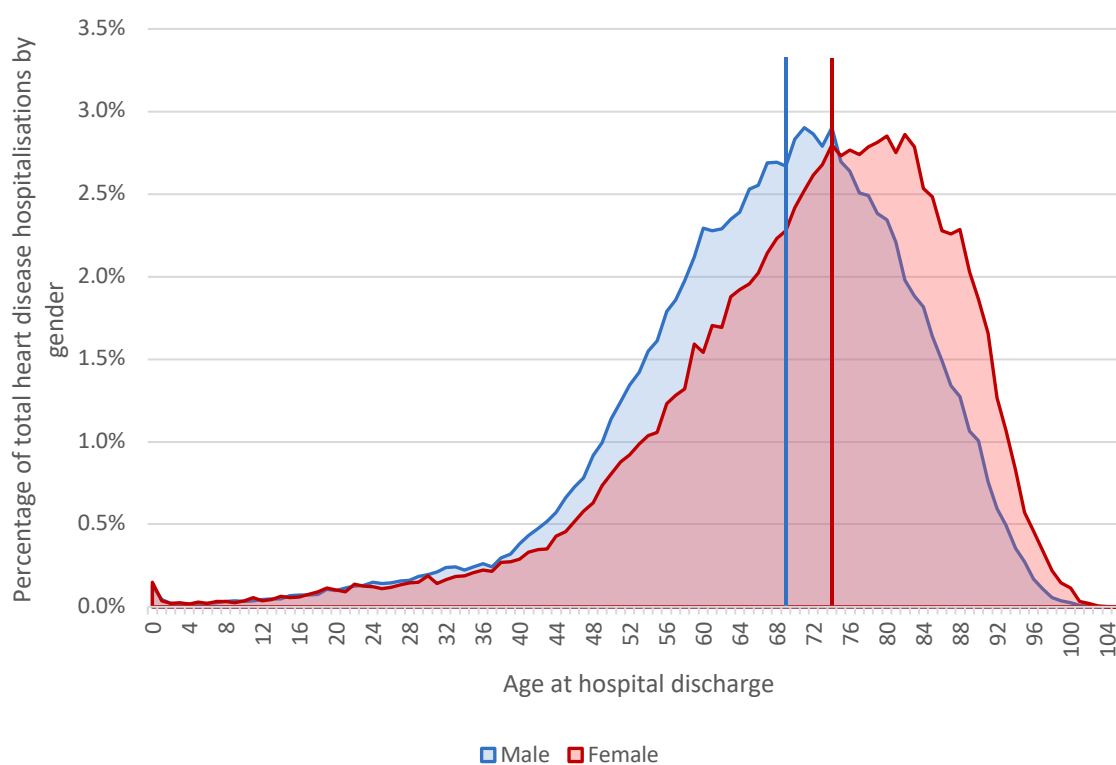
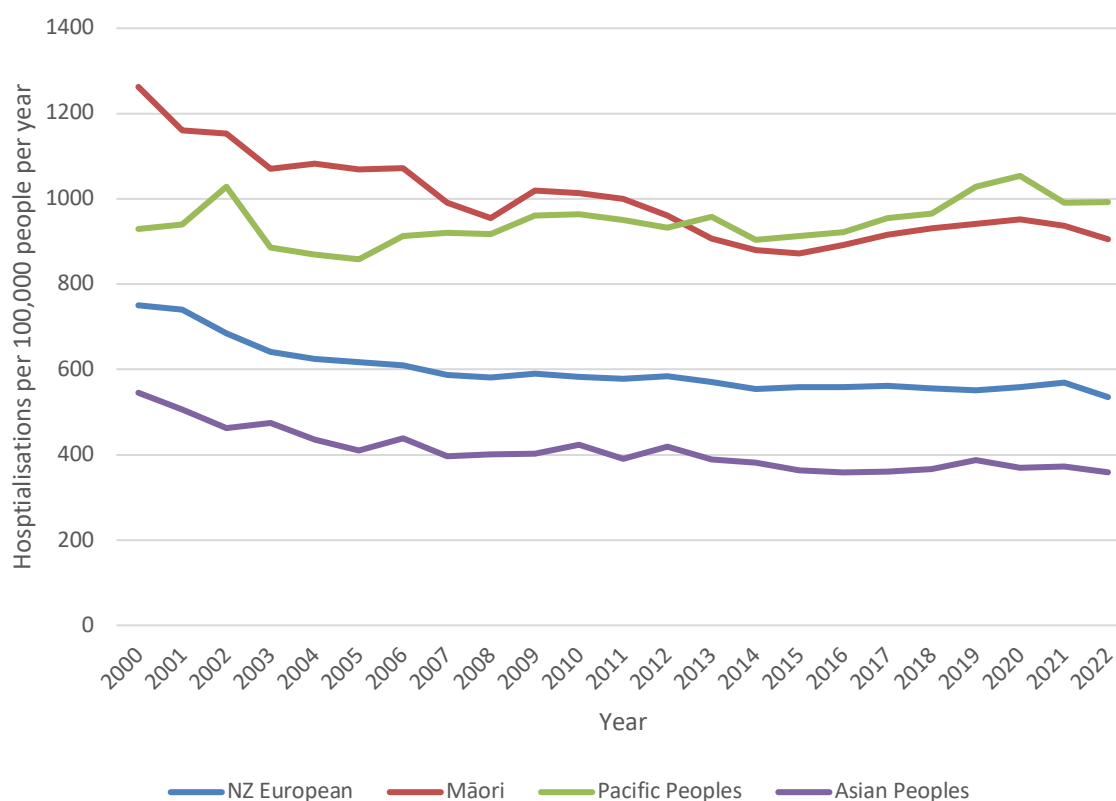


Figure 30. Total heart disease hospitalisation rates per 100,000 people per year by ethnic group, 2000 to 2022.



See Table A27 for data.

Figure 31. Total heart disease hospitalisations by year of age as a percentage of each ethnic group's total heart disease hospitalisations, 2018 – 2022.

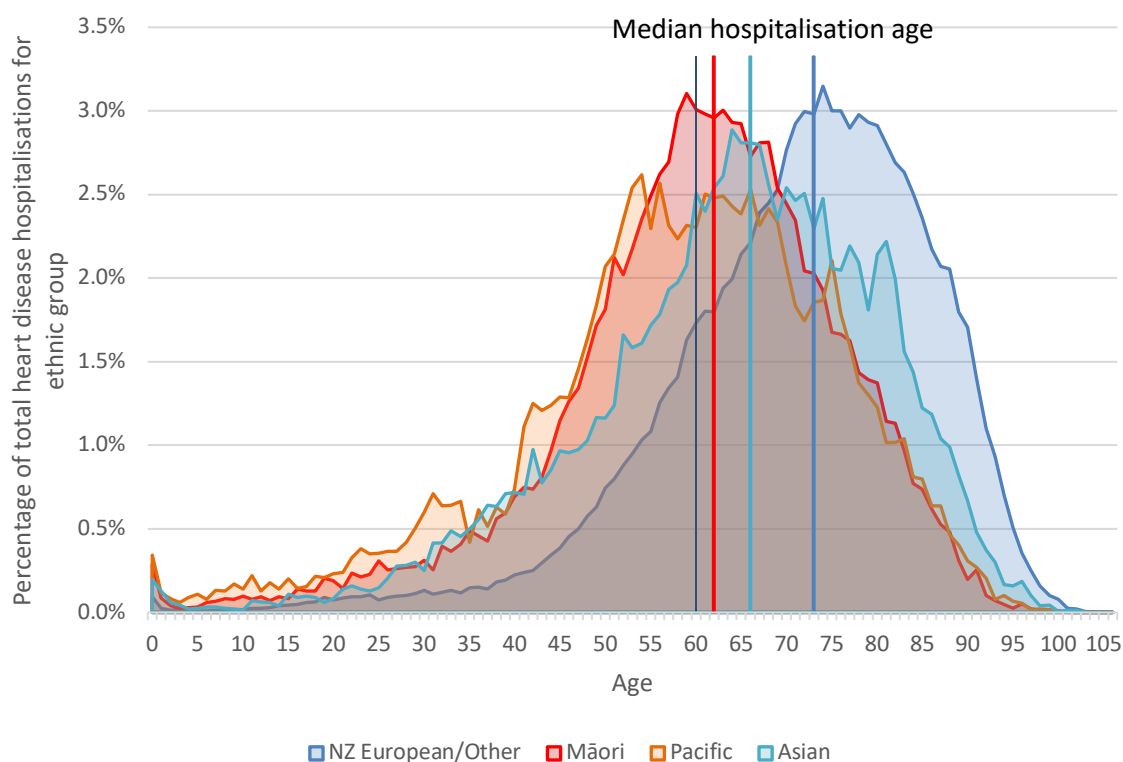
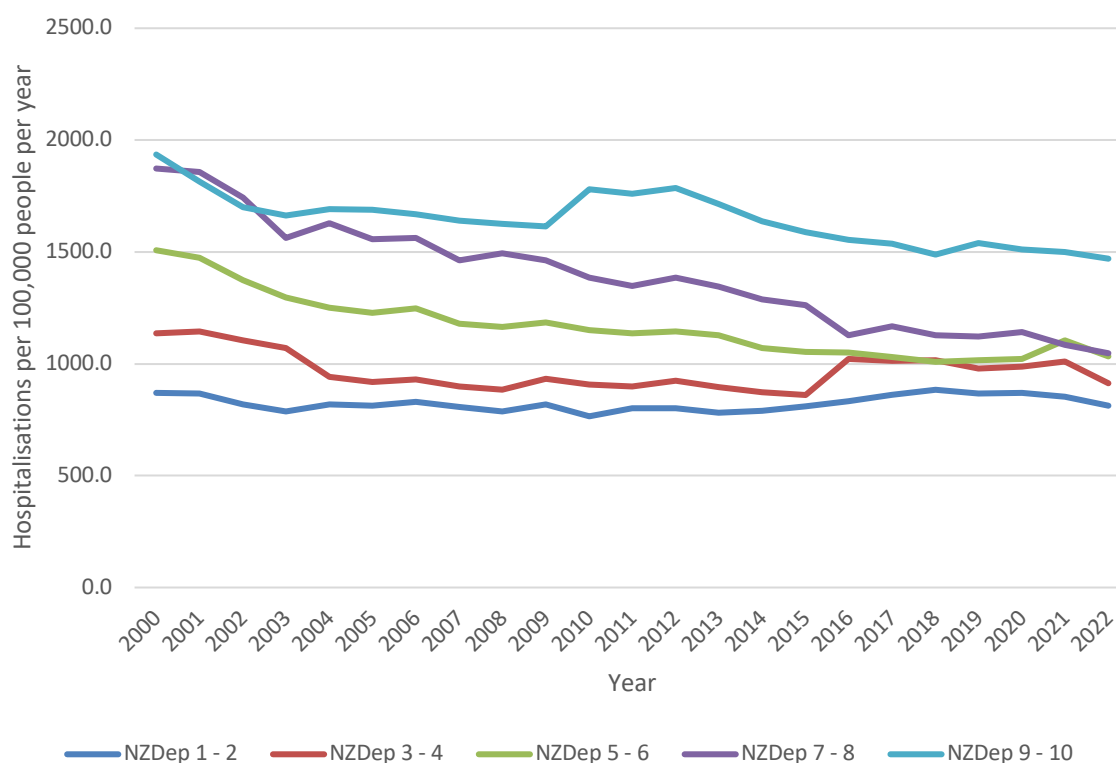


Figure 32. Total heart disease hospitalisation rates per 100,000 people per year by NZDep quintile, 2000 to 2022.



See Table A29 for data.

Figure 33. Total heart disease hospitalisations by year of age as a percentage of each NZDep quintile's total heart disease hospitalisations, 2018 – 2022.

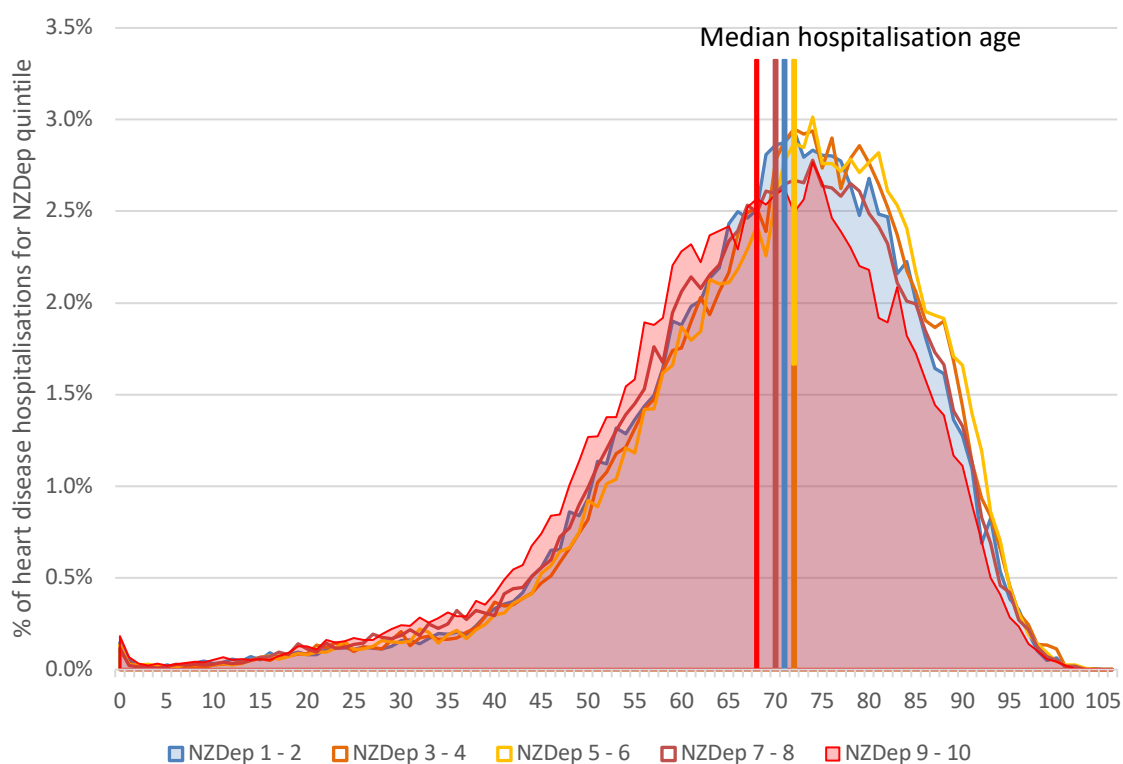


Figure 34. Median age of heart disease hospitalisations by ethnic group and NZDep quintile, 2018 – 2022.

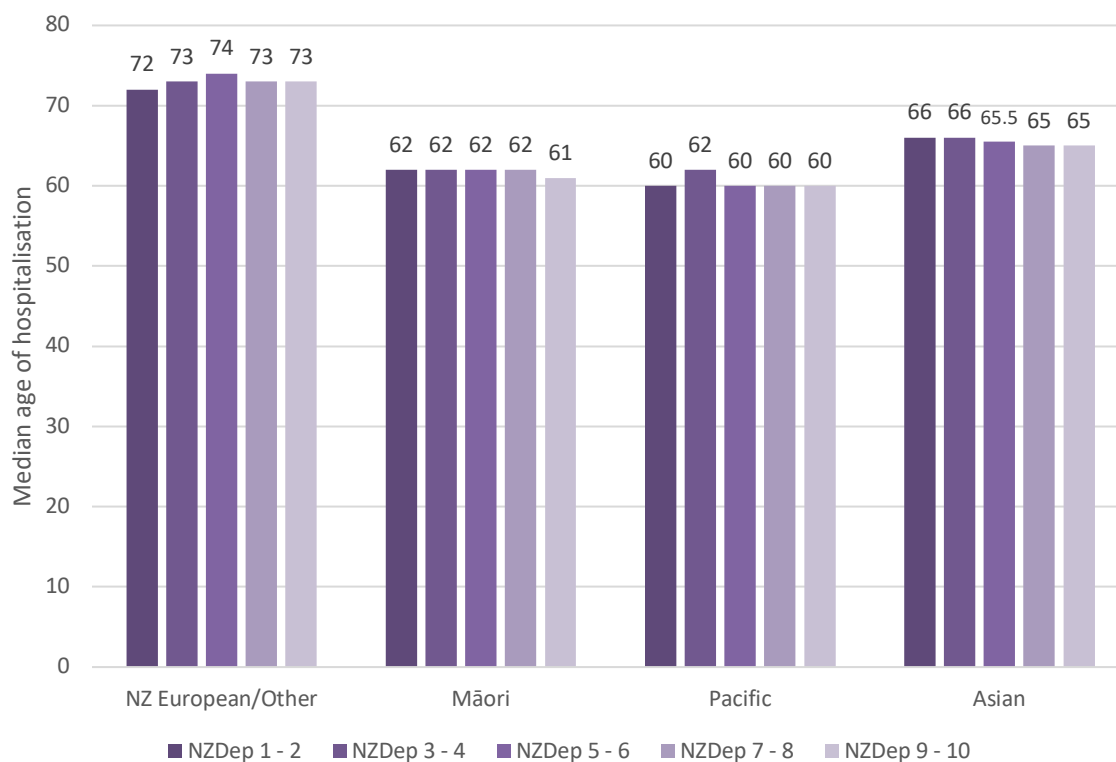
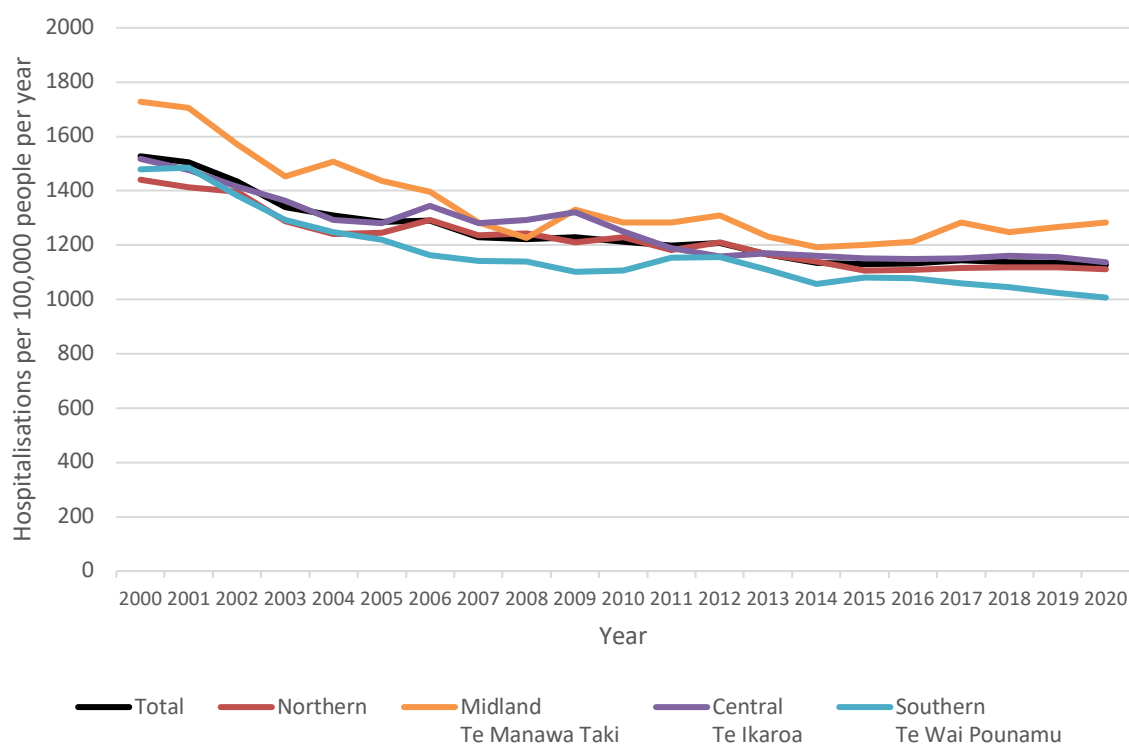
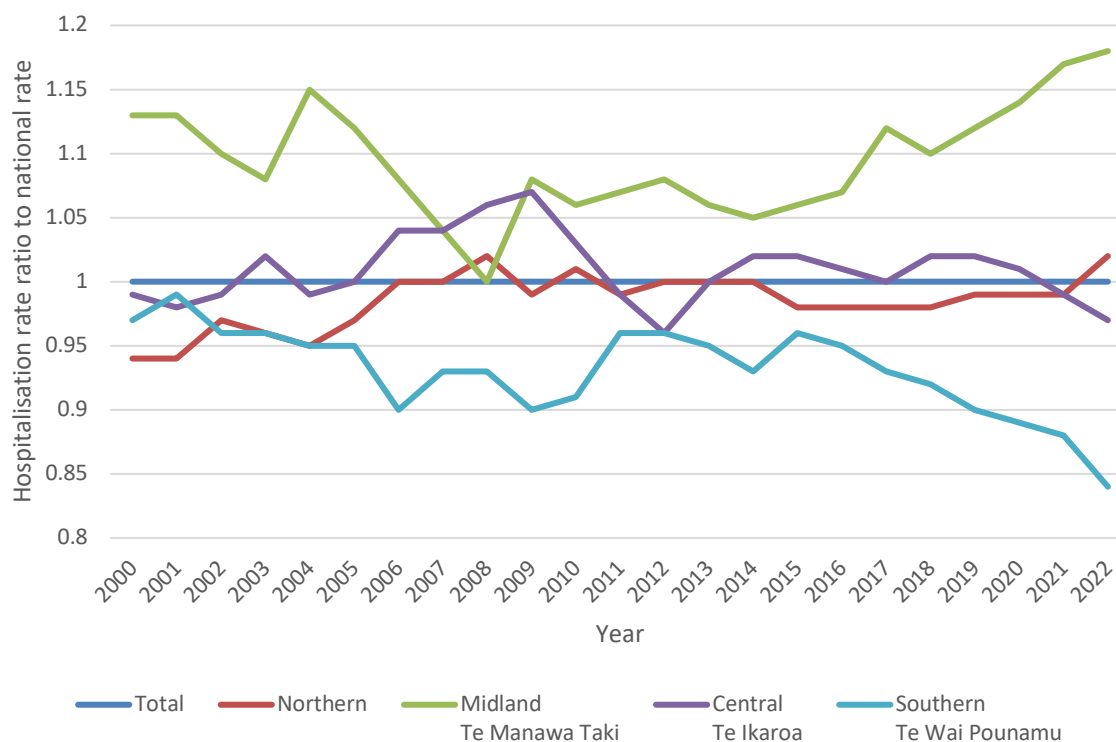


Figure 35. Total heart disease hospitalisation rates per 100,000 people per year by health region, 2000 to 2022.



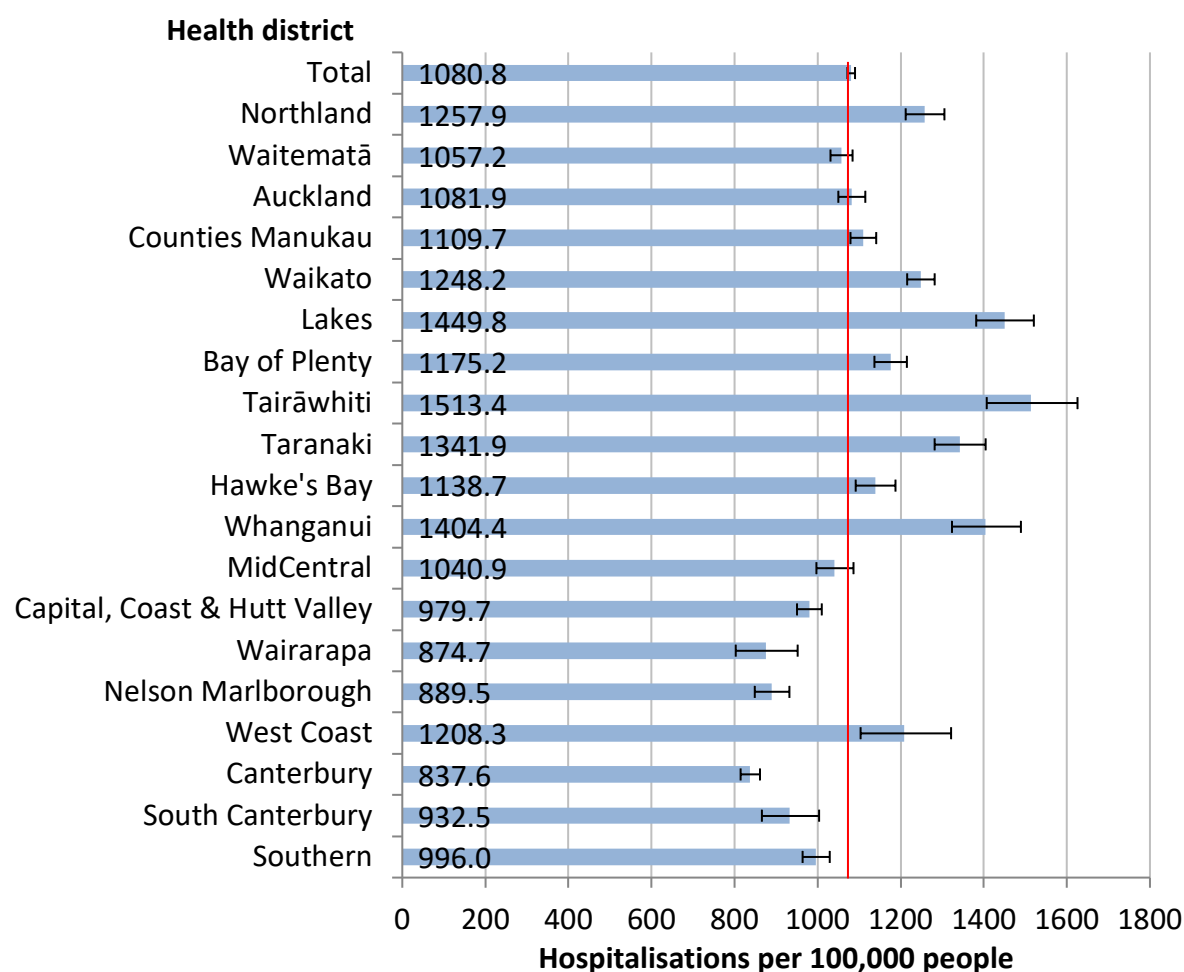
See Table A32 for data.

Figure 36. Total heart disease hospitalisation rate ratios to national rate by health region, 2000 to 2022.



See Table A33 for data.

Figure 37. Total heart disease hospitalisation rates by health district, 2022.



See Table A34 for data. The red line shows the national average.

LITERATURE

Grey et al found the 2016 IHD incidence rate in adults aged 25 years and over to be 600 per 100,000 people per year among men, and 330 among women; and the 2016 prevalence of IHD to be 5.0% among men and 2.5% among women.²⁹

OVERALL RATES

From 2000 to 2022 there were 480,715 hospitalisations for IHD. Age-standardised hospitalisation rates more than halved, from 874.2 per 100,000 people per year in 2000, to 363.8 in 2022.

GENDER

Male IHD rates were significantly higher than female rates throughout the study period (Figure 38). This difference increased over time, from a rate ratio of 0.56 in 2000, to 0.46 in 2022, leaving female rates less than half male rates.

IHD hospitalisation also occurred earlier for males than females, with a median hospitalisation age of 69 for men and 74 for women (Figure 39).

ETHNIC GROUP

Māori and Pacific IHD hospitalisation rates were significantly higher than NZ European & Other. Differences for Māori were highest in the mid-2000s and have since declined a little, but differences increased substantially over time for Pacific peoples. For Asian peoples, while IHD rates were around 80% of NZ European/Other rates in the 2000s, in recent years they have not been substantially different (Figure 40).

SOCIO-ECONOMIC DEPRIVATION.

IHD hospitalisation rates were strongly differentiated by NZDep quintile, but differences changed over time. All rates fell, but the largest reduction was for NZDep 7 – 8. Their early 2000s rates (over 1000 hospitalisations per 100,000 people per year) were more than 2 times rates for NZDep 1-2 (under 500 per 100,000 people per year), and similar to rates for NZDep 9 – 10. Since then, they have dropped to less than 400 per 100,000 people per year, making them similar to rates for NZDep 5 – 6 (which also fell over time).

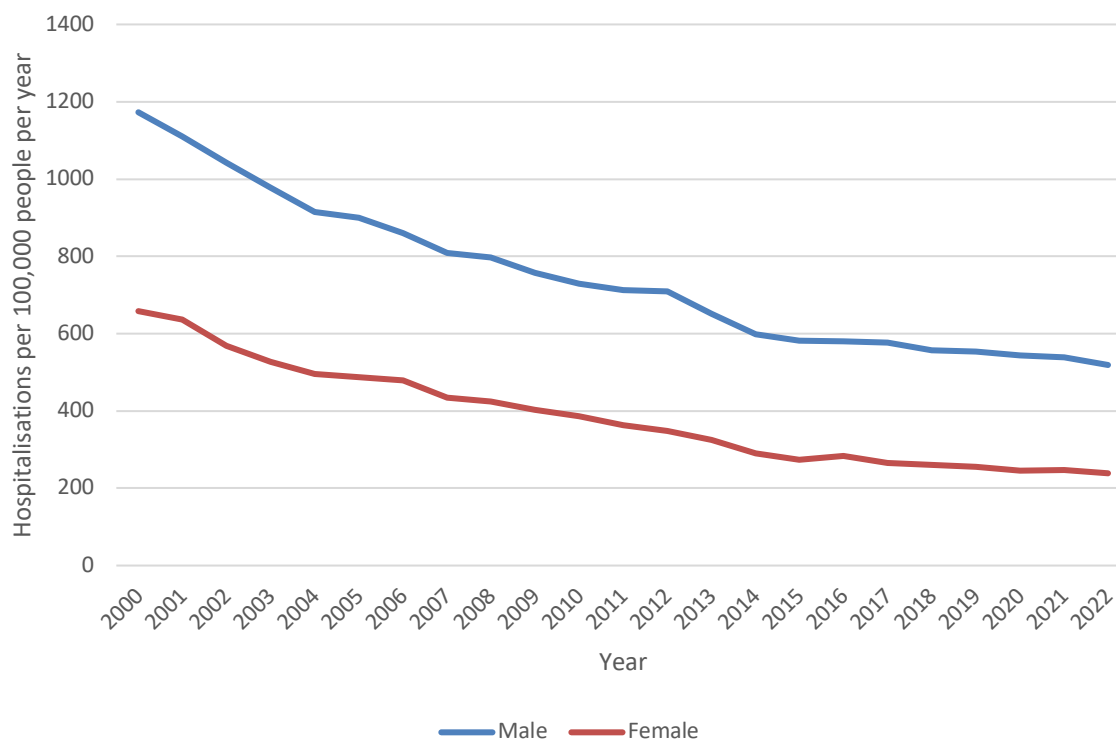
HEALTH REGION

Northern health region rates were lower than the national average across all years. There was no consistent pattern for other health regions, except that rates in Midland/Te Manawa Taki have been trending worse than the national average since 2013 (Figure 43).

HEALTH DISTRICTS

IHD hospitalisation rates were highest in Taranaki, West Coast and Lakes health districts, and lowest in Capital, Coast and Hutt Valley; Nelson Marlborough and Wairarapa. Rates in Taranaki were nearly twice as high as in Capital, Coast and Hutt Valley.

Figure 38. IHD hospitalisation rates by gender, 2000 - 2022 .



See Table A37 for data.

Figure 39. IHD hospitalisation age distribution by gender, 2018 - 2022 .

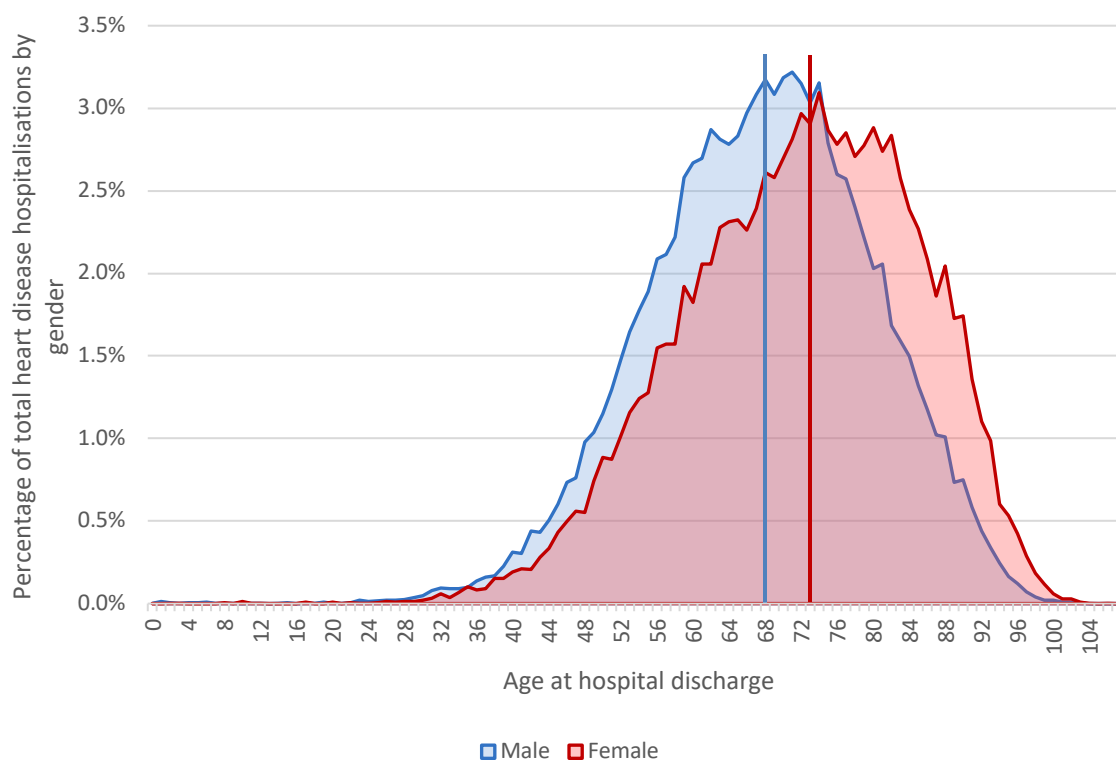
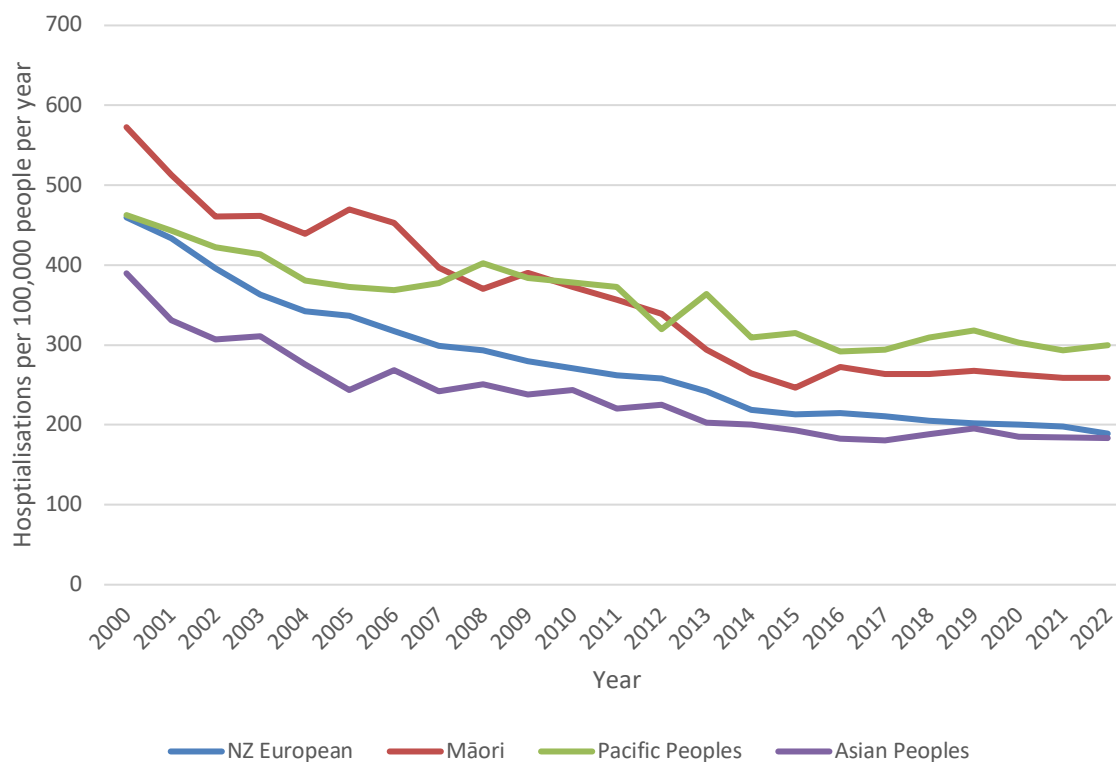
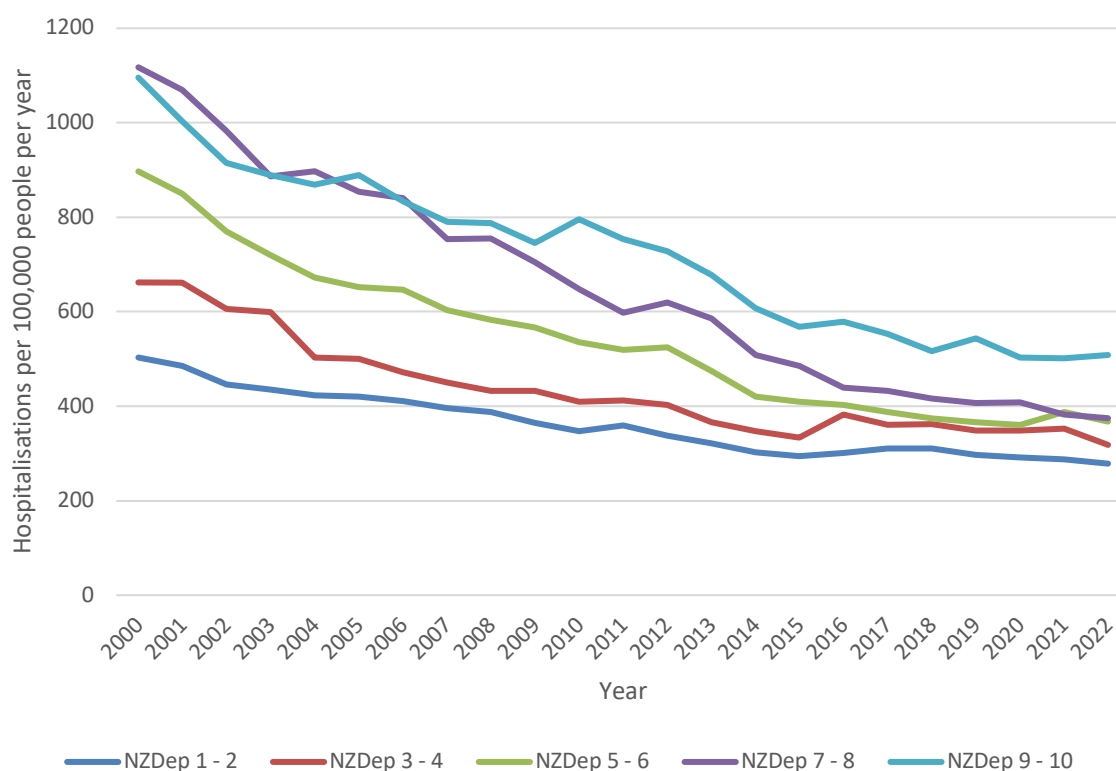


Figure 40. IHD hospitalisation rates per 100,000 people per year by ethnic group, 2000 to 2022.



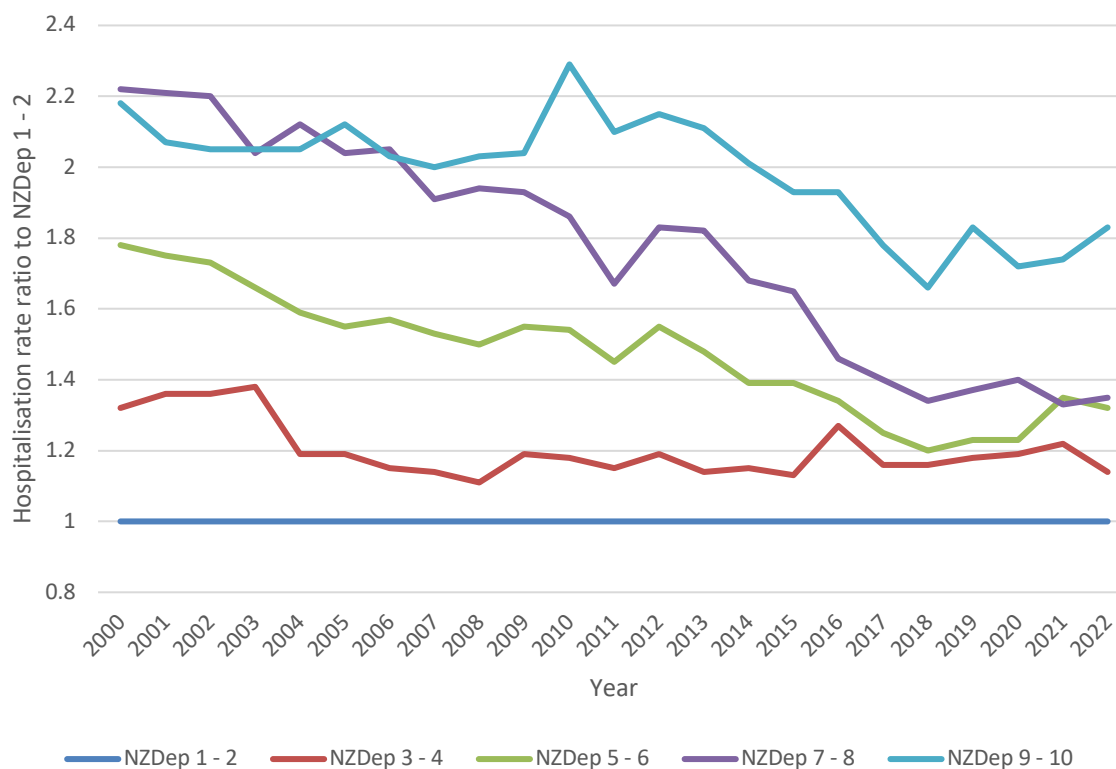
See Table A39 for data.

Figure 41. IHD hospitalisation rates per 100,000 people per year by NZDep quintile, 2000 to 2022.



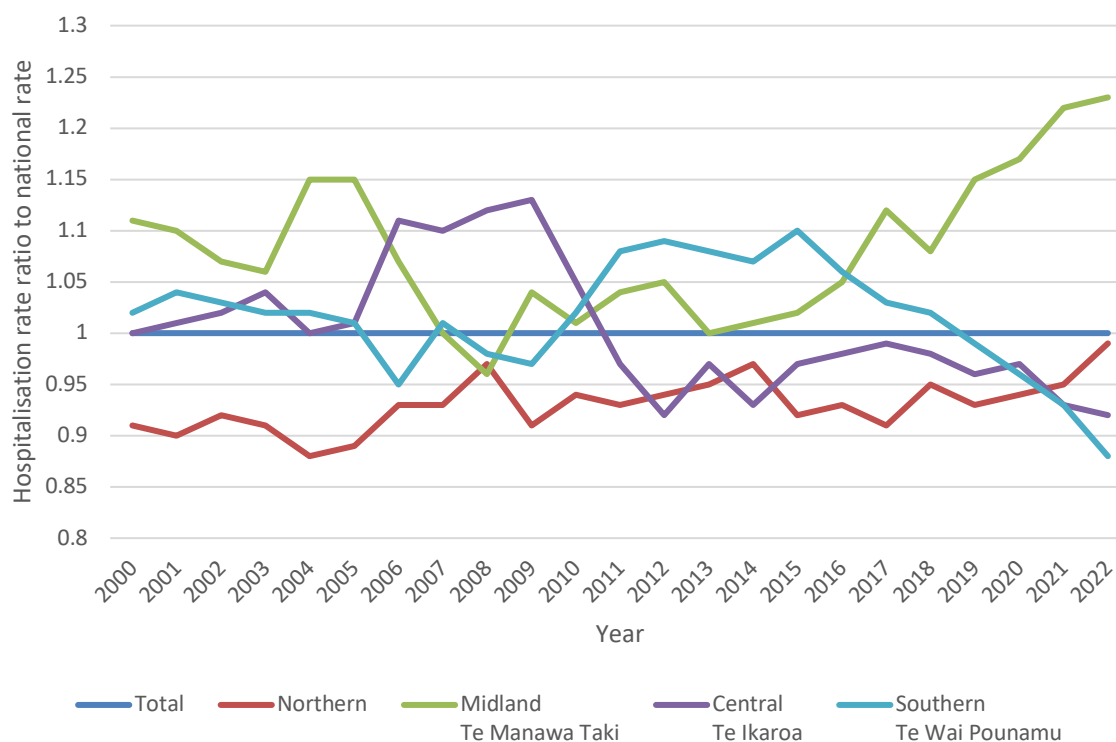
See Table A41 for data.

Figure 42. IHD rate ratios to NZDep 1-2 by NZDep quintile, 2000 to 2022.



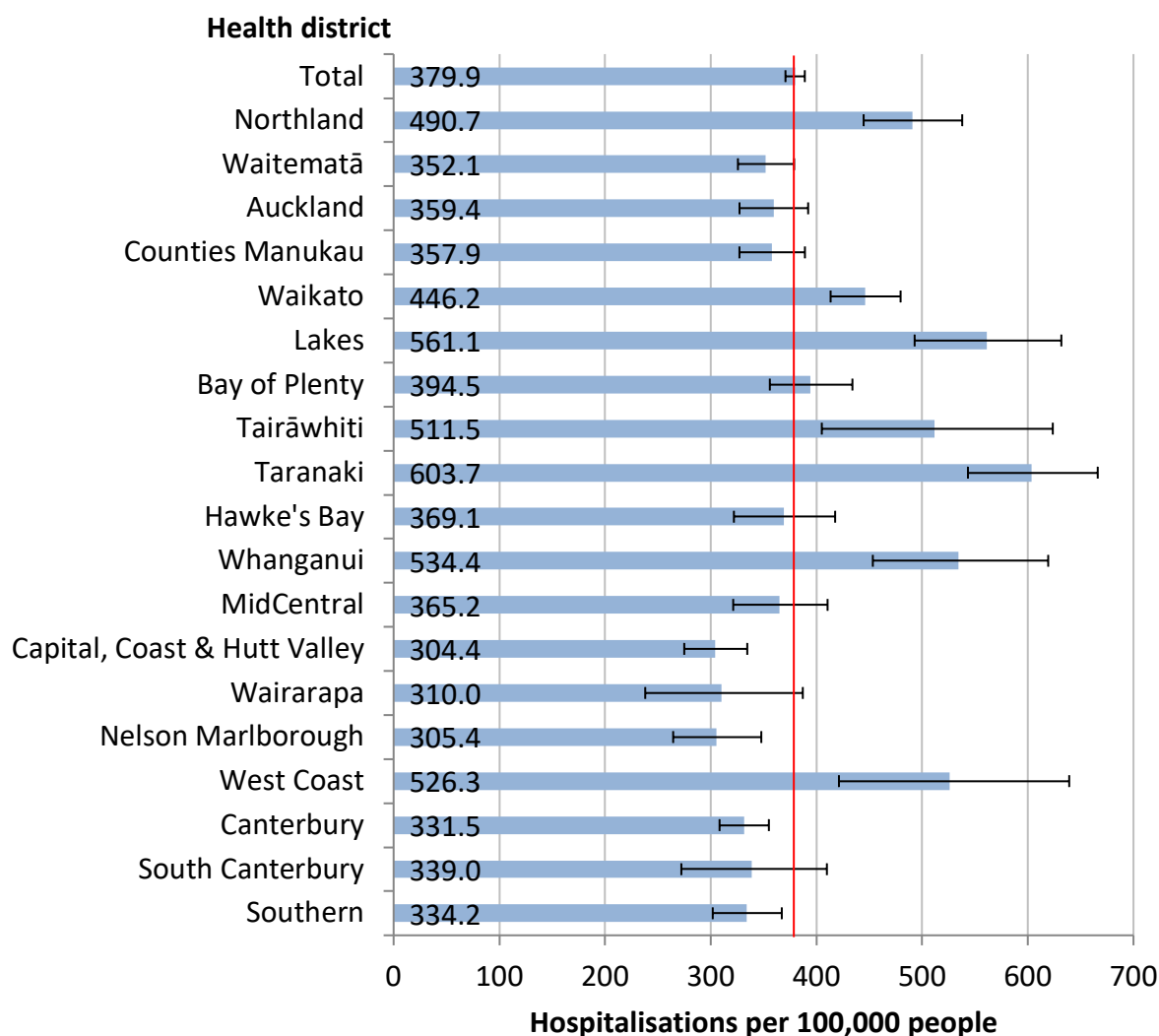
See Table A42 for data.

Figure 43. IHD hospitalisation rate ratio to national rate by health region, 2000 to 2022.



See Table A45 for data.

Figure 44. IHD hospitalisation rates by Health District, 2022.



See Table A46 for data. The red line shows the national average.

I21 ACUTE MYOCARDIAL INFARCTION (AMI))

LITERATURE

Scragg et al found an 0.8% rate of MI hospitalisations among 50 to 84 year old Aucklanders in the placebo arm of a 2013 to 2015 Vitamin D trial.²⁴ Chan et al found in 2005 there were 84.2 first hospital admissions for AMI per 100,000 people per year in the total population.²⁷

OVERALL RATES

There were 213,138 hospitalisations for AMI between 2000 and 2022. Age-standardised rates reduced substantially, from highs above 300 per 100,000 people per year in the early 2000s, to less than 180 in the early 2020s.

GENDER

Males rates were higher than female rates throughout the study period, and grew only a little between 2000 and 2022, from a rate ratio of 0.51, to 0.47 (Figure 45, Table A61).

ETHNIC GROUP

In the early 2000s, Māori and Pacific AMI rates were similar. Rates for both groups grew more than NZ European rates through the early 2000s, and stayed higher for longer for Pacific Peoples, so that by the late 2000s Pacific rates had overtaken Māori. Asian rates have been consistently lowest of the four ethnic groups.

In 2022 Māori and Pacific Peoples rates remained higher than NZ European rates, with rate ratios of 1.36 for Māori and 1.61 for Pacific Peoples. Asian Peoples' rates were lower, with a rate ratio of 0.90 to NZ European.

SOCIO-ECONOMIC DEPRIVATION

Differences in AMI rates by NZDep quintile followed a similar pattern over time to differences for IHD, with reducing inequity over time for NZDep 5-6 and 7-8, but little change for 3 – 4 or 9 – 10 (Figure 48). In 2022, rates for NZDep 9 – 10 were 1.91 times those of NZDep 1-2.

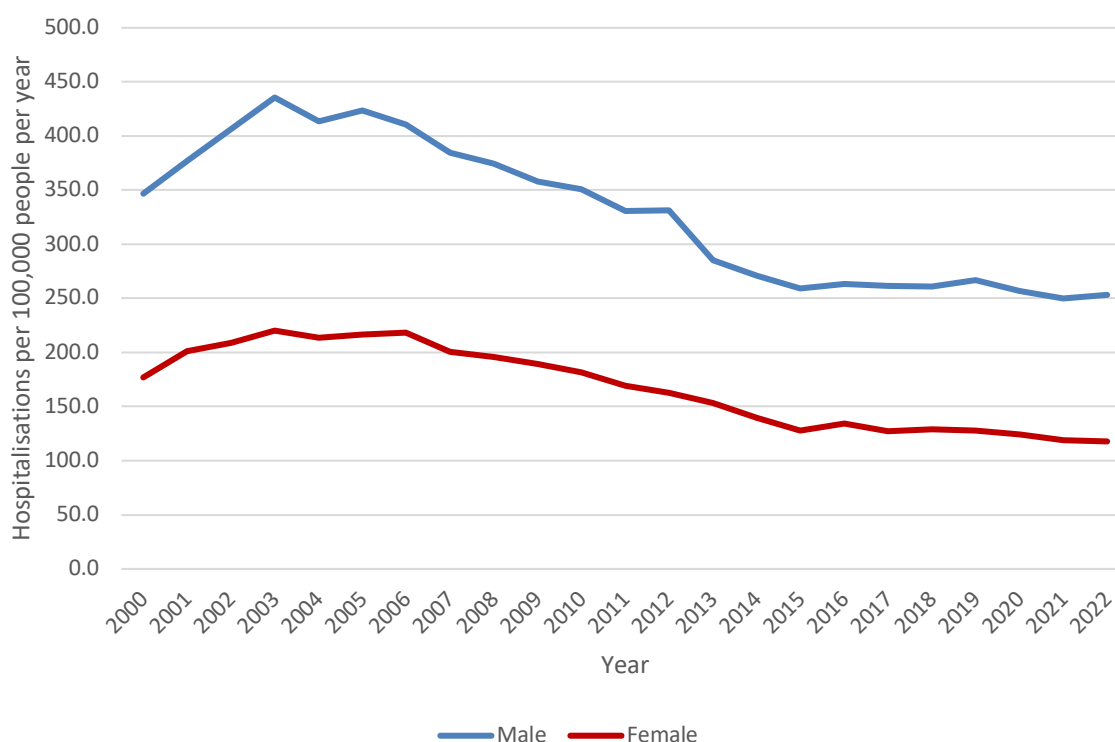
HEALTH REGION

Early study period differences in AMI hospitalisation rates reduced through the yearly 2010s. However, since 2015 Northern region rates have increased above the national average, and continued to increase while rates in other regions reduced a little (Figure 50).

HEALTH DISTRICTS

2022 AMI rates were highest in the Lakes health district, where rates were nearly double rates in the rest of the country (rate ratio 1.98); and lowest in Auckland, with a rate ratio of 0.73 to the rest of the country (Figure 51).

Figure 45. I21 AMI hospitalisation rates by gender, 2000 - 2022 .



See Table A61 for data.

Figure 46. I21 AMI hospitalisation age distribution by gender, 2018 - 2022 .

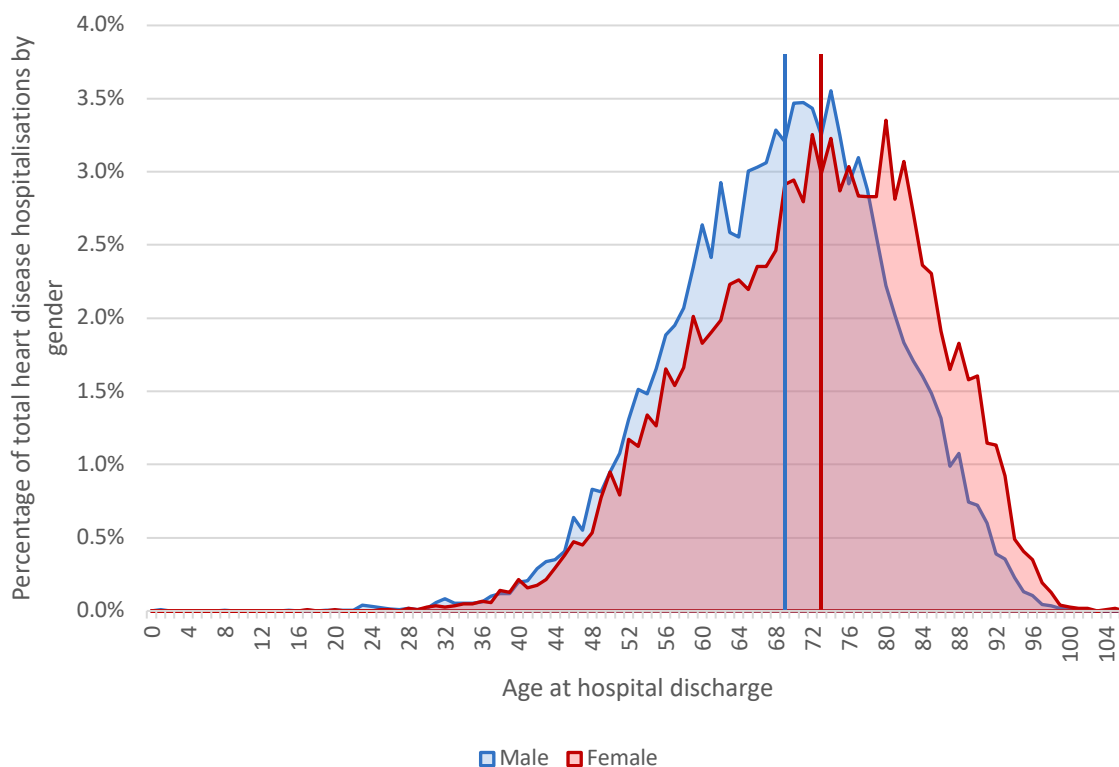
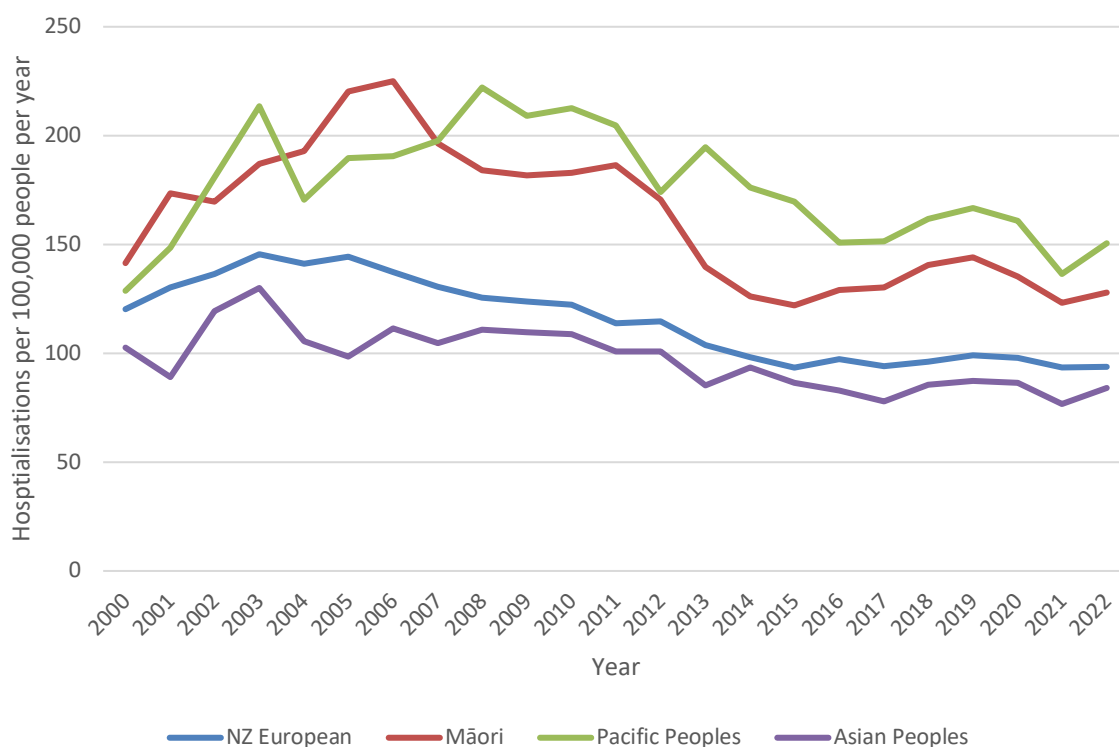
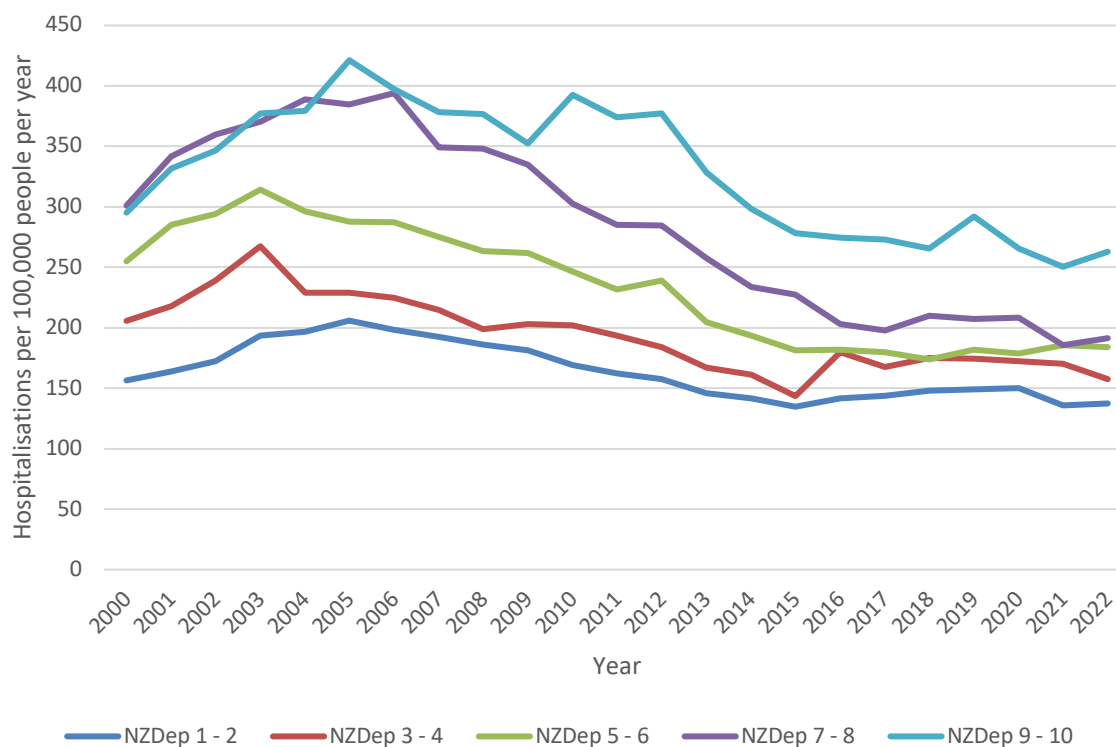


Figure 47. I21 AMI hospitalisation rates per 100,000 people per year by ethnic group, 2000 to 2022.



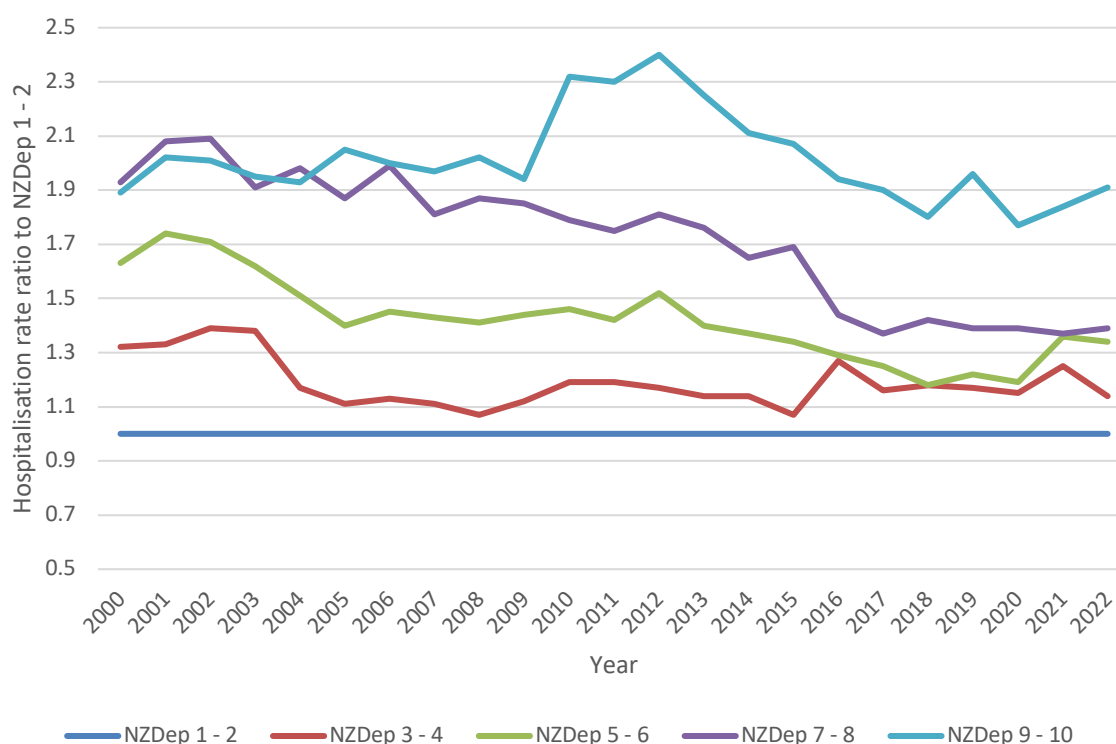
See Table A63 for data.

Figure 48. I21 AMI hospitalisation rates per 100,000 people per year by NZDep quintile, 2000 to 2022.



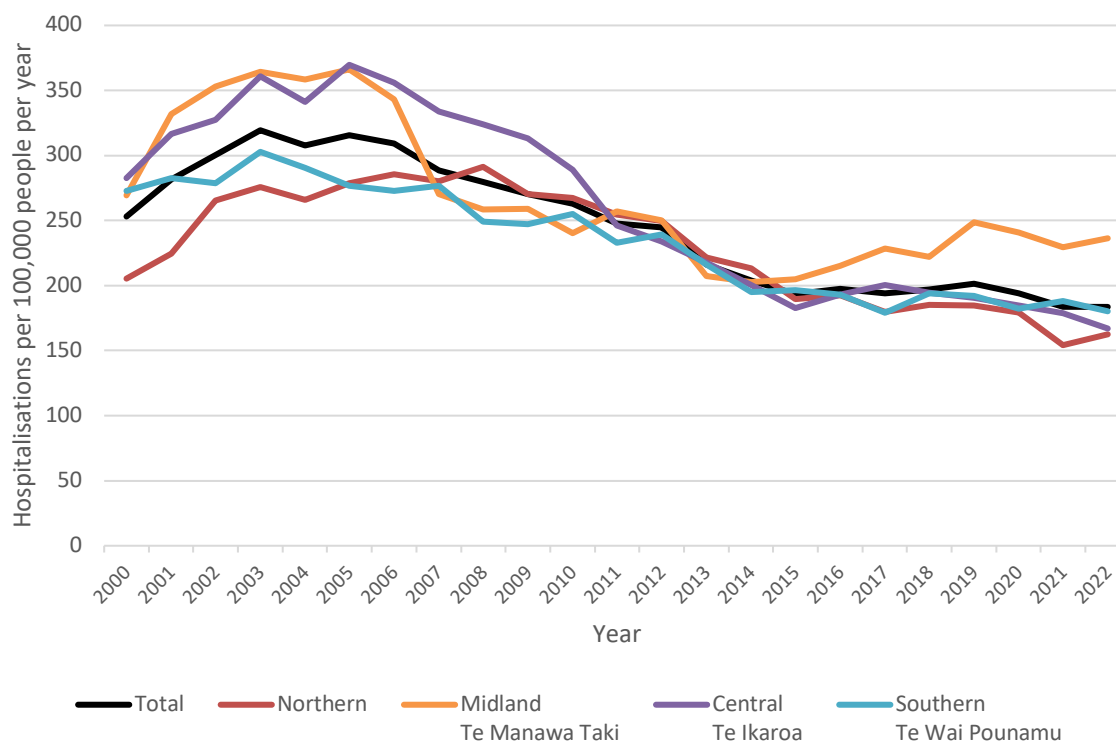
See Table A65 for data.

Figure 49. I21 AMI hospitalisation rate ratios to NZDep 1 – 2 by NZDep quintile, 2000 to 2022.



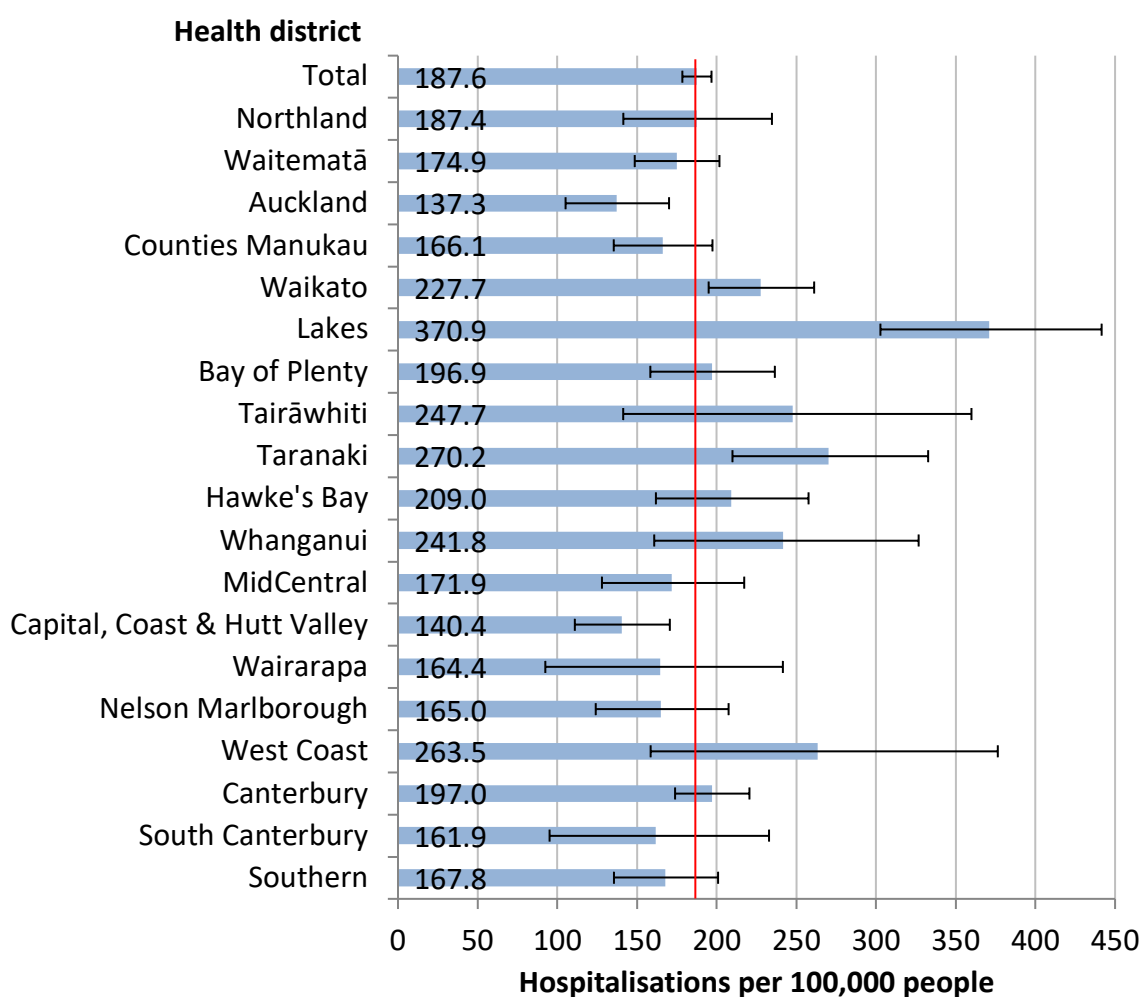
See Table A66 for data.

Figure 50. I21 AMI hospitalisation rates per 100,000 people per year by health region, 2000 to 2022.



See Table A68 for data.

Figure 51. I21 AMI hospitalisation rates by health district, 2022.



See Table A70 for data. The red line shows the national average.

LITERATURE

Teh et al found a 2010 AFF prevalence among people aged 80+ years in Bay of Plenty and northern Lakes DHBs of 25.9% for Māori and 17.7% for non-Māori.³

OVERALL RATES

From 2000 to 2022 there were 212,857 hospitalisations for AFF. While crude rates increased substantially, that increase was due to population ageing. Age-standardised rates increased less, from around 210 per 100,000 people per year in the early 2000s, to around 245 in the early 2020s.

GENDER

Male AFF rates remained roughly a quarter to a third higher than female rates across the study period, and both increased at similar rates. Median age at hospitalisation was earlier for males (67) than females (74).

ETHNIC GROUP

AFF rates for Asian Peoples were substantially lower than for other ethnic groups, with rates less than half those of NZ European – in 2022 the rate ratio for Asian rates compared to NZ European was only 0.36. Pacific rates were similar to NZ European rates in the early 2000s, but rose more steeply than other ethnic groups, just overtaking Māori rates in 2022 (the last year of data) to a rate ratio of 1.46, while for Māori the 2022 rate ratio to NZ European was 1.43.

SOCIO-ECONOMIC DEPRIVATION

Socio-economic inequities in AFF hospitalisation rates have reduced over time. In recent years, rates for the middle three NZDep quintiles have been roughly 11% higher than those for NZDep 1 – 2, but rates for NZDep 9 – 10 remain around 45% higher than those for NZDep 1 – 2 (Figure 56).

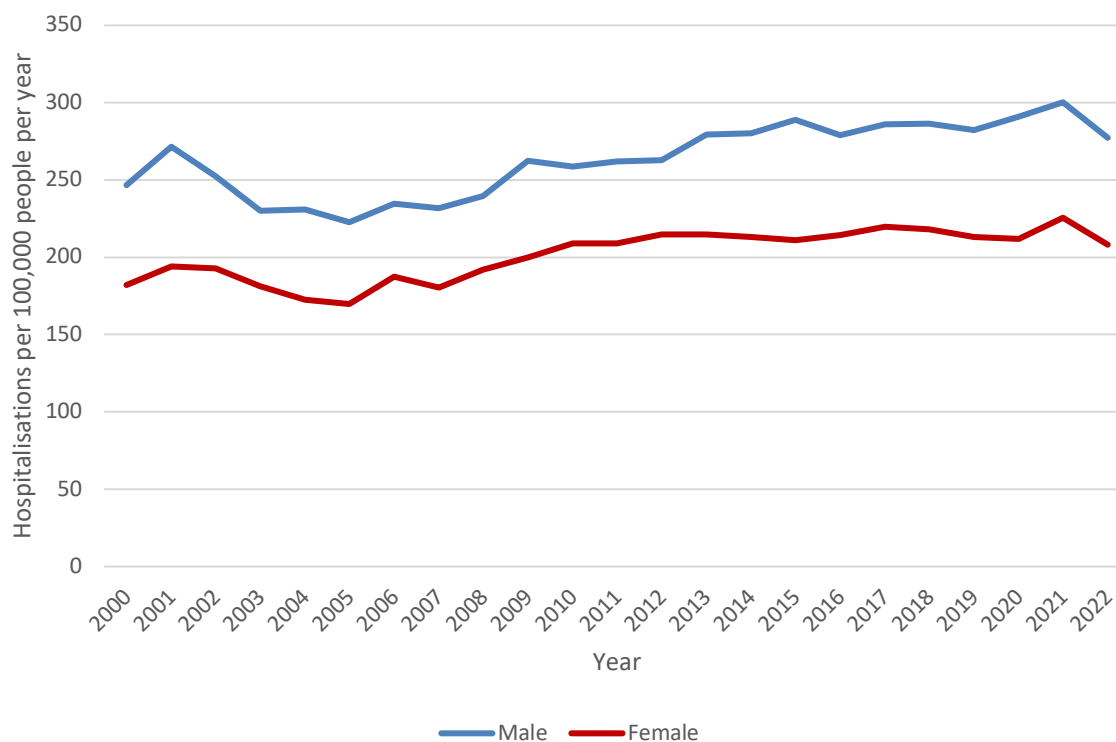
HEALTH REGIONS

Across the study period, AFF rates have been consistently lower than the national average in the Southern/Te Waipounamu region, and higher in Midland/Te Manawa Taki. Northern region rates were previously somewhat above the national rate, but since 2014 have been similar; while Central/Te Ikaroa region rates have increased more than the national average in the same period (Figure 57).

HEALTH DISTRICTS

2022 AFF rates were highest in Tairāwhiti and Bay of Plenty health districts, where rates were 38% and 39% higher than in the rest of the country; and lowest in Canterbury and South Canterbury, where rates were 28% lower than in the rest of the country (Figure 58).

Figure 52. I48 AFF hospitalisation rates by gender, 2000 - 2022 .



See Table A73 for data.

Figure 53. I48 AFF hospitalisation age distribution by gender, 2018 - 2022 .

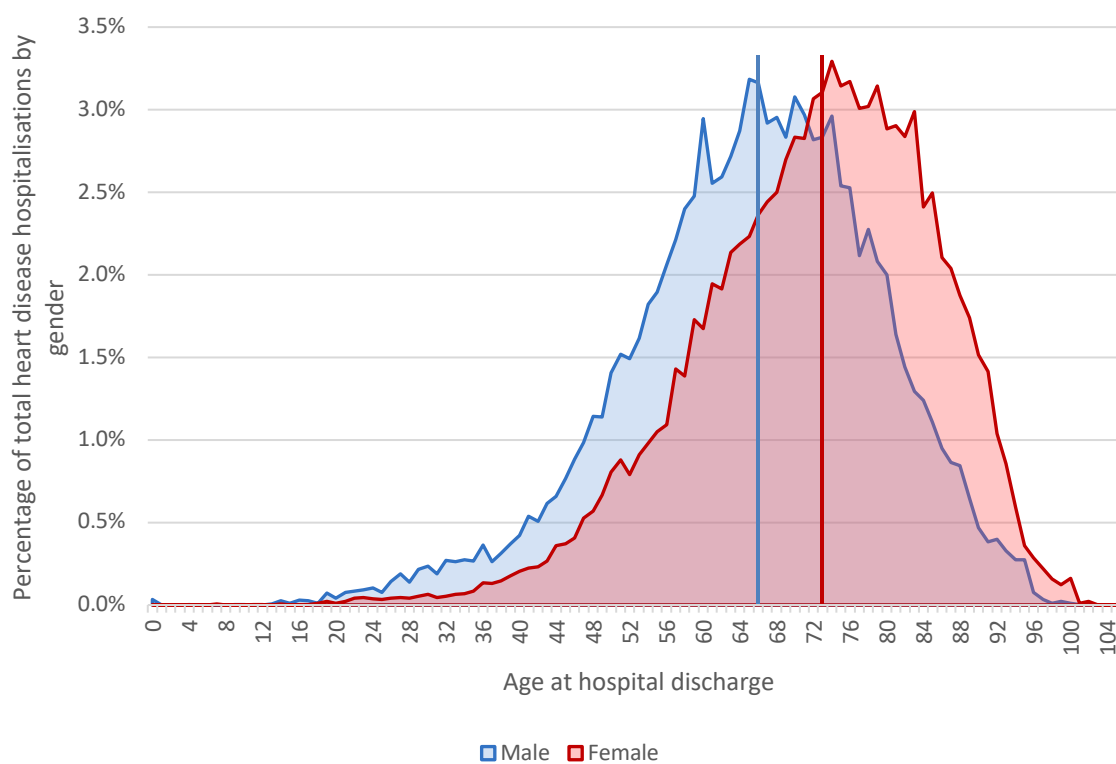
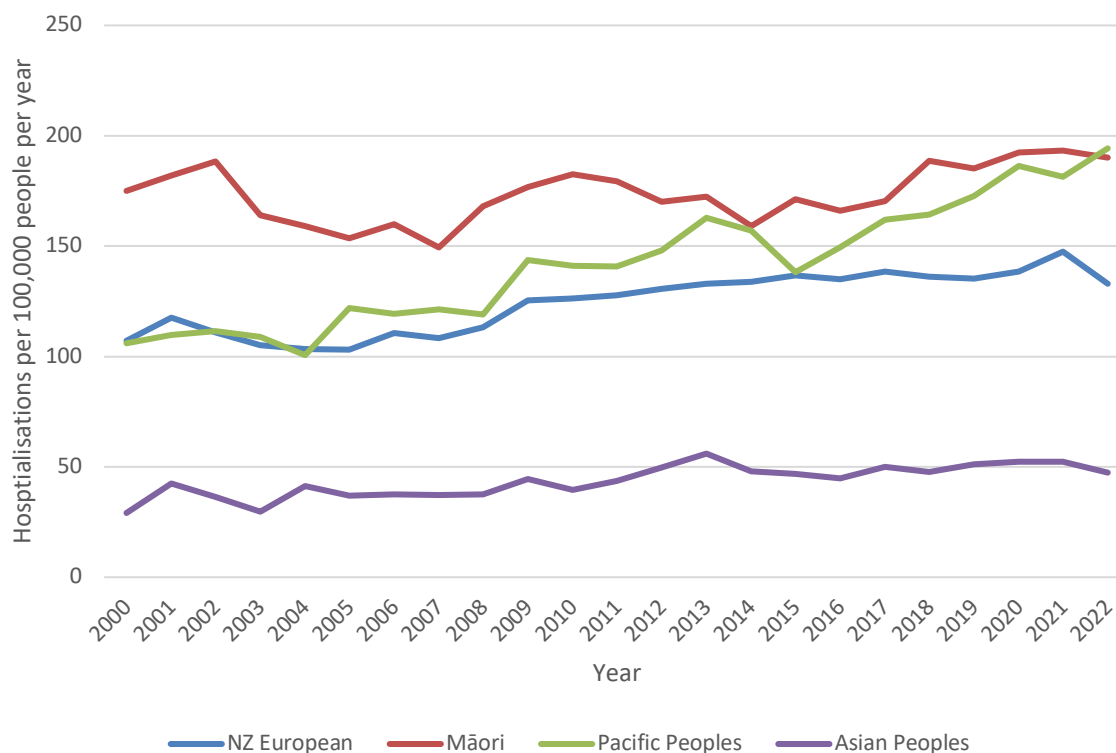
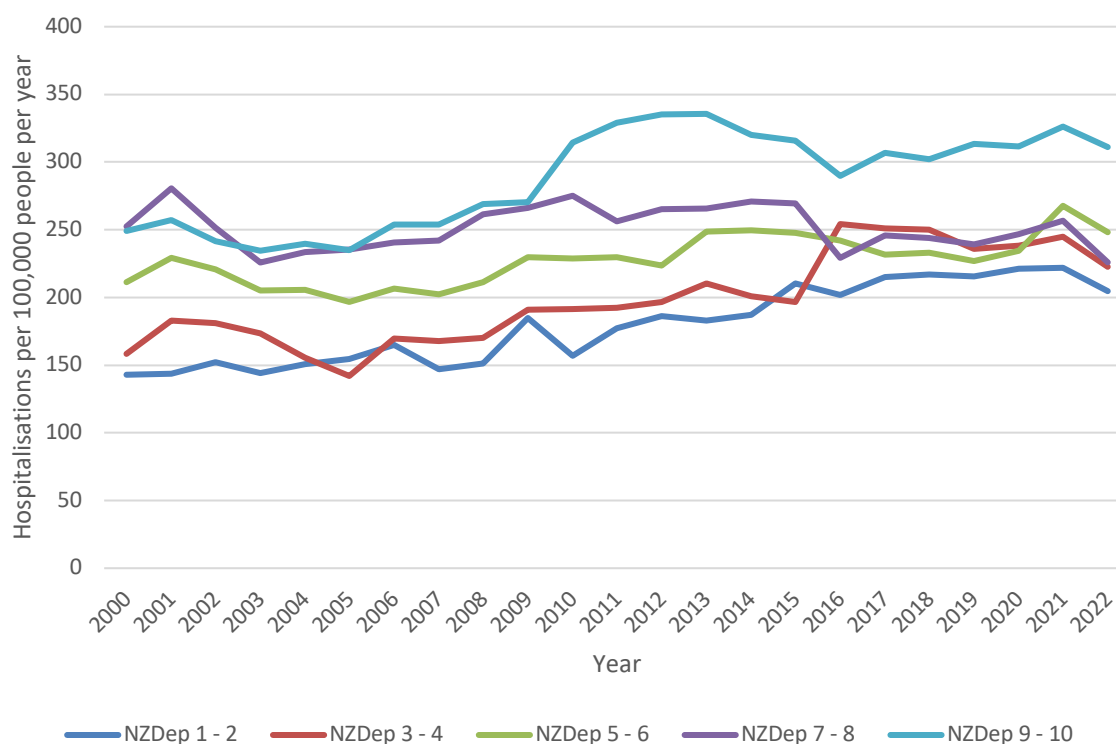


Figure 54. I48 AFF hospitalisation rates per 100,000 people per year by ethnic group, 2000 to 2022.



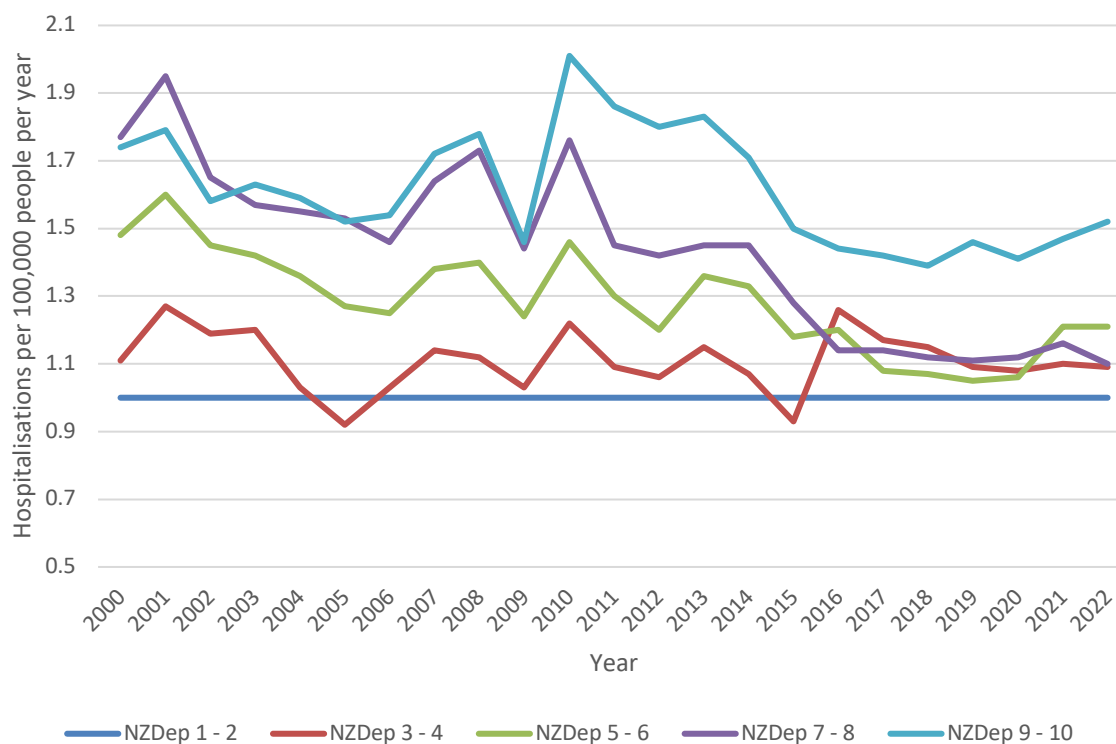
See Table A75 for data.

Figure 55. I48 AFF hospitalisation rates per 100,000 people per year by NZDep quintile, 2000 to 2022.



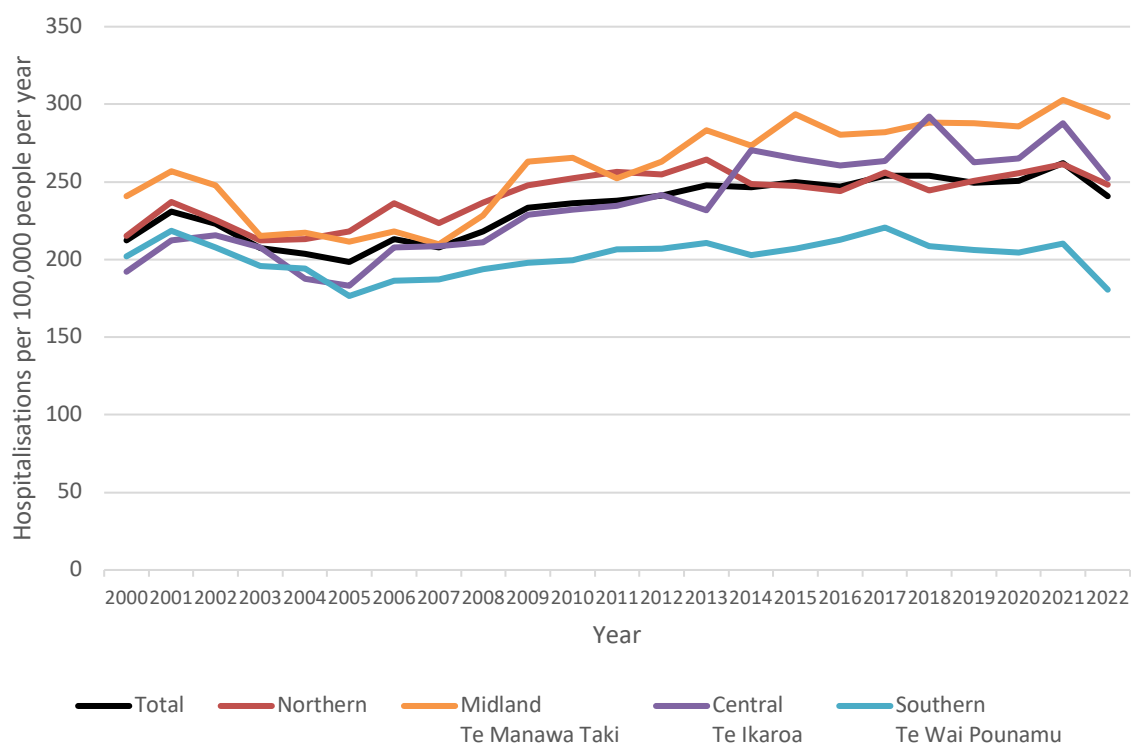
See Table A77 for data.

Figure 56. I48 AFF hospitalisation rate ratios to NZDep 1 – 2 by NZDep quintile, 2000 to 2022.



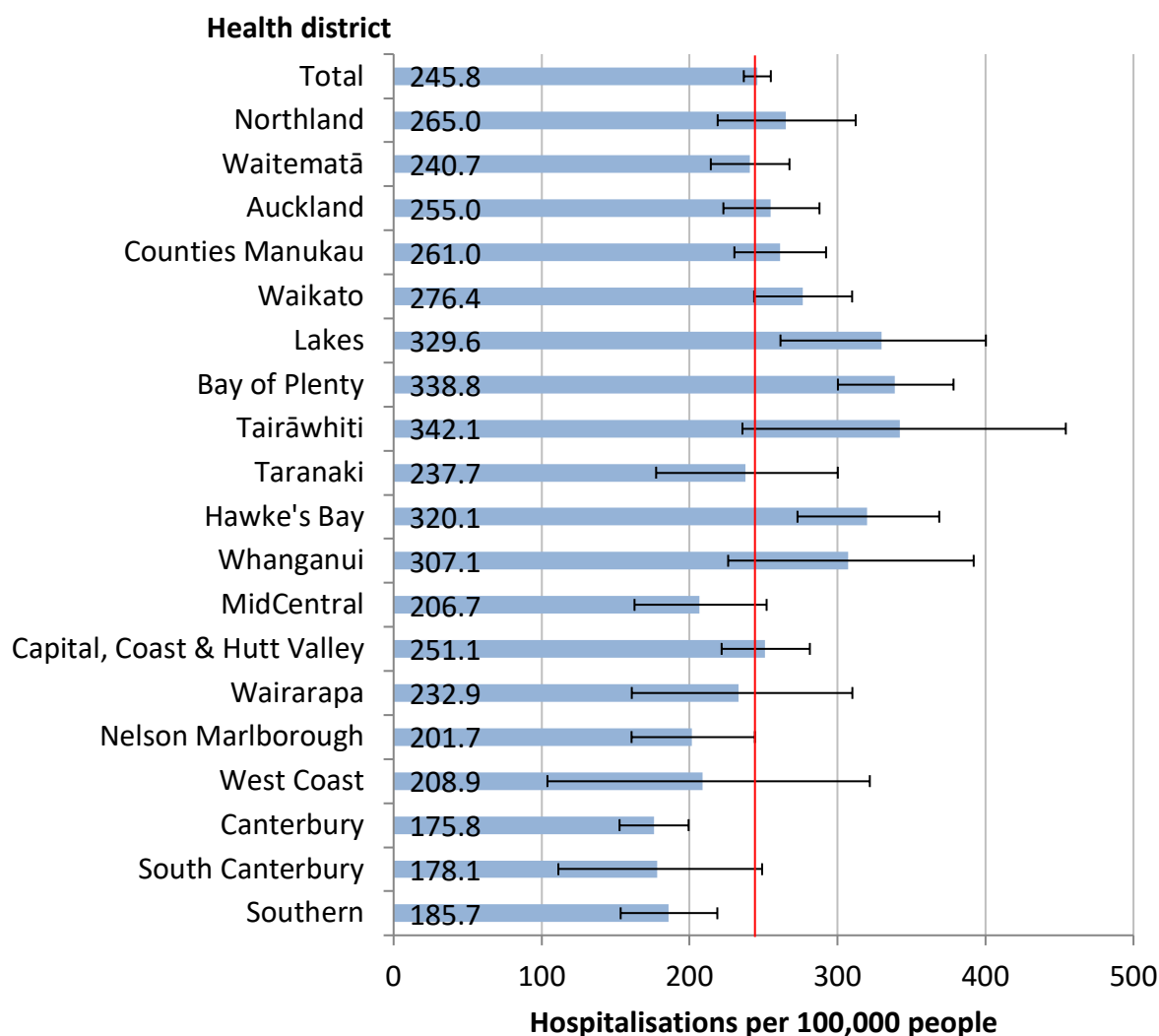
See Table A78 for data.

Figure 57. I48 AFF hospitalisation rates per 100,000 people per year by health region, 2000 to 2022.



See Table A80 for data.

Figure 58. I48 AFF hospitalisation rates by health district, 2022.



See Table A82 for data. The red line shows the national average.

150 HEART FAILURE

LITERATURE

Chan et al reported 2018 heart failure incidence rates for people aged 20 years and older, by age and ethnic group. These data were too detailed to repeat here found that ethnic inequities had increased over time.² See <https://heart.bmj.com/content/110/4/281.long#DC1> for further details. Earlier, Chan et al had reported a 2018 total population heart failure rate of 323 per 100,000 in people aged 20 years and older.³⁰

OVERALL RATES

There were 196,990 hospitalisations for heart failure between 2000 and 2022. There was no meaningful change in hospitalisation rates over time, with an average of 217 hospitalisations per 100,000 people per year in the early 2000s, and 213 in 2022.

GENDER

Heart failure rates remained similar for both genders throughout the study period (Figure 59). In the period 2018 to 2022, the median age of heart failure hospitalisation was 77 for males and 81 for females (Figure 60).

ETHNIC GROUPS

Heart failure hospitalisation rates showed extreme discrepancy across ethnic groups throughout the study period. Where the rate for NZ Europeans was 67 per 100,000 people per year in 2022, for Māori it was 259, and for Pacific 265 – rate ratios were 3.8 and 3.9 respectively. Rates were lowest for Asian Peoples, with 50 per 100,000 people per year and a rate ratio of 0.7 (Figure 61). However, while Chan et al observed rising ethnic inequities in heart failure rates between 2006 and 2018,² we note that Māori rates in 2022 were lower than in the early 2000s, and similar to rates in the mid-2010s. Rates for NZ European and Asian Peoples have also fallen over time. Rates for Pacific Peoples, however, increased over the study period.

SOCIO-ECONOMIC DEPRIVATION

Socio-economic inequities in heart failure hospitalisation rates have decreased over time, but have decreased more for the middle three quintiles than for the least wealthy quintile. In 2022, heart failure hospitalisation rates were 2.6 times higher in NZDep 9 – 10 than in NZDep 1 – 2 (Figure 63).

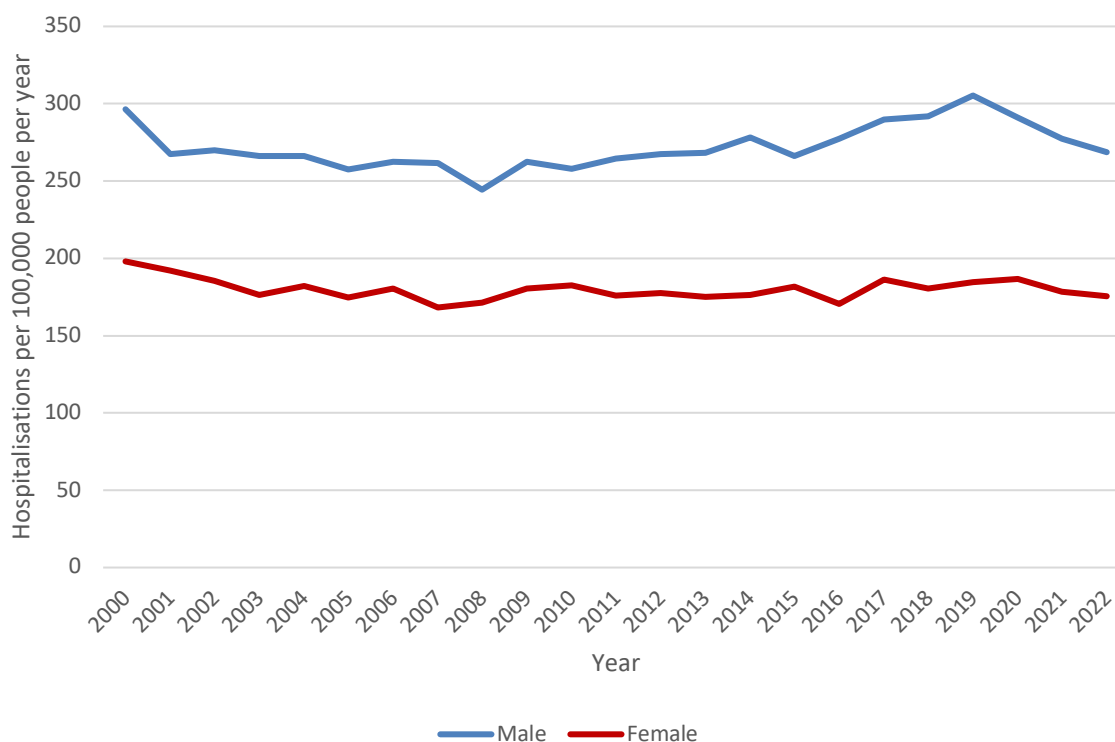
HEALTH REGIONS

Across the study period, heart failure hospitalisation rates have been consistently lower than the national average in the Southern/Te Waipounamu health region, and higher in Midland/Te Manawa Taki. Rates in Central/Te Ikaroa have generally been higher than the national average since 2008. Rates in the Northern region have been generally similar to the national average (Figure 64).

HEALTH DISTRICTS

Heart failure hospitalisation rates were highest in Tairāwhiti health district, with rates 60% higher than in the rest of the country; and lowest in Nelson Marlborough, with rates 35% lower than the rest of the country.

Figure 59. 150 heart failure hospitalisation rates by gender, 2000 - 2022 .



See Table A85 for data.

Figure 60. 150 heart failure hospitalisation age distribution by gender, 2018 - 2022 .

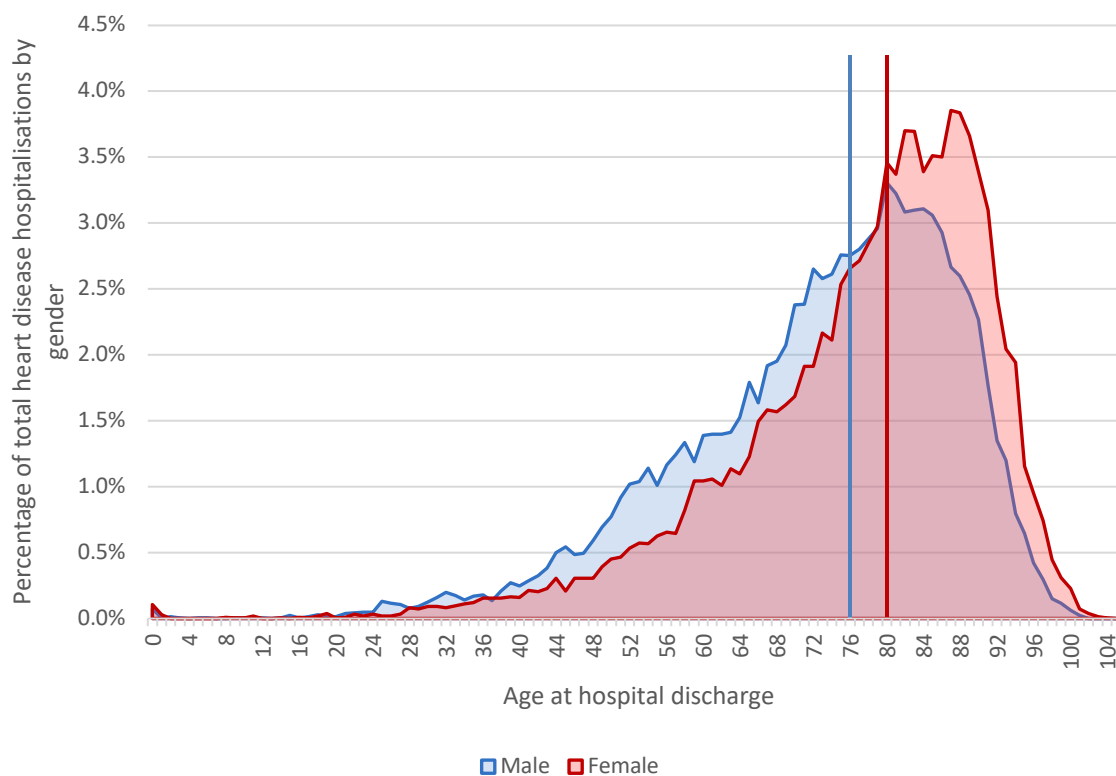
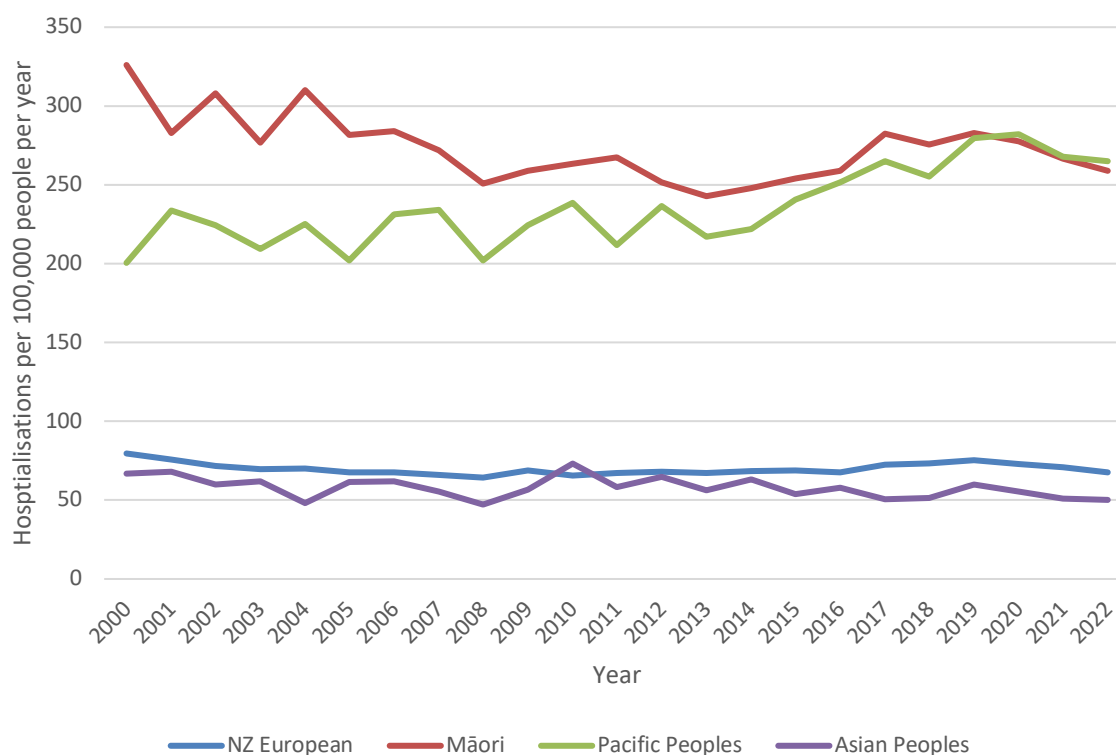
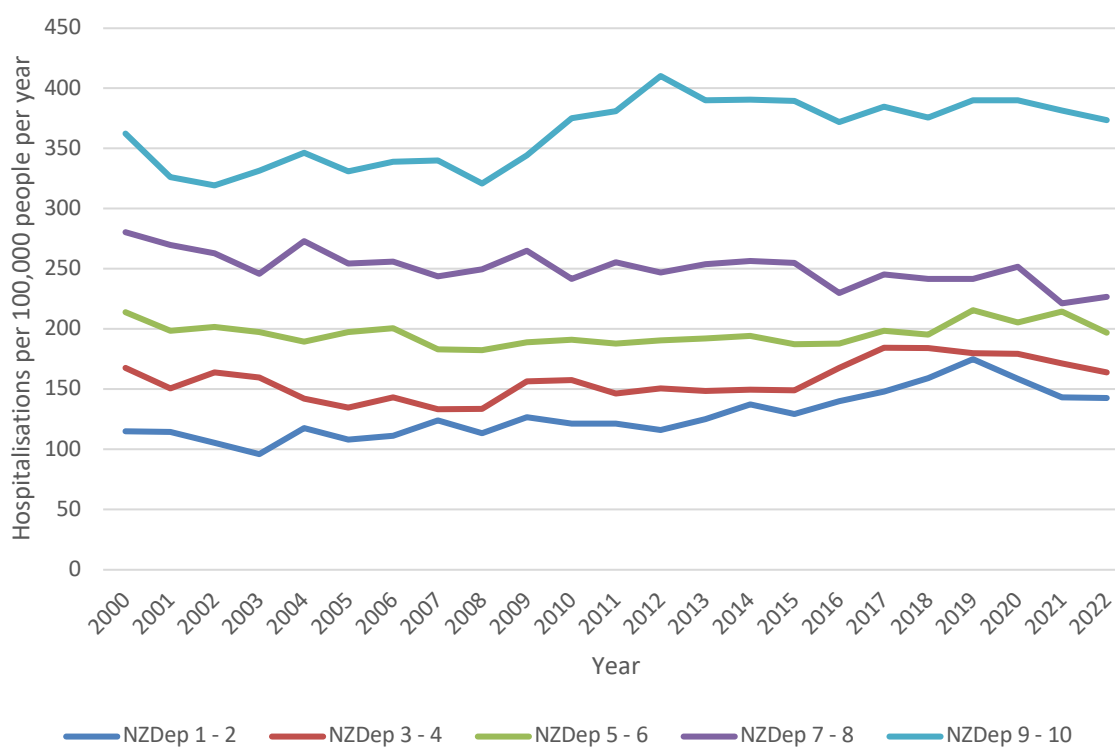


Figure 61. 150 heart failure hospitalisation rates per 100,000 people per year by ethnic group, 2000 to 2022.



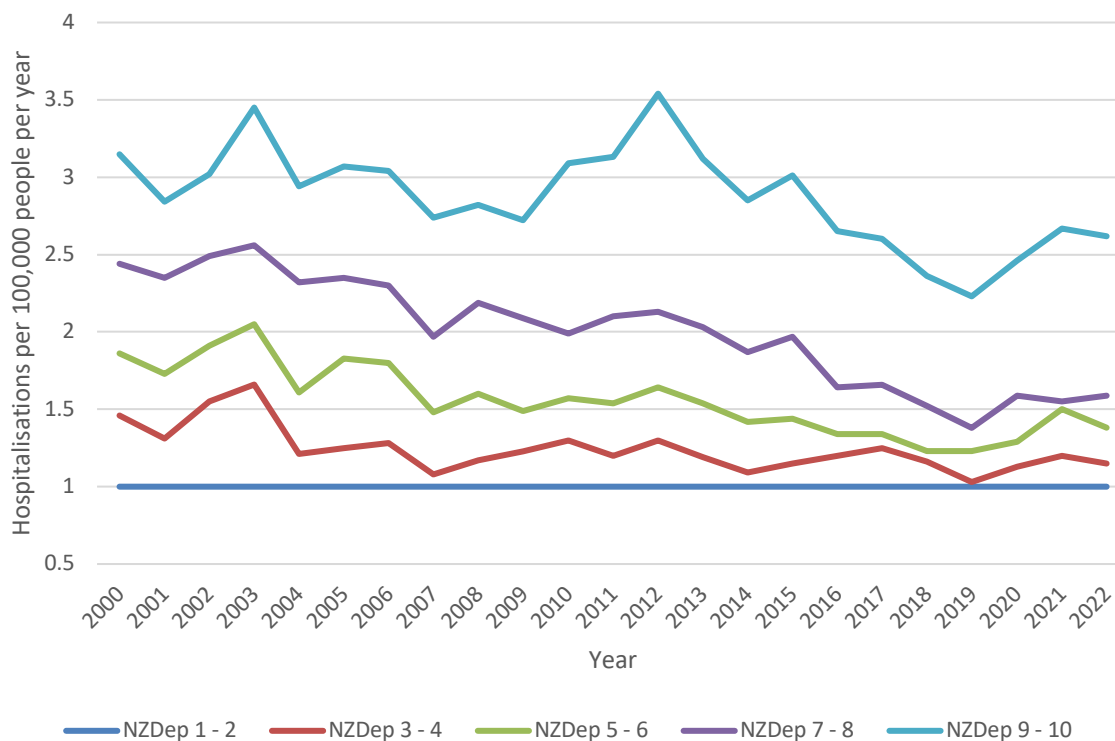
See Table A87 for data.

Figure 62. 150 heart failure hospitalisation rates per 100,000 people per year by NZDep quintile, 2000 to 2022.



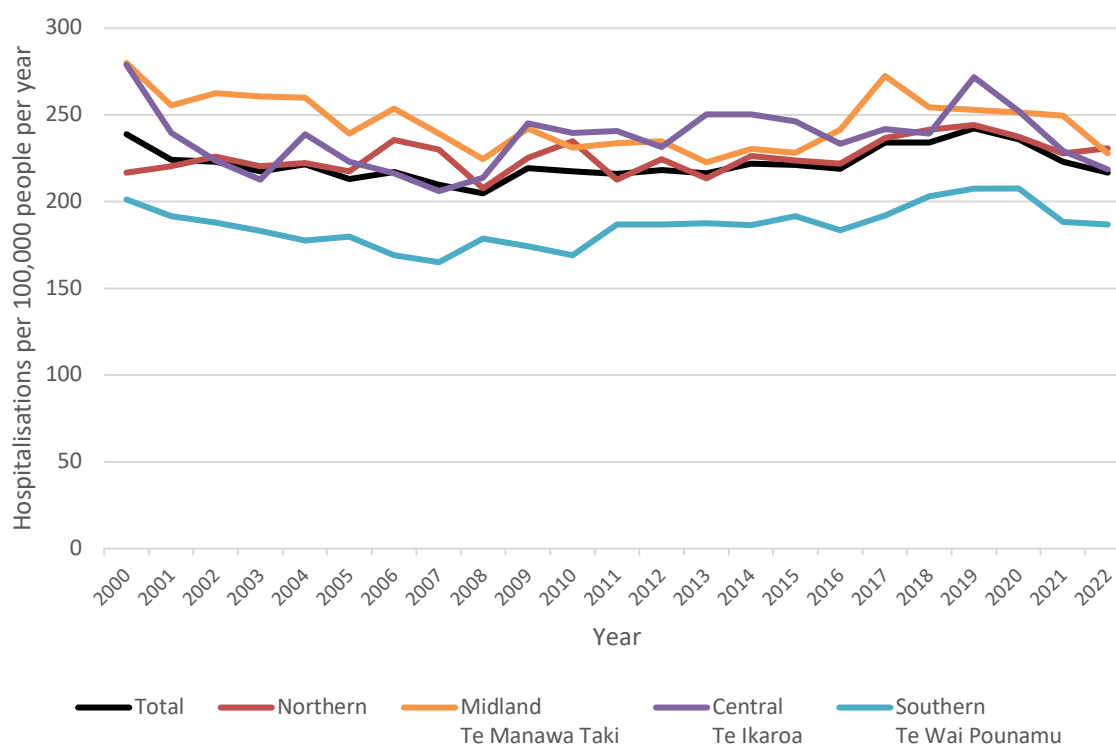
See Table A89 for data.

Figure 63. 150 heart failure hospitalisation rate ratios to NZDep 1-2 by NZDep quintile, 2000 to 2022.



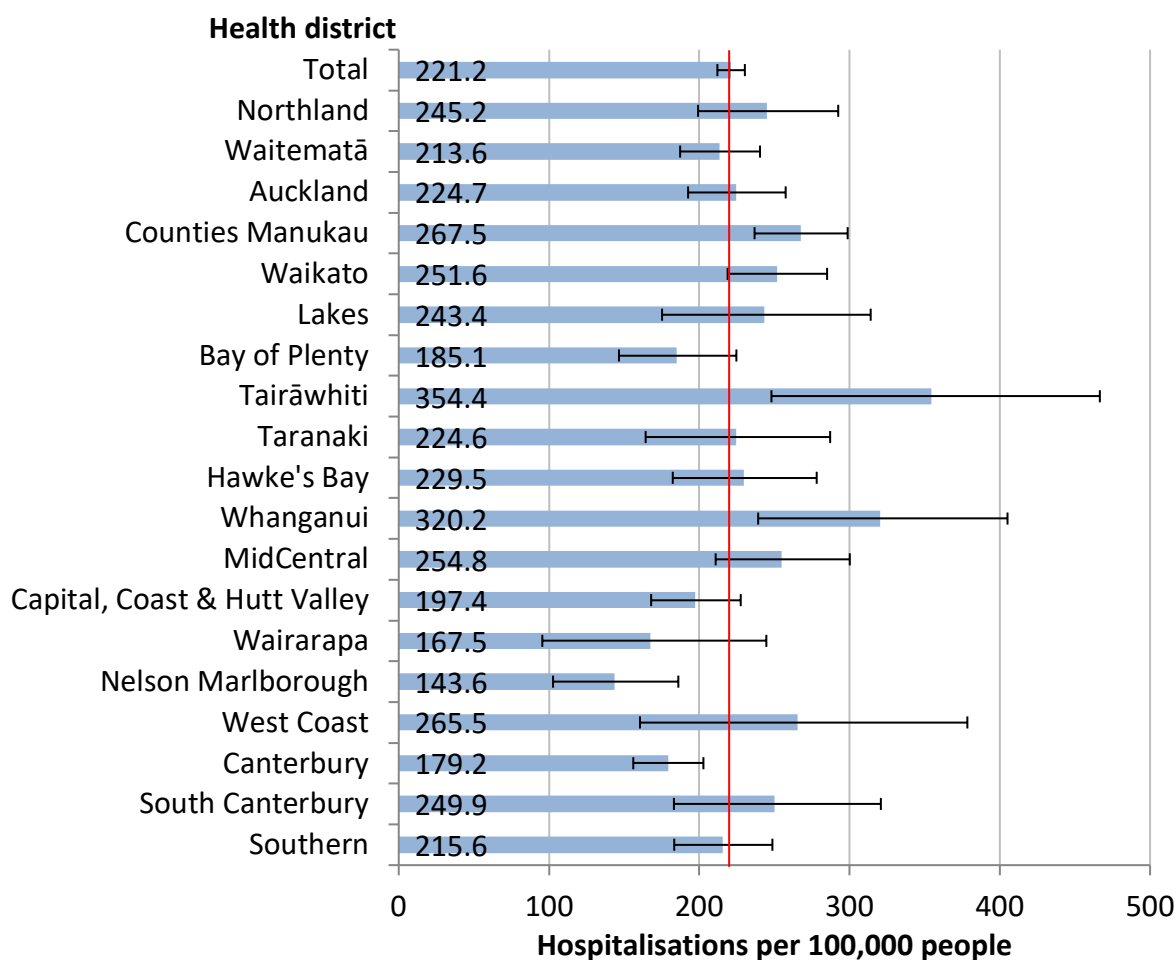
See Table A78 for data.

Figure 64. 150 heart failure hospitalisation rates per 100,000 people per year by health region, 2000 to 2022.



See Table A92 for data.

Figure 65. 150 heart failure hospitalisation rates by health district, 2022.



See Table A94 for data. The red line shows the national average.

MORTALITY

LARGEST CATEGORIES OF HEART DISEASE MORTALITY

Over the period 2000 to 2020, there were 150,510 deaths attributed to heart disease (6,651 in 2020), and 1,665,254 years of life lost (74,708 in 2020).

Table 10. Mortality key conditions and totals 2000 – 2022, 2000, and 2020.

ICD-10 code (description)	Deaths 2000 - 2020	2000	2020
Total heart disease	150,510	7,541	6,651
Total ischaemic heart disease (IHD)	114,120	5,993	4,299
I21 Acute myocardial infarction (AMI)	54,036	3,016	1,825
I25 Subsequent myocardial infarction	58,782	2,872	2,455
I42 Cardiomyopathy	4,591*	185	303
I48 Atrial fibrillation and flutter (AFF)	7,319	223	668
I50 Heart failure	6,611	373	269

*While overall numbers for cardiomyopathy were lower than for some other conditions, it was retained for analysis because it was the third most frequent cause of heart disease death among Māori.

Between 2000 and 2020, mortality rates have been steadily declining for the two largest causes of heart disease death (I25 and I21). Heart failure (I50) rates have also declined. Cardiomyopathy (I42) rates increased marginally. I48 and I35 have shown no statistically significant change.

YLLS

The most common categories of heart disease death were also the largest categories across years of life lost to heart disease, but in somewhat different orders:

Table 11. Years of life lost largest conditions and totals 2000 – 2022, 2000, and 2020.

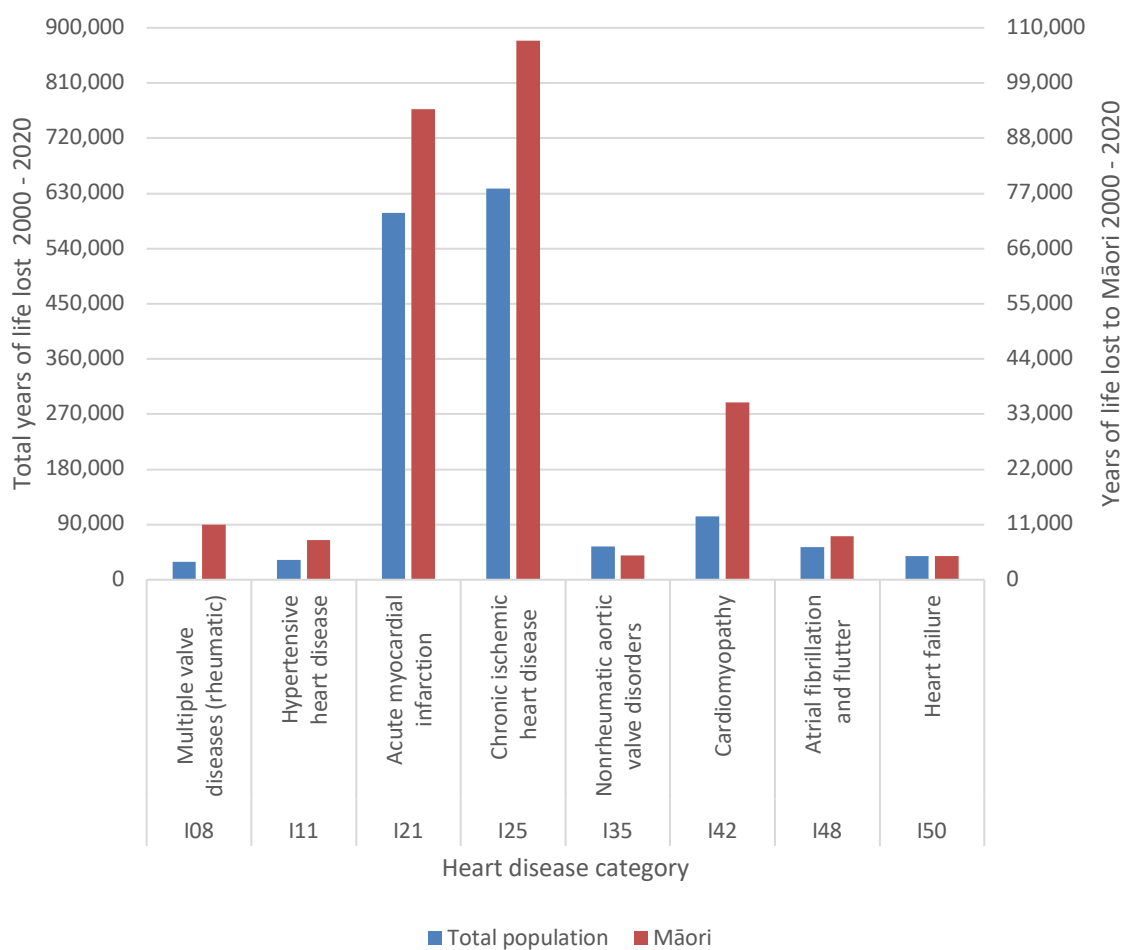
ICD-10 code (description)	YLLs 2000 - 2020	2000	2020
Total heart disease	1,665,254	87144	74708
Total ischaemic heart disease (IHD)	1,251,066	68987	48770
I08 Multiple valve disease (rheumatic)	28896	1507	1135
I11 Hypertensive heart diseases	32152	1293	2604
I21 Acute myocardial infarction (AMI)	598040	35110	21030
I25 Subsequent myocardial infarction	637981	32587	27388
I35 Nonrheumatic aortic valve disorders	54501	2396	3493
I42 Cardiomyopathy	103471	4336	6166
I48 Atrial fibrillation and flutter (AFF)	53558	1668	5101
I50 Heart failure	38600	2135	1671

Some other heart disease categories shortened life more - I45 Other conductive disorders, for example, brought death forward an average of 55.5 years across 14 deaths among Māori, and 31.2 years across 99 total deaths; and I40 Acute myocarditis brought death forward an average of 42.0 years across its 323 total deaths, and 49.9 years across 79 deaths among Māori. However, of the high-event categories, I42 Cardiomyopathy brought death forward the most, with an average YLL per death of 22.5 years.

Table 12. Average years of life lost to indicator heart diseases 2000 to 2020, total and by ethnic group.

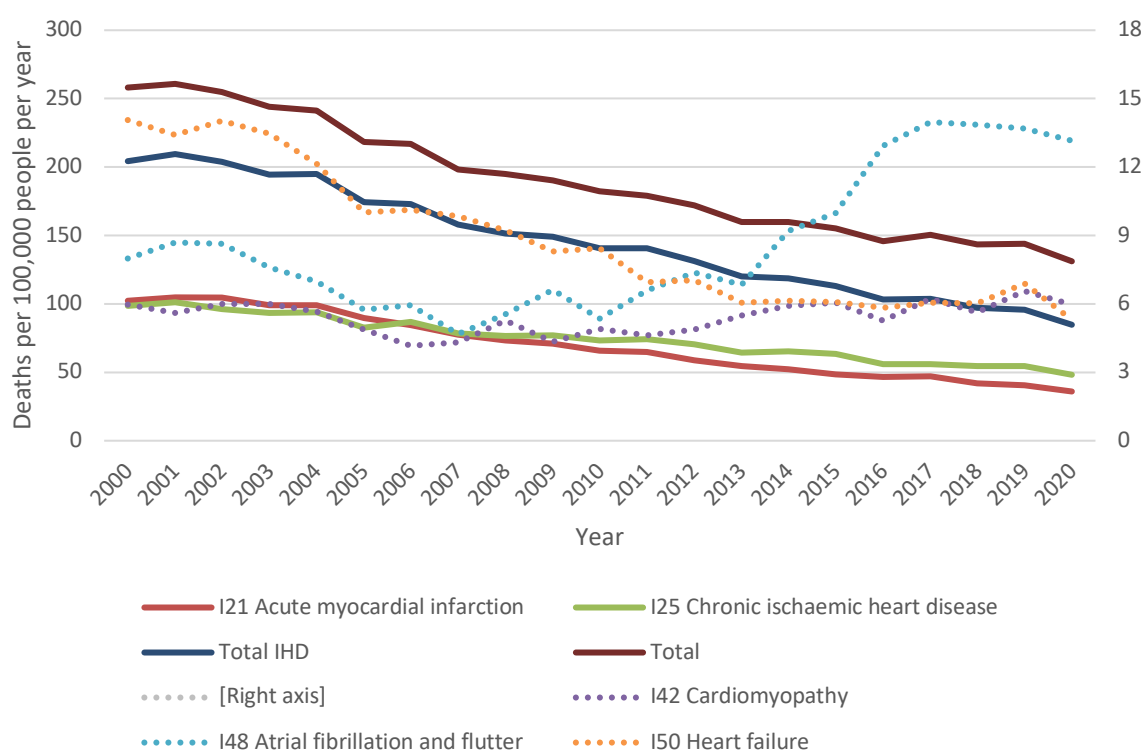
Code	Description	YLL				
		Total	Euro/ Other	Māori	Pacific	Asian
I42	Cardiomyopathy	22.5	18.6	28.2	31.5	28.0
I21	Acute myocardial infarction (AMI)	11.1	9.8	19.5	19.4	14.9
I25	Chronic ischemic heart disease	10.8	9.4	19.6	20.0	15.9
I48	Atrial fibrillation and flutter (AFF)	7.3	6.5	13.2	13.4	8.5
I50	Heart failure	5.8	5.3	12.1	10.1	6.5

Figure 66. Years of life lost to heart disease 2000 to 2020 by heart disease category, total population and Māori.



Left and right axes are scaled to reflect ratio of Māori deaths to total deaths in 2022. See Table 11 for data.

Figure 67. Mortality rates per 100,000 people per year, 2000 to 2020, for total, total IHD, and five largest categories of heart disease.

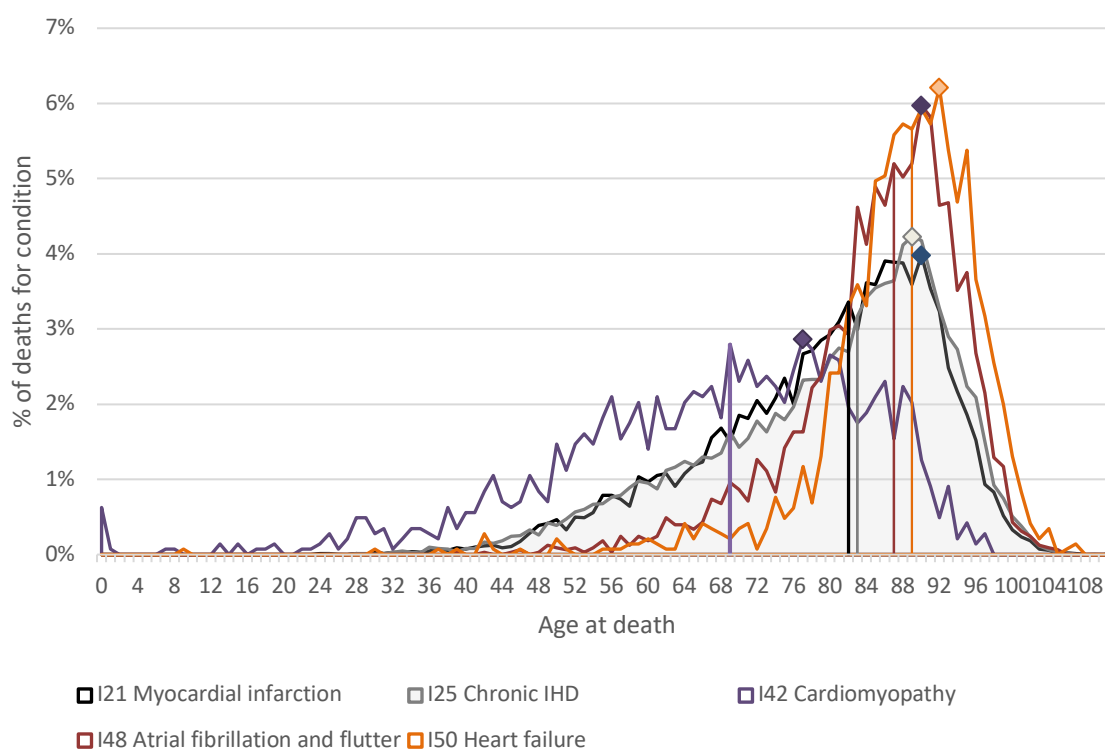


See Table A97, Table A109, Table A133, Table A145, Table A157, Table A169 for data.

AGE AT DEATH

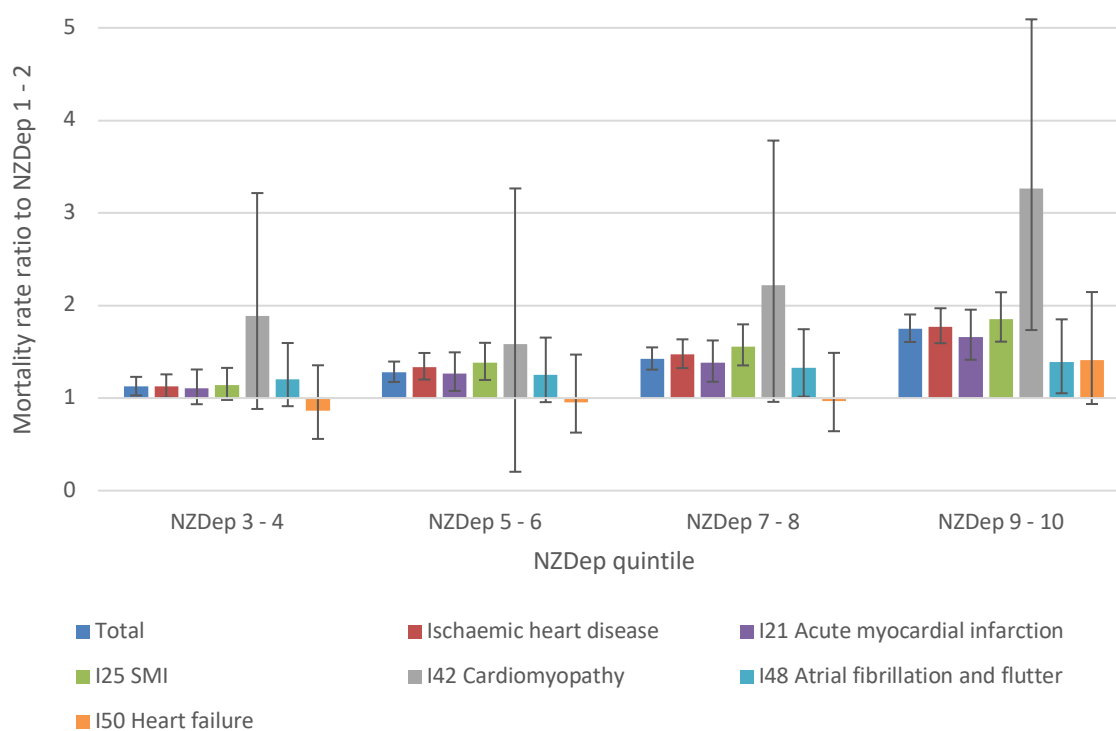
Distribution of age at death was similar for AFF and heart failure; and for AMI and SMI. Cardiomyopathy had a younger age profile, with the median age of death 69 years, where median ages of death for other indicators ranged from 82 to 89 years. The 2017 - 19 average life expectancy at birth was 80 (male) or 83.5 (female). With less heart disease, those medians would be later.

Figure 68. Age distribution and median age at death for five largest categories of heart disease mortality, 2016 - 2020.



Vertical lines show median age at death. Diamonds show peak deaths by age.

Figure 69. Total, IHD, and five largest categories of heart disease hospitalisation rate ratios to NZDep 1 -2, 2022.

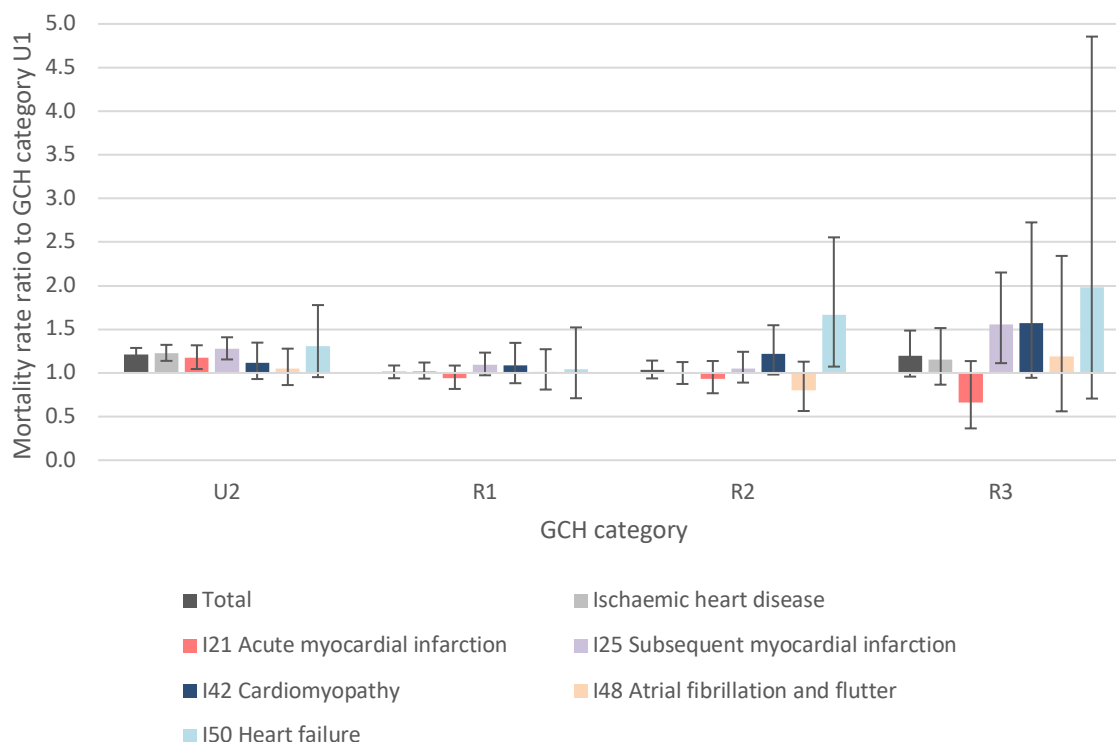


See Table A104, Table A116, Table A128, Table A140, Table A152, Table A164, and Table A176 for data.

GCH

While rates of total heart disease mortality and total and sub-categories of ischaemic heart disease were all higher in U1 than U2, there was otherwise little significant difference in the different categories of heart disease mortality by GCH; except that heart failure mortality was higher in R2 than U1 (Figure 70).

Figure 70. Total, total IHD and five indicator categories of heart disease mortality rate ratios to U1 by GCH, 2020.



See Table A108, Table A120, Table A132, Table A144, Table A156, Table A168, and Table A180 for data.

TOTAL HEART DISEASE MORTALITY

No studies were identified measuring total heart disease mortality in Aotearoa.

AGE

In 2020 the median age at death from heart disease was 83 years, but there was substantial variation in median age for different population groups. Only 3% of deaths occurred in people aged under 50 years.

GENDER

Total heart disease mortality rates were higher among males than females, though the difference reduced substantially over time (Figure 71). In 2020, rates for females were only 62% those of males. The median age at death for females was 87, compared to 80 for males.

ETHNIC GROUP

Heart disease mortality was highest in Māori. Their 2020 rate of 99.6 deaths per 100,000 people per year was 2.3 times higher than the European/Other rate of 43.3. Heart disease mortality was also higher than European/Other for Pacific Peoples, with a rate of 79.2 and a rate ratio of 1.83. Asian Peoples' heart disease mortality was significantly lower than others', with a rate of 27.6 and a rate ratio to European/Other of 0.64.

In a model which controlled for socio-economic deprivation as well as age-group, Māori mortality rates were still 2.00 times higher than European/Other, and Pacific rates were 1.51 times higher.

Median age at death was 69 for Māori and Pacific Peoples, 77 for Asian Peoples, and 85 for European/Other.

SOCIO-ECONOMIC DEPRIVATION

There was a strong socio-economic gradient in heart disease mortality, with rates in NZDep 9 – 10 sitting 1.75 times higher than NZDep 1-2. People in NZDep 9 – 10 also died earlier, with a median age at death of 79 years, compared with 85 in NZDep 1 – 2 and 86 in NZDep 5-6 and 7-8.

In a model which controlled for ethnicity as well as age-group, the deprivation gradient remained, with NZDep 9 – 10 mortality rates still 1.57 times higher than NZDep 1 – 2.

HEALTH REGION

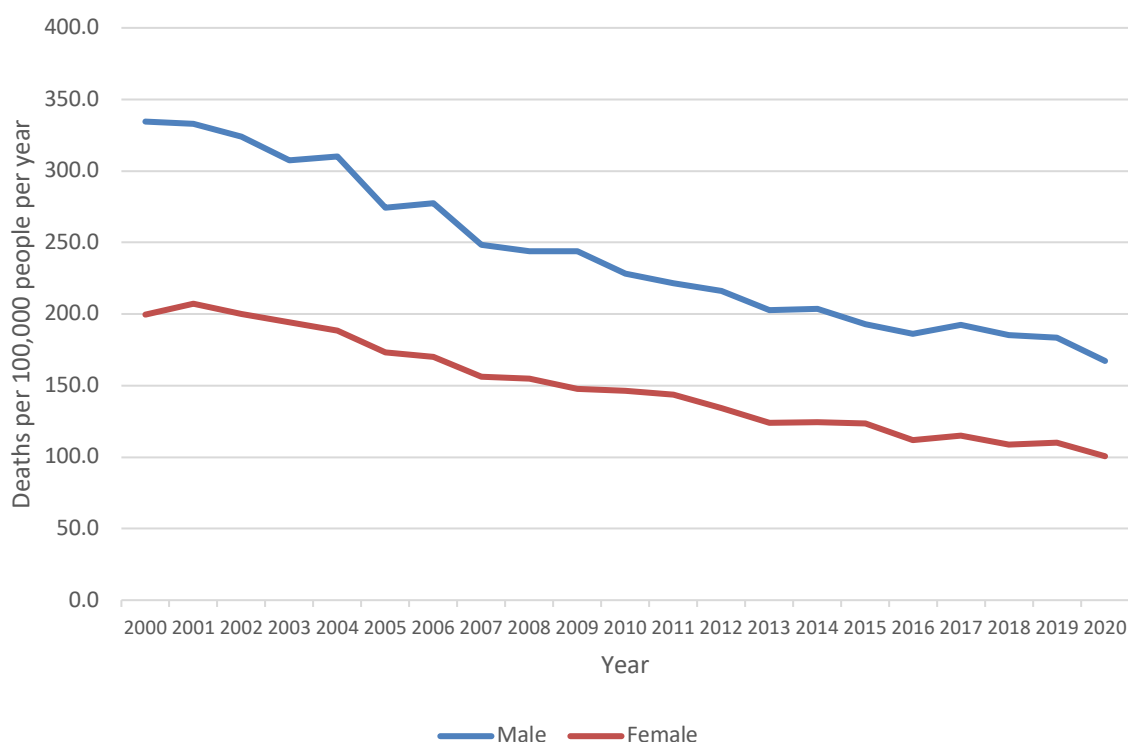
From 2000 to 2020 heart disease mortality rates were consistently lower in the Northern health region than in other regions. Southern/Te Waipounamu rates were similar to national rates, while Midland/Te Manawa Taki and Central/Te Ikaroa rates were higher.

HEALTH DISTRICT

In 2020 heart disease mortality rates were highest in Tairāwhiti, Lakes, Taranaki and Whanganui health districts, and lowest in Waitematā, Auckland, and Canterbury. Some of these differences reflected demographic differences. After controlling for age group, ethnicity, and deprivation, differences for Tairāwhiti and Whanganui were no longer statistically significant; the ratio for Taranaki compared to the rest of the country was 1.28, and other substantially and significantly higher rate ratios were Nelson Marlborough (1.25), South Canterbury (1.22), Lakes (1.21), Southern (1.21), and MidCentral (1.20); while Waitematā remained lower, with a rate ratio of 0.77.

However, while demography may explain some of the difference, it does not reduce the additional burden in the higher rate districts.

Figure 71. Total heart disease mortality rates per 100,000 people per year by gender, 2000 - 2020.



See Table A98 for data.

Figure 72. Total heart disease mortality age distribution by gender, 2016 - 2020.

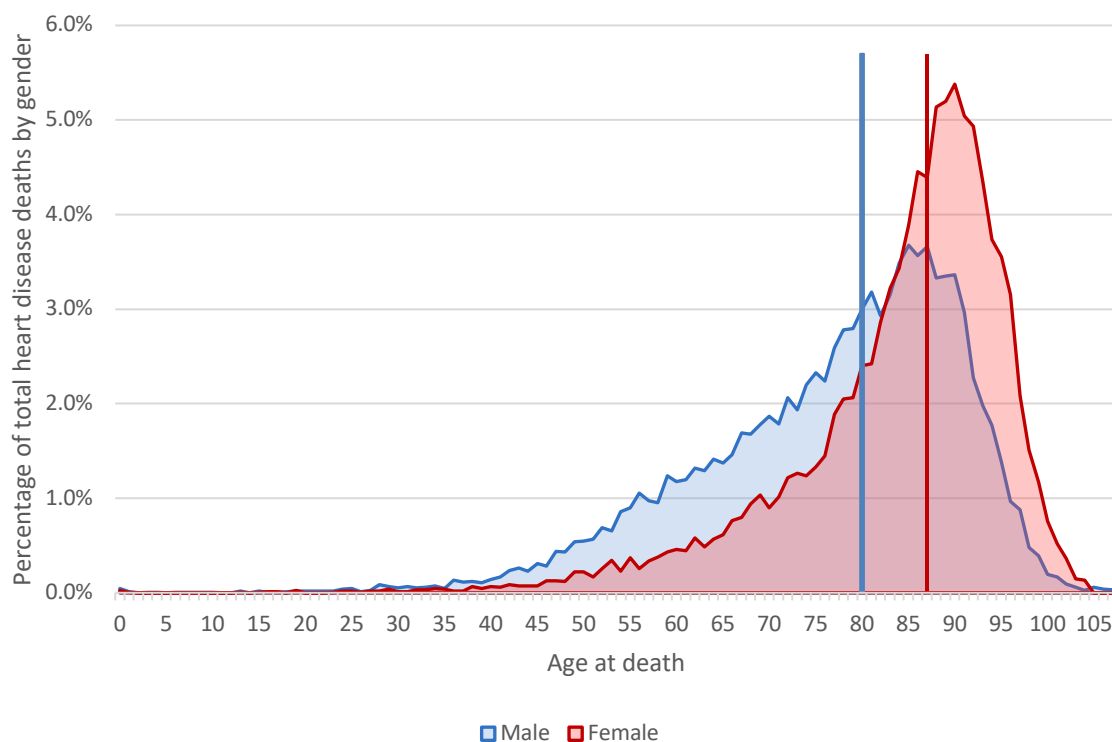


Figure 73. Total heart disease mortality age distribution by ethnic group, 2016 - 2020.

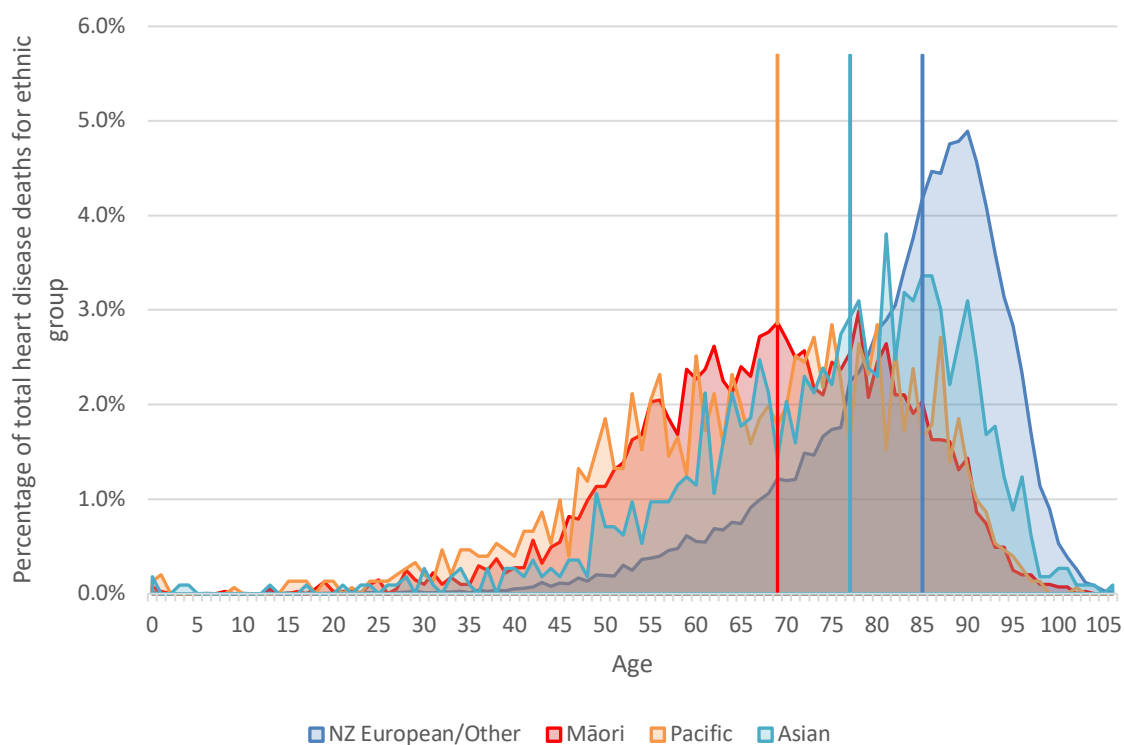
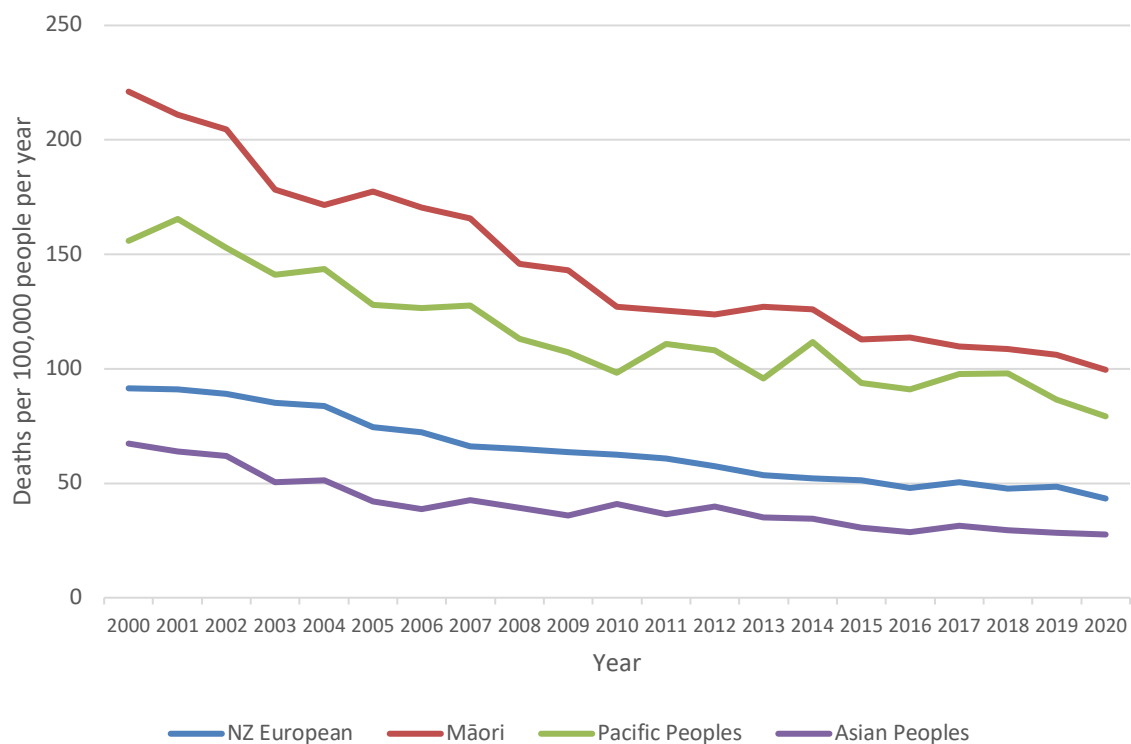
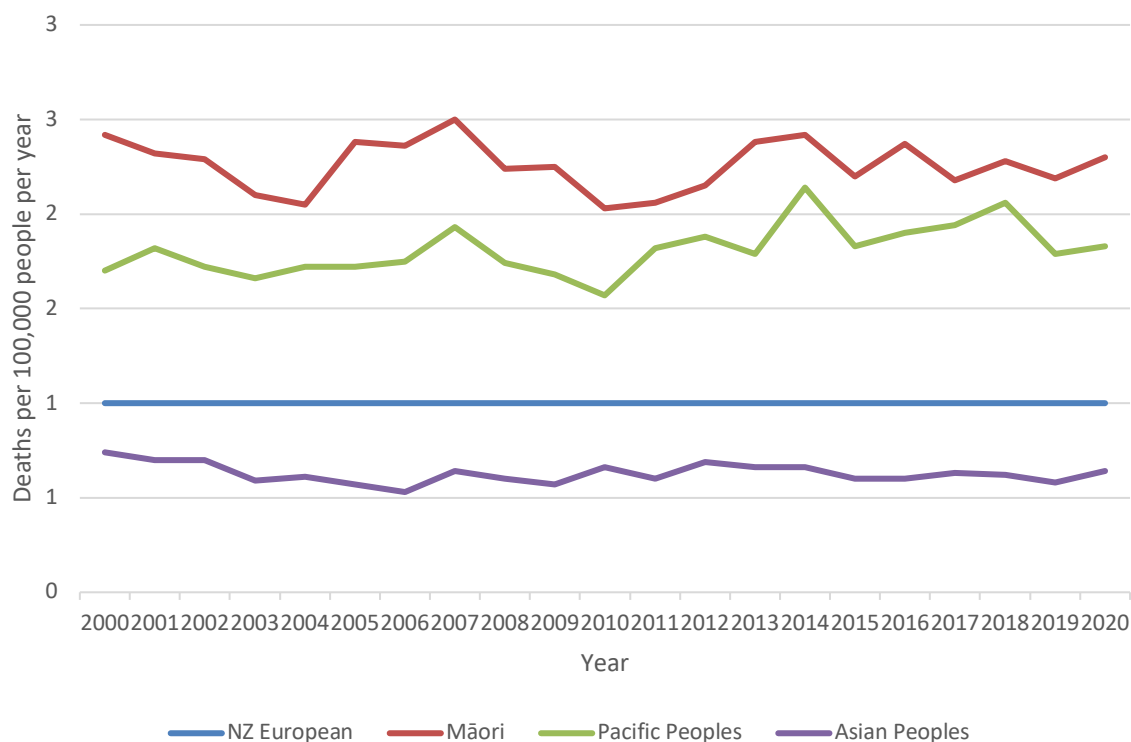


Figure 74. Total heart disease mortality rates per 100,000 people per year by ethnic group, 2000 - 2020.



N.B. Rates are age-standardised to 2020 Māori population. See Table A100 for data.

Figure 75. Total heart disease mortality rates per 100,000 people per year by ethnic group, 2000 - 2020.



See Table A101 for data.

Figure 76. Total heart disease mortality age distribution by NZDep quintile, 2000 - 2020.

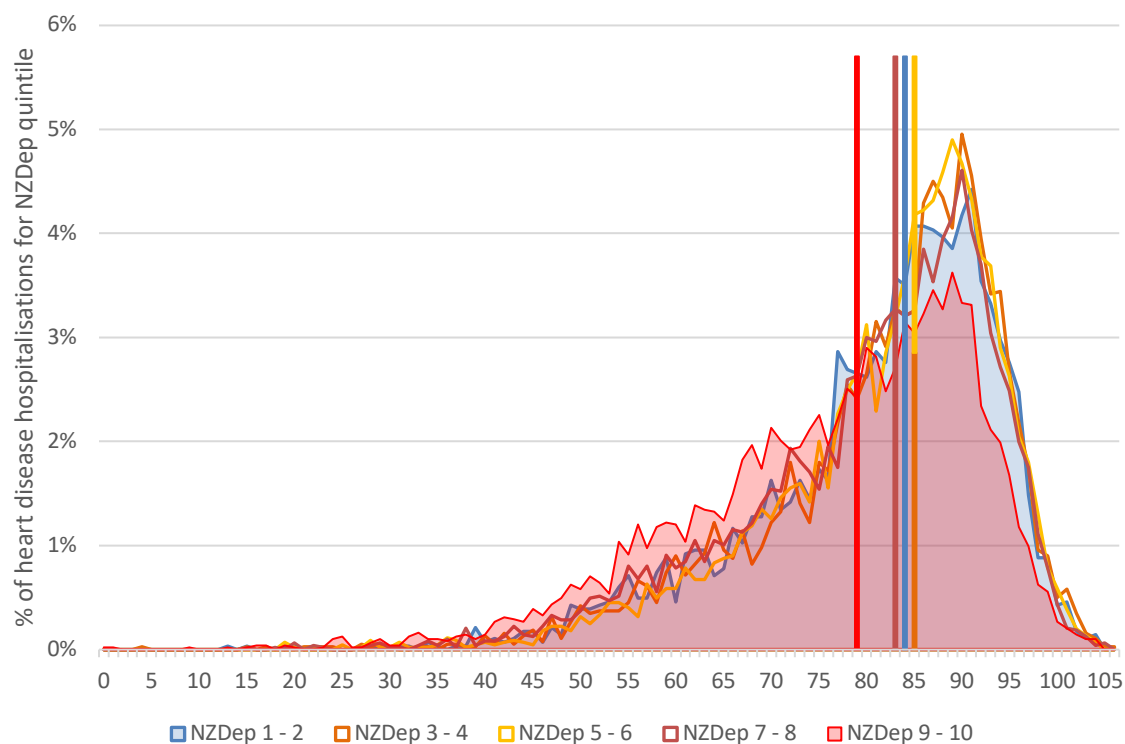
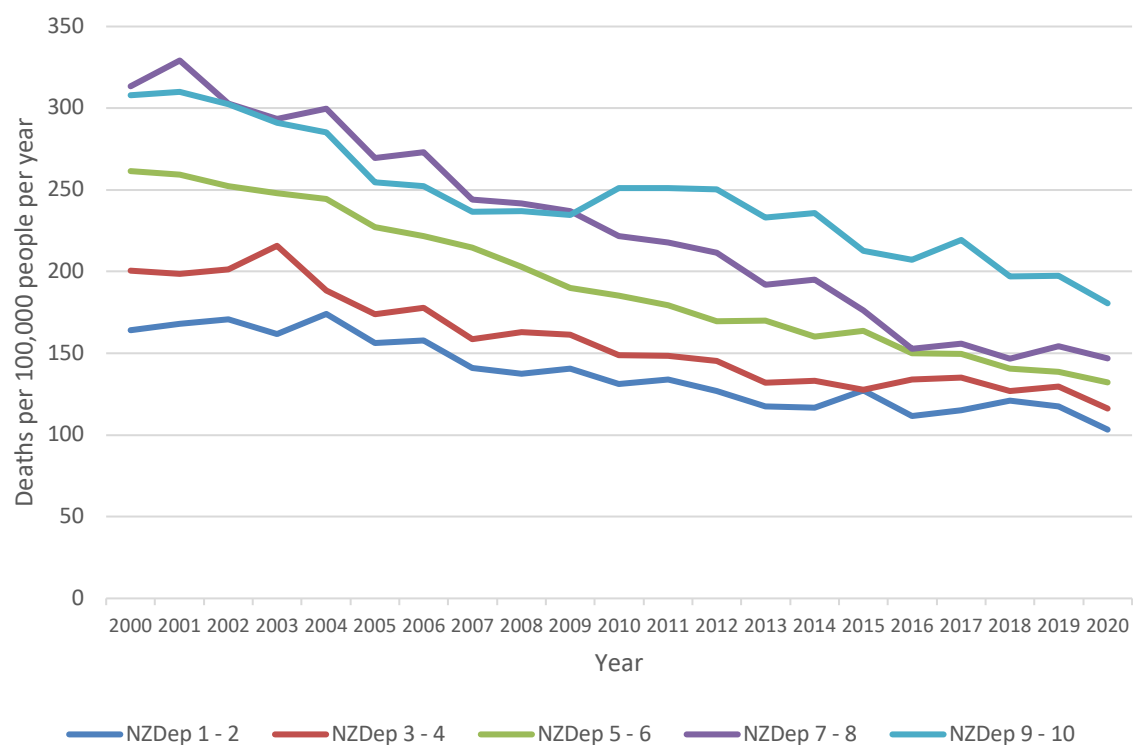
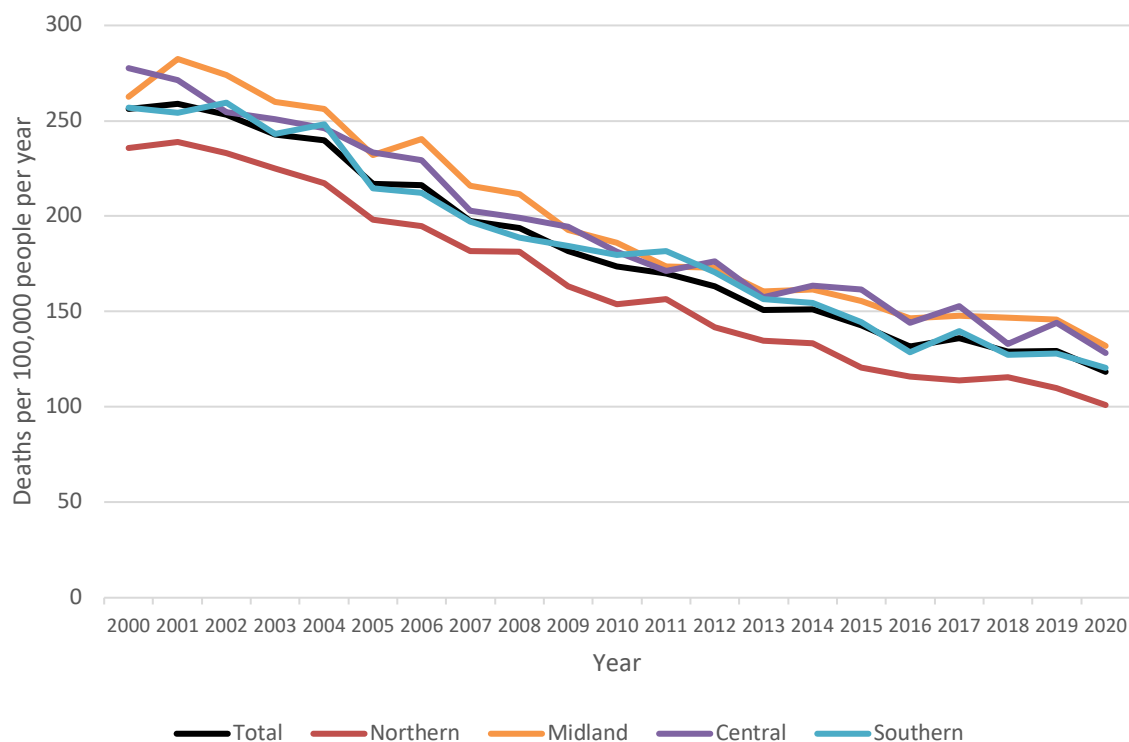


Figure 77. Total heart disease deaths per 100,000 people per year by NZDep quintile, 2000 - 2020.



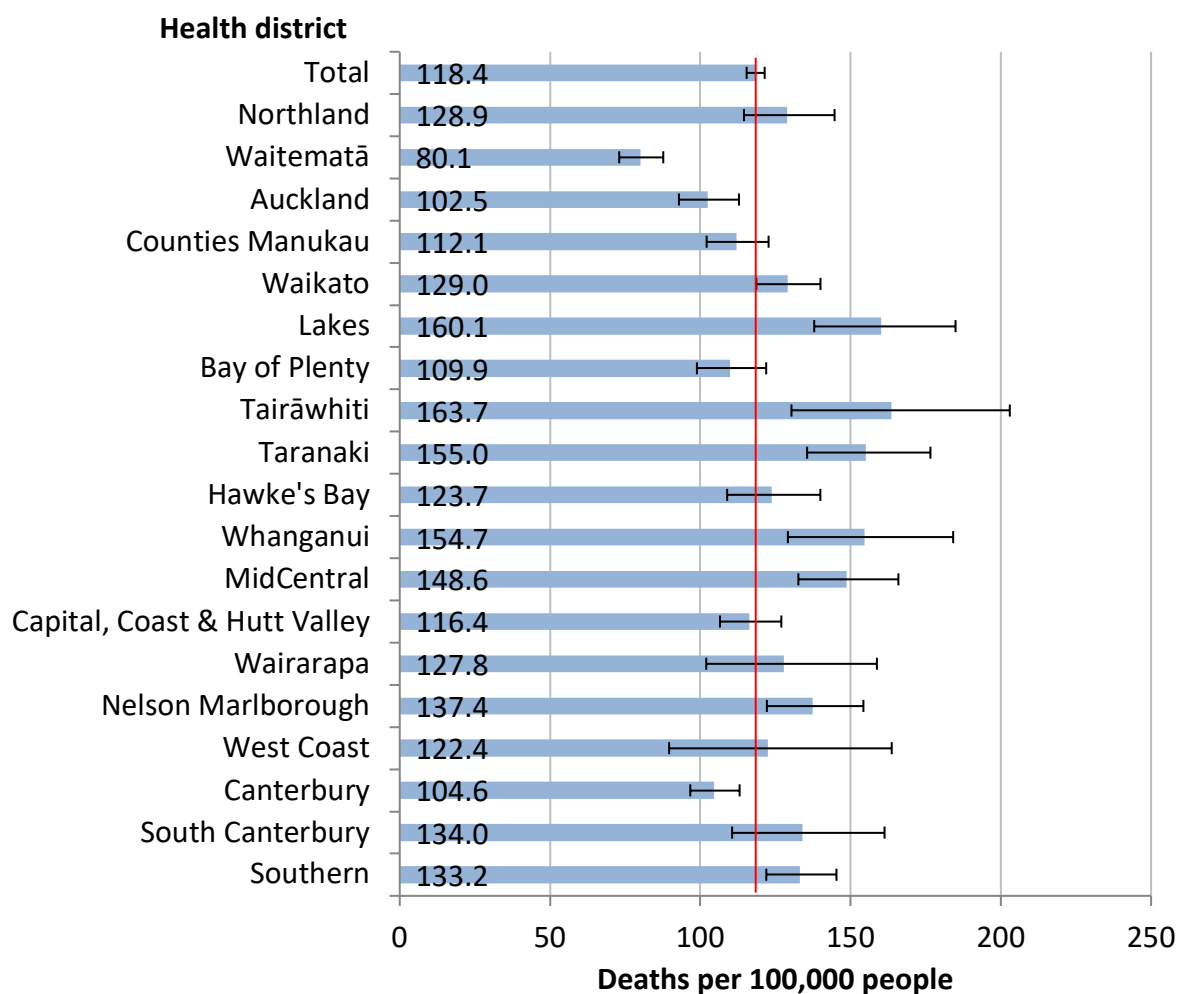
See Table A102 for data.

Figure 78. Total heart disease deaths per 100,000 people per year by health region, 2000 - 2020.



See Table A105 for data.

Figure 79. Total heart disease deaths per 100,000 people, by health district, 2020.

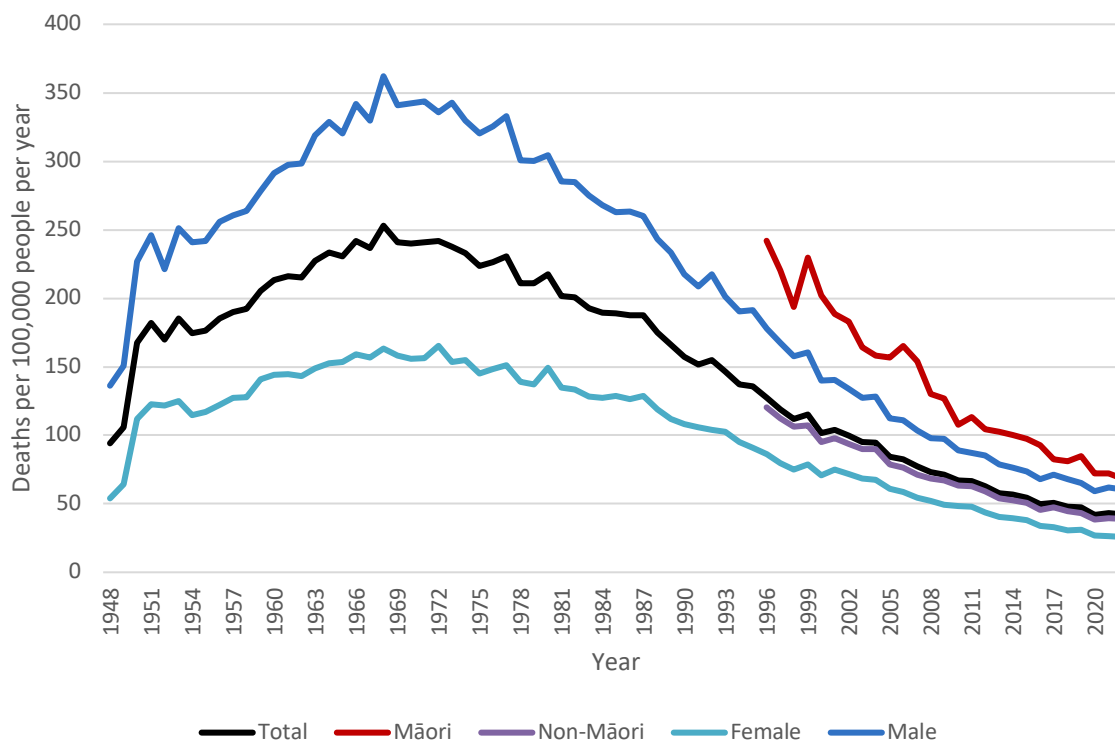


See Table A107 for data.

HISTORICAL TRENDS IN IHD

IHD rates have declined over the study period. This decline continues a long term trend downwards since peak rates in the late 1960s and early 1970s. In 2020 there were an estimated 49.5 deaths per 100,000 people from IHD.

Figure 80. Ischaemic heart disease mortality rates per 100,000 people per year, 1948–2022.



Data are from <https://tewhātuora.shinyapps.io/mortality-web-tool/>. Data for 2020 are provisional. Data for 2021/22 are preliminary.

AGE

The median age at death from IHD was 82 years. Less than 3% of deaths occurred before 50 years of age.

GENDER

IHD mortality rates were higher for males than females throughout the study period. The difference increased slightly, from rate ratios of ~0.60 through the early 2000s, to 0.51 in 2020. Age at death was older for females (median 88) than males (median 80).

ETHNIC GROUP

Māori experienced higher IHD mortality rates than other ethnic groups. Their 2020 rate of 99.6 deaths per 100,000 people per year was 2.30 times higher than European/Other. Pacific Peoples' rates were 1.83 times higher than European/Other. Asian Peoples' IHD mortality rates were lower, with a rate ratio of 0.64.

SOCIO-ECONOMIC DEPRIVATION

As in other heart disease indicators, there was a clear gradient in rates of IHD mortality by NZDep quintile. 2020 rates in NZDep 9 – 10 were 1.77 times higher than rates for NZDep 1 – 2.

HEATH REGION

As with total heart disease mortality, IHD mortality rates were substantially lower than the national average in the Northern region, but similar in Southern/Te Waipounamu, and higher in Midland/Te Manawa Taki and Central/Te Ikaroa (Figure 85).

HEALTH DISTRICT

IHD rates were highest in Taranaki and Tairāwhiti health districts, and lowest in Waitematā.

Figure 81. IHD mortality rates per 100,000 people per year by gender, 2000 2020.

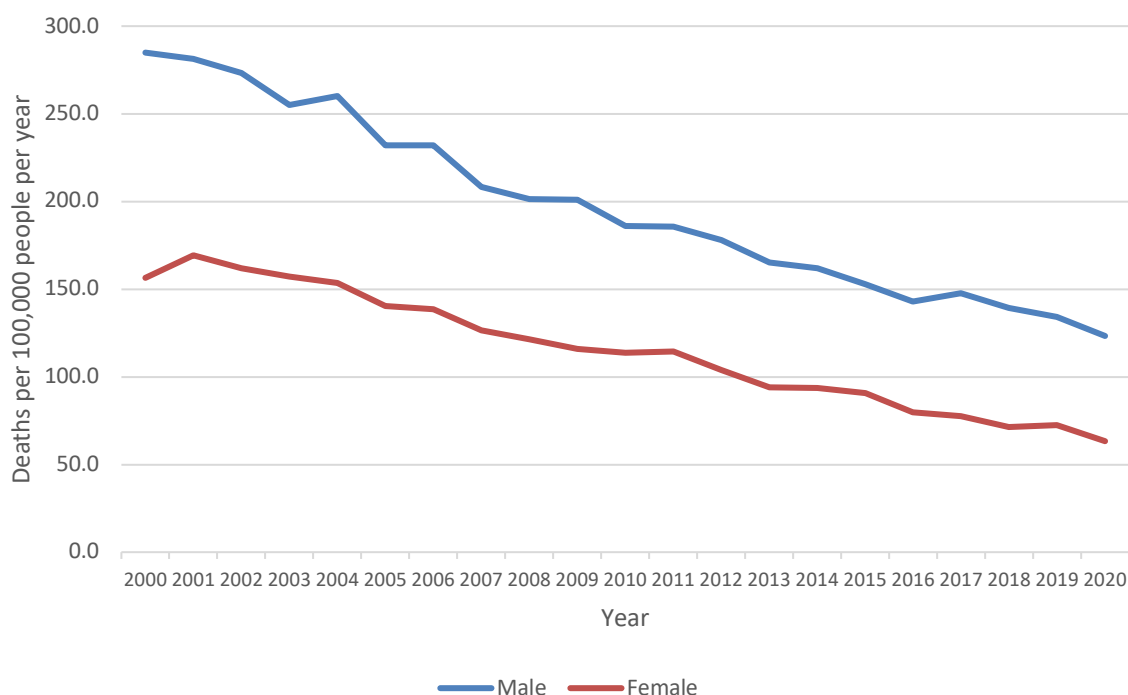


Figure 82. IHD mortality distribution by gender and age at death, 2016 2020.

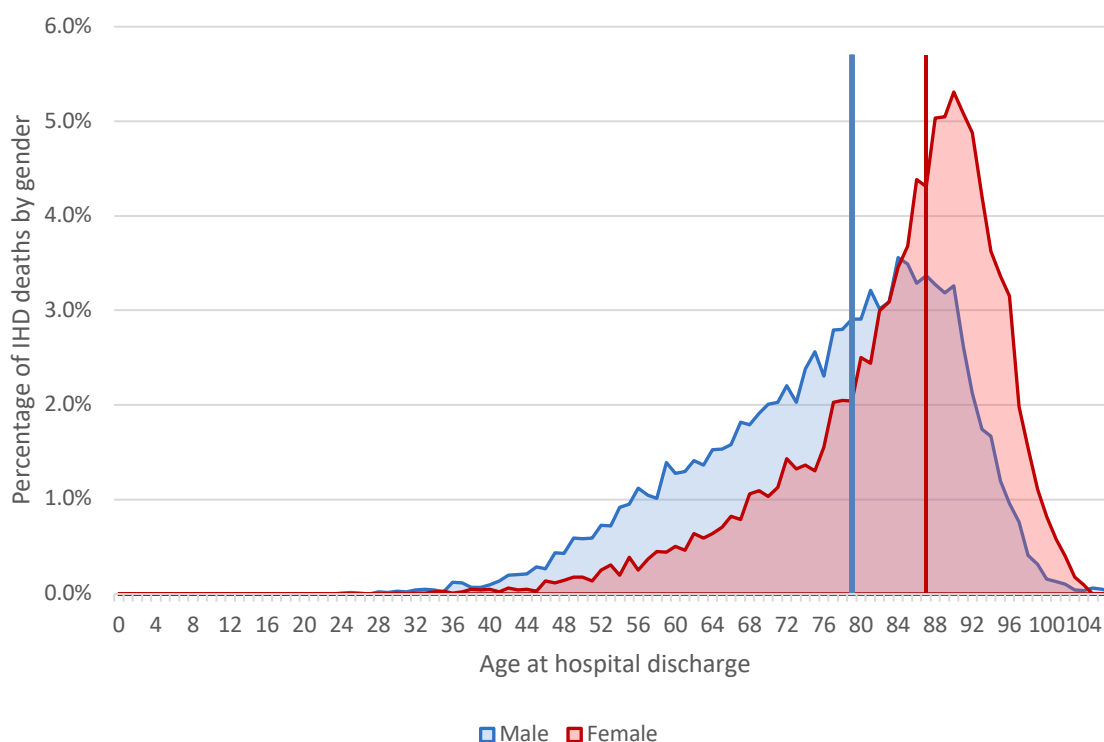
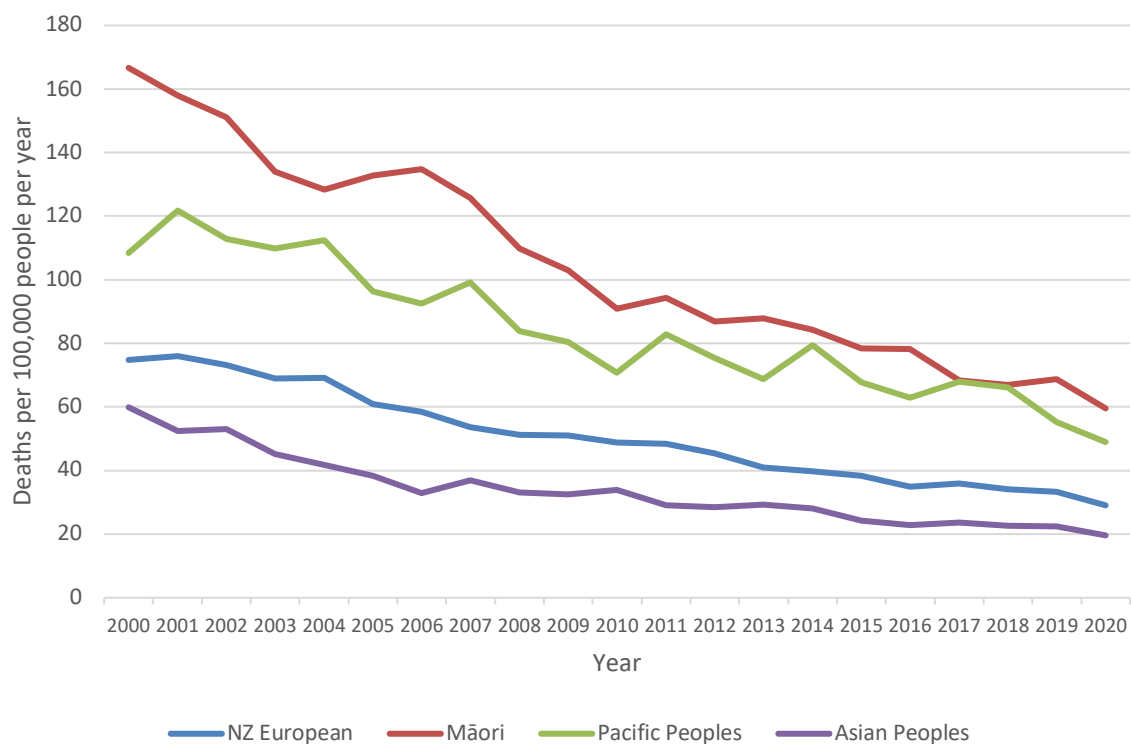
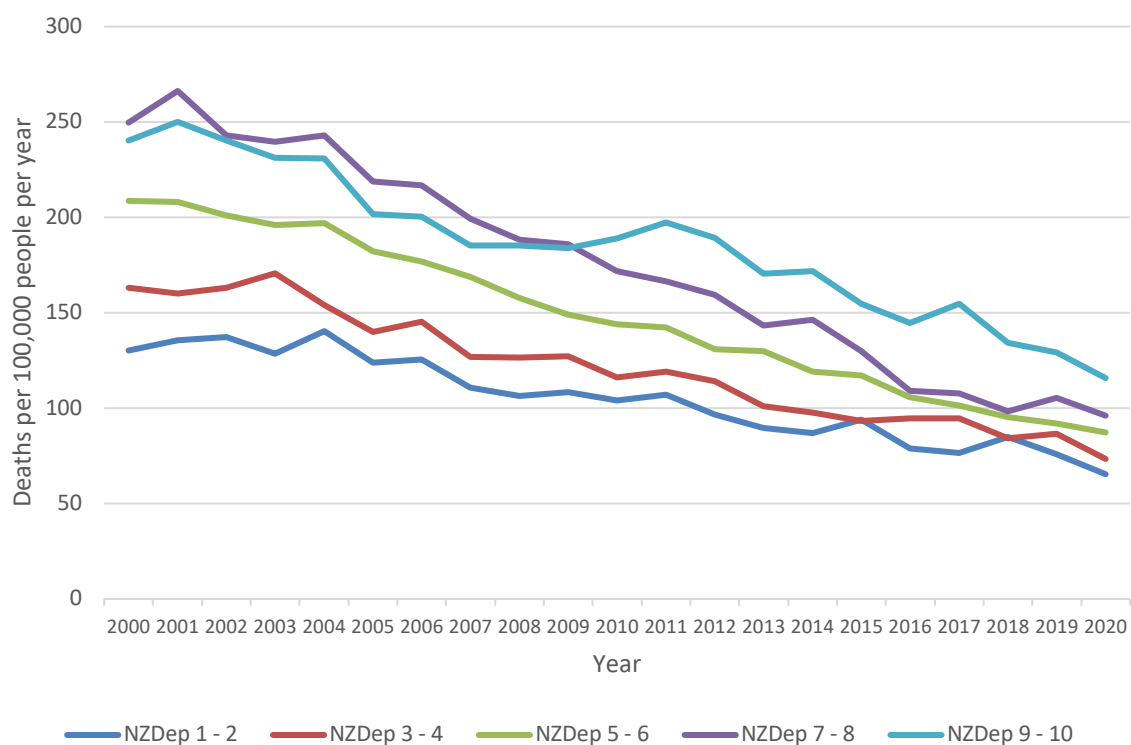


Figure 83. IHD deaths per 100,000 people per year by ethnic group, 2000 - 2020.



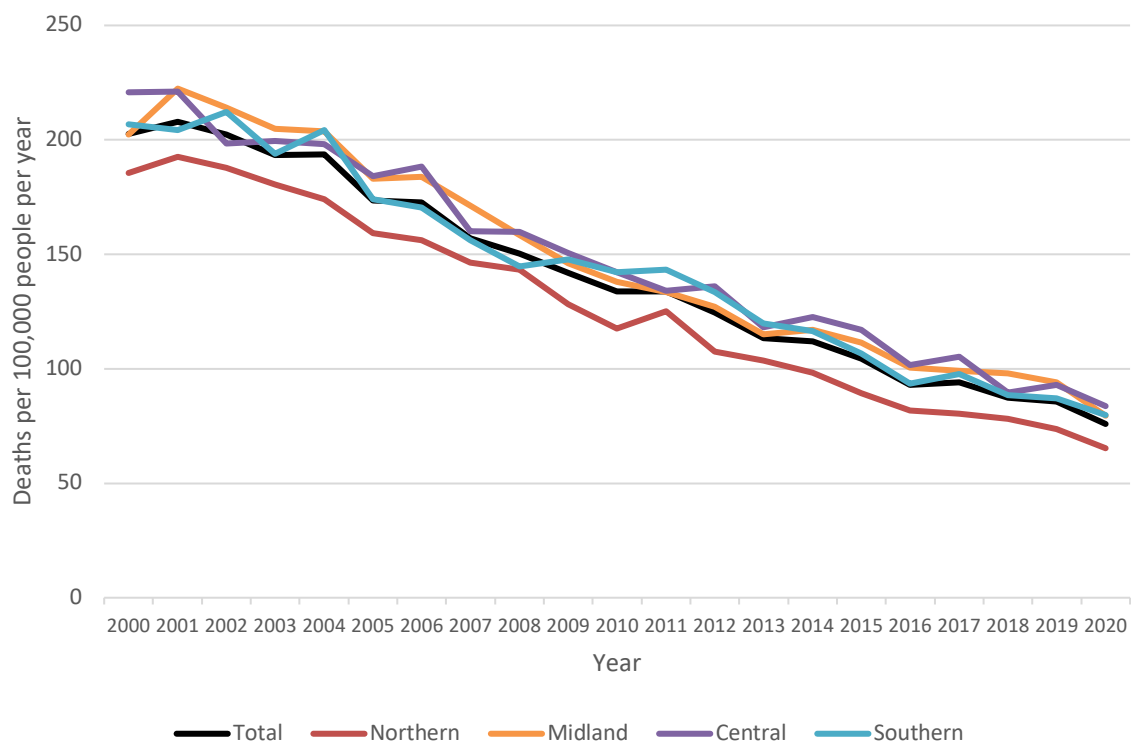
See Table A112 for data.

Figure 84. IHD deaths per 100,000 people per year by NZDep quintile, 2000 - 2020.



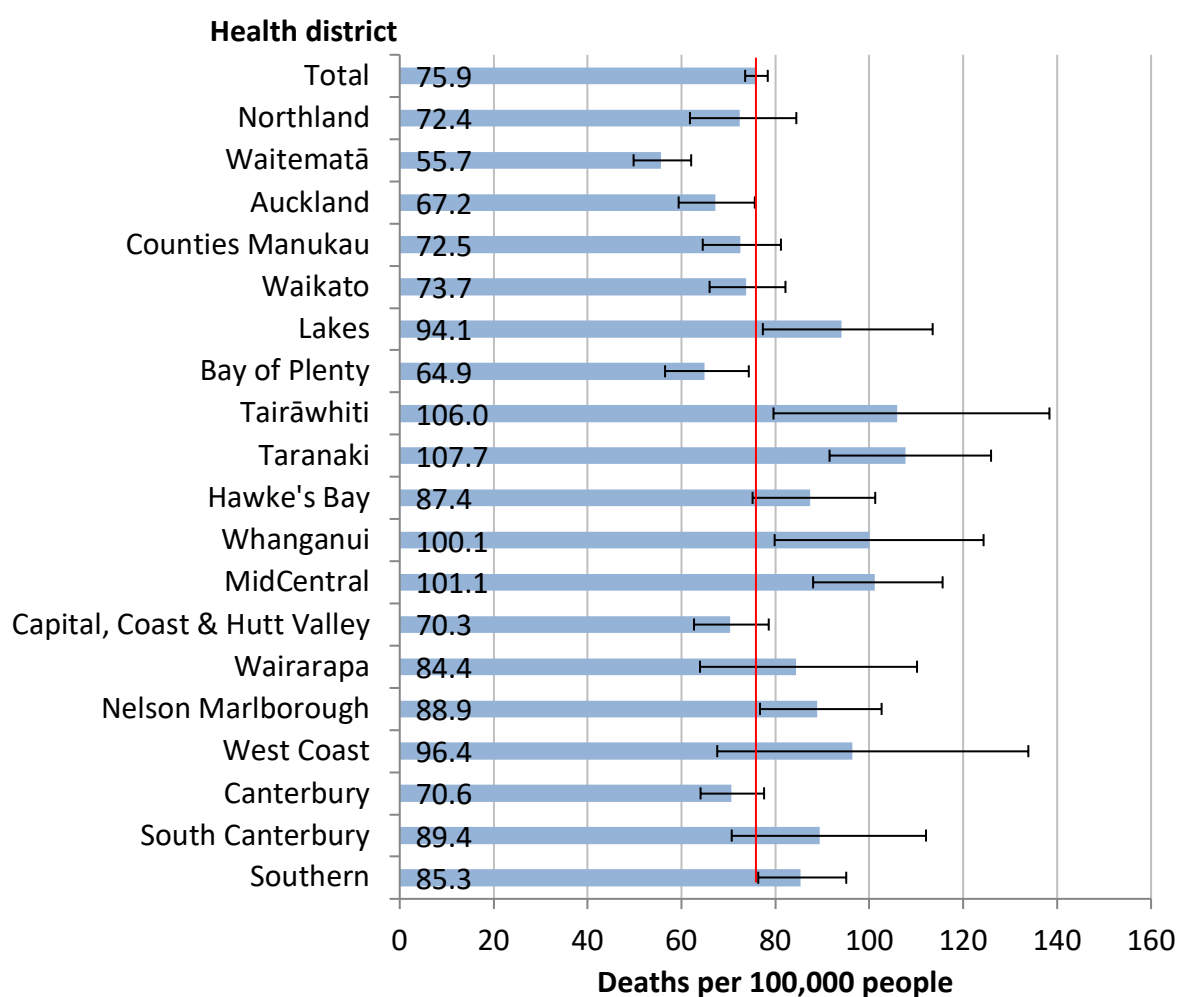
See Table A114 for data.

Figure 85. IHD deaths per 100,000 people per year by health region, 2000 - 2020.



See Table A117 for data.

Figure 86. IHD deaths per 100,000 people per year by health district, 2020.



See Table A119 for data.

I21 ACUTE MYOCARDIAL INFARCTION (AMI)

AGE AND GENDER

As with total IHD, AMI predominantly occurred in people over 50 years of age. Males died of AMI earlier, with a median age at death of 79, compared to 87 in females. The female rate ratio to male also matched total IHD, at 0.51 in 2020.

ETHNIC GROUP

Māori, and Pacific Peoples, had the highest rates of AMI, at 22.3 and 21.8 deaths per 100,000 people per year, respectively in 2020. The rate ratio to European/Other was 1.72 for Māori, and 1.68 for Pacific Peoples. Asian Peoples rates were lower, with a rate ratio of 0.70.

SOCIO-ECONOMIC DEPRIVATION

The socio-economic gradient in heart disease included AMI. The rate ratio of NZDep 9 -10 to NZDep 1 – 2 was 1.66.

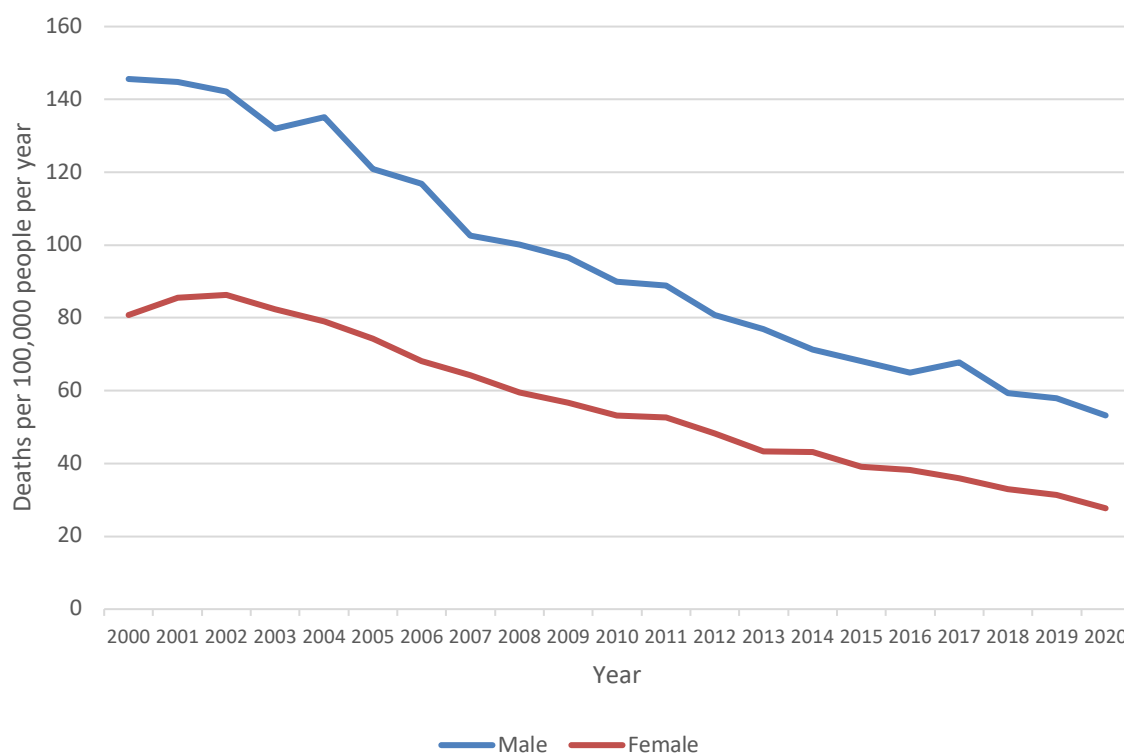
HEALTH REGION

AMI rates were lowest in the Northern region, but not significantly different from the national average in other regions (Figure 91).

HEALTH DISTRICT

2020 AMI rates were highest in Taranaki, Lakes, Tairāwhiti and West Coast; and lowest in Auckland and Waitematā.

Figure 87. I21 AMI mortality rates per 100,000 people per year by gender, 2000-2020.



See Table A122 for data.

Figure 88. I21 AMI mortality distribution by gender and age at death, 2016-2020.

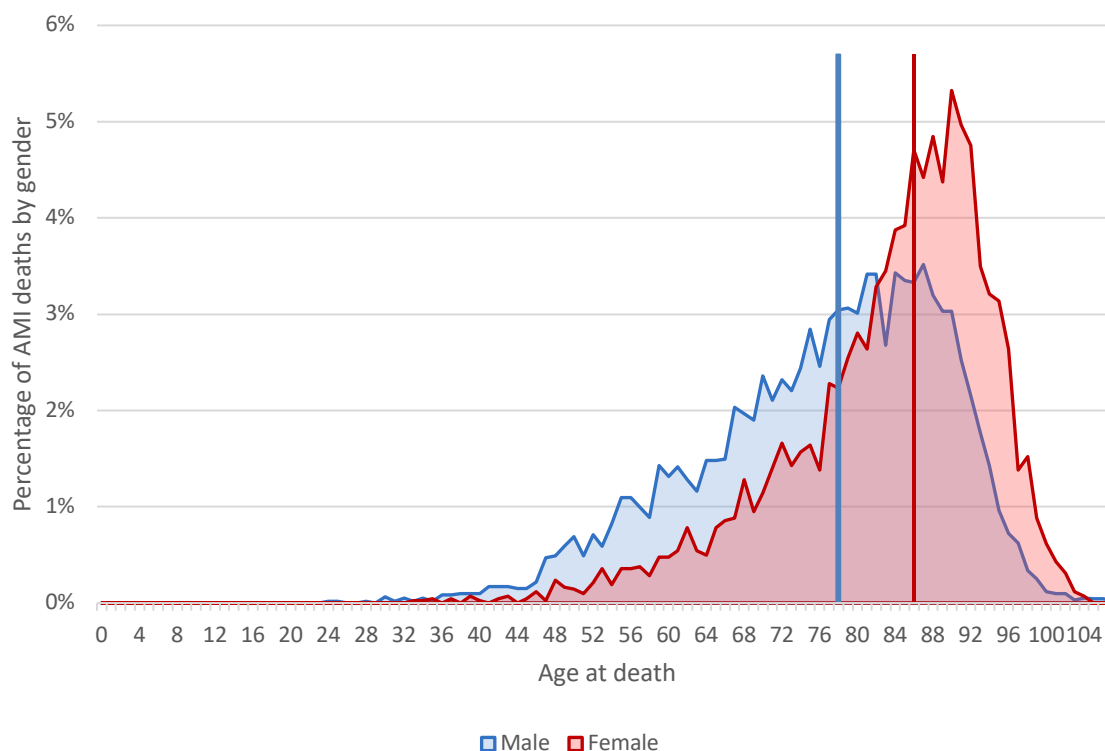
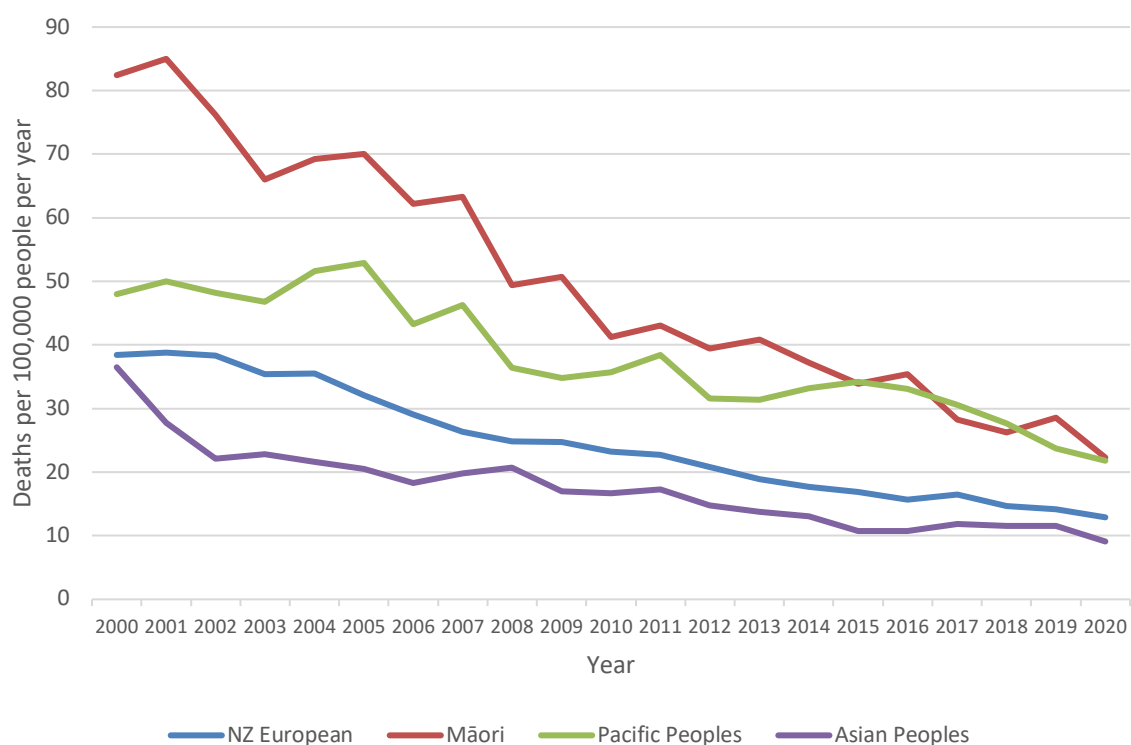
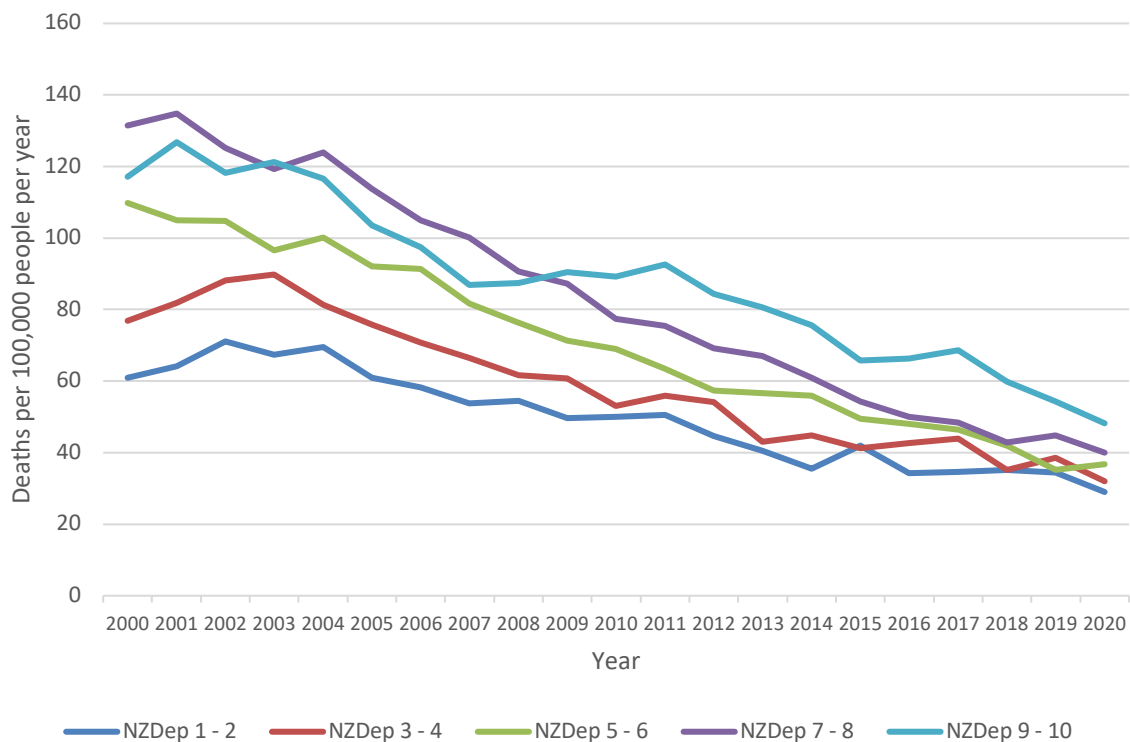


Figure 89. I21 AMI deaths per 100,000 people per year by ethnic group, 2000 - 2020.



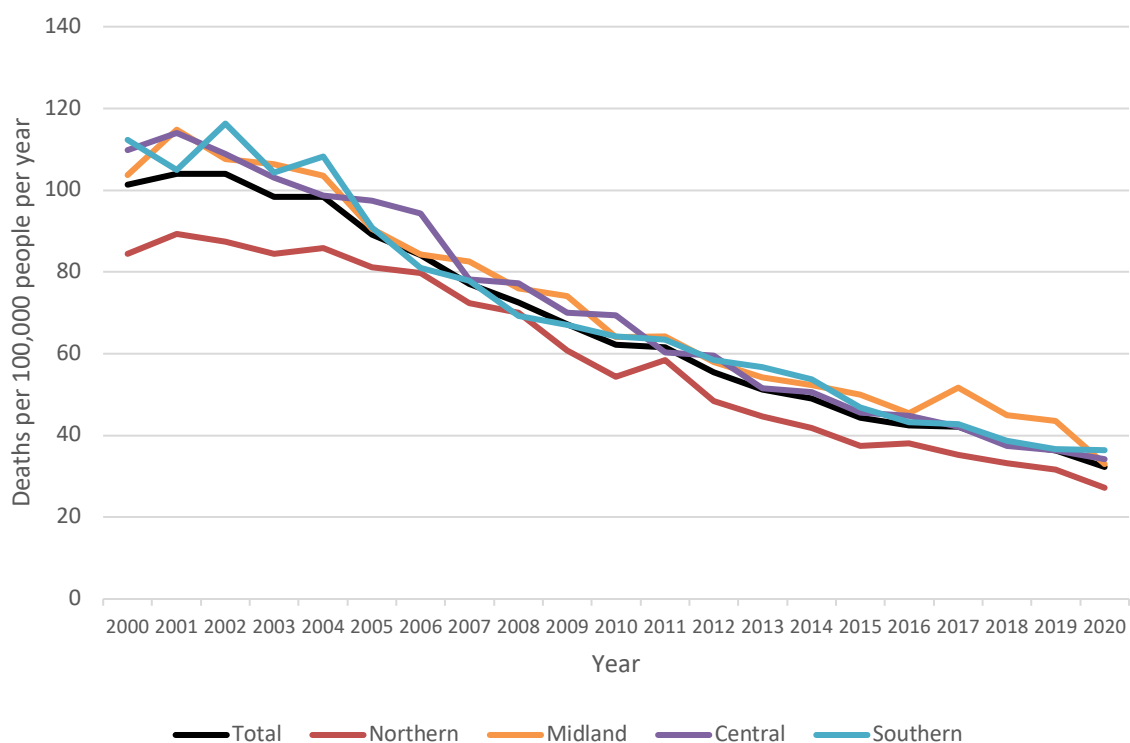
See Table A124 for data.

Figure 90. I21 AMI deaths per 100,000 people per year by NZDep quintile, 2000 - 2020.



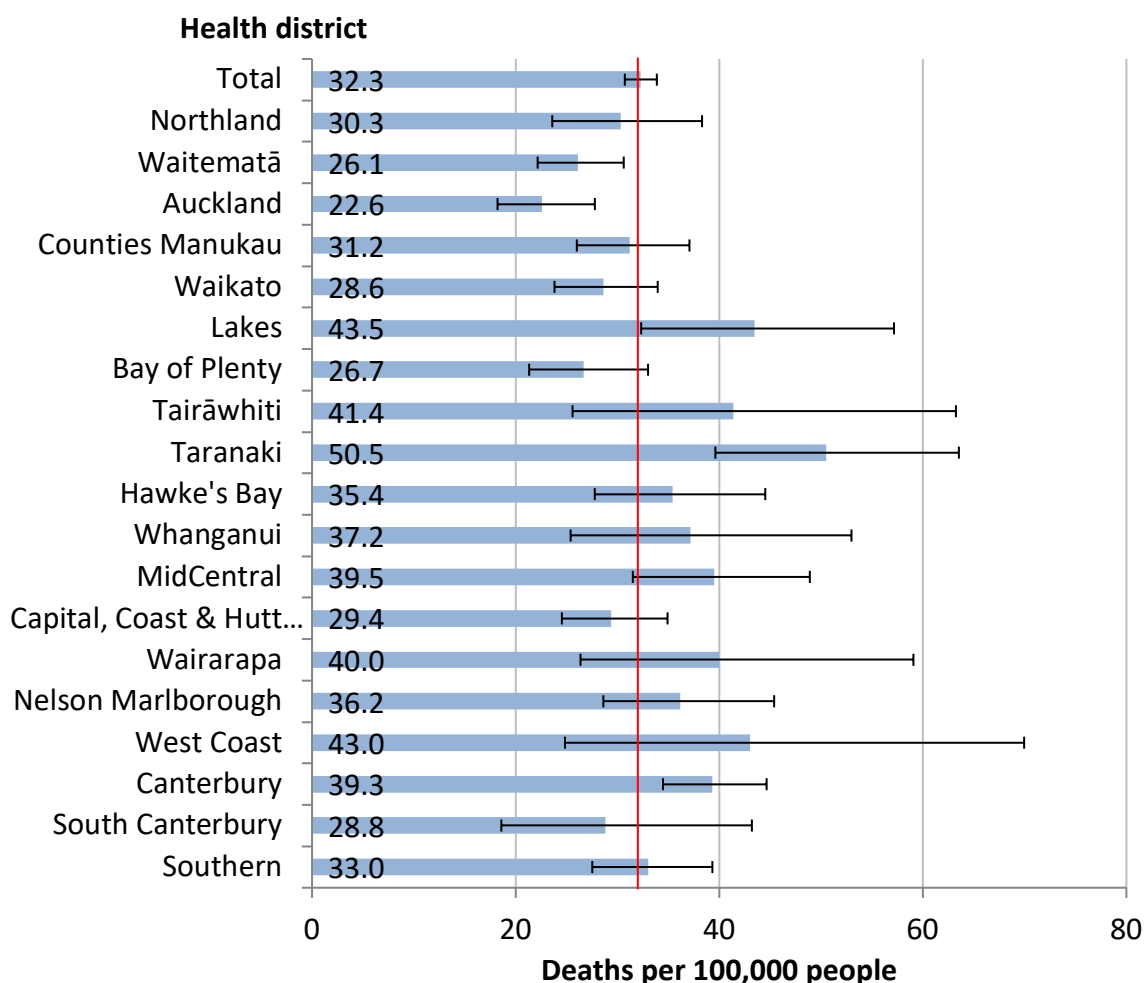
See Table A126 for data.

Figure 91. I21 AMI deaths per 100,000 people per year by health region, 2000 - 2020.



See Table A129 for data.

Figure 92. I21 AMI deaths per 100,000 people, by health district, 2020.



See Table A131 for data.

I25 SUBSEQUENT MYOCARDIAL INFARCTION (SMI)

There were 48.2 deaths per 100,000 people in 2020, which was less than half the rate in the early 2000s.

AGE AND GENDER

SMI mortality rates declined substantially for both genders (Figure 93), but slightly more for females than for males, so that by 2020, female rates were about half of male rates, with a rate ratio of 0.50. The median age at death was 79 for males and 87 for females.

ETHNIC GROUP

SMI mortality rates fell for all ethnic groups, and fell more for Māori and Pacific Peoples than for European/Other (Figure 95). However, 2020 mortality rates were still 2.29 times higher for Māori than for European/Other, and 1.67 times higher for Pacific Peoples. Asian Peoples' rates were lower than European/Other, with a rate ratio of 0.66. The median age at death was substantially younger for Māori (69), Pacific Peoples (68) and Asian Peoples (75) than for European/Other (85).

SOCIO-ECONOMIC DEPRIVATION

SMI mortality rates fell for all NZDep quintiles, but fell most for quintile NZDep 7 – 8 (Figure 96). In 2020, there was a strong deprivation gradient, with rates in NZDep 9 – 10 1.86 times higher than in NZDep 1 – 2.

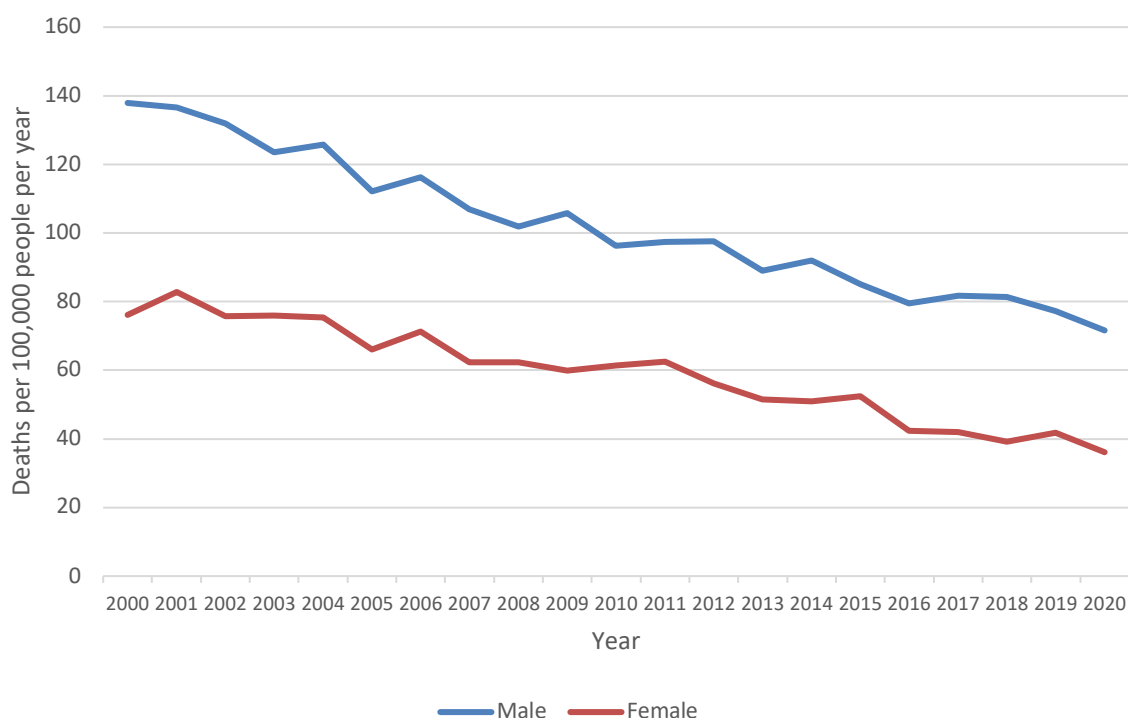
HEALTH REGION

From 2004, SMI mortality rates were lowest in the Northern health region. Other regions were not significantly different from the national average (Figure 97).

HEALTH DISTRICT

2020 SMI mortality rates were highest in Tairāwhiti, Whanganui, MidCentral and South Canterbury health districts, and lowest in Waitematā and Canterbury (Figure 98).

Figure 93. I25 SMI mortality rates per 100,000 people per year by gender, 2000 2020.



See Table A134 for data.

Figure 94. I25 SMI mortality distribution by gender and age at death, 2016 2020.

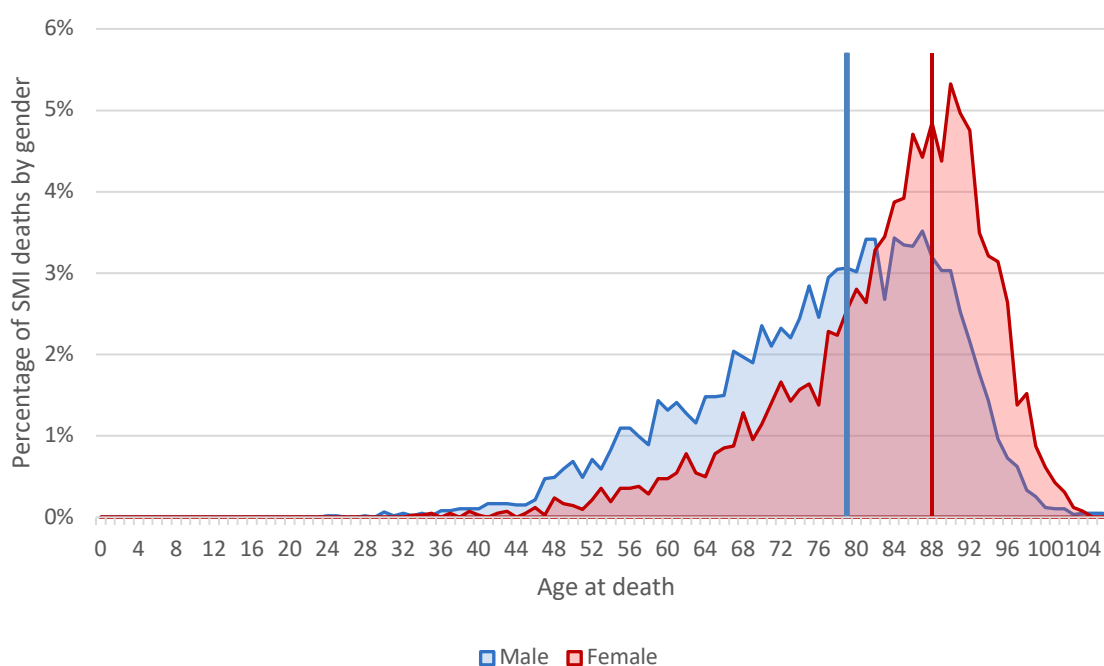
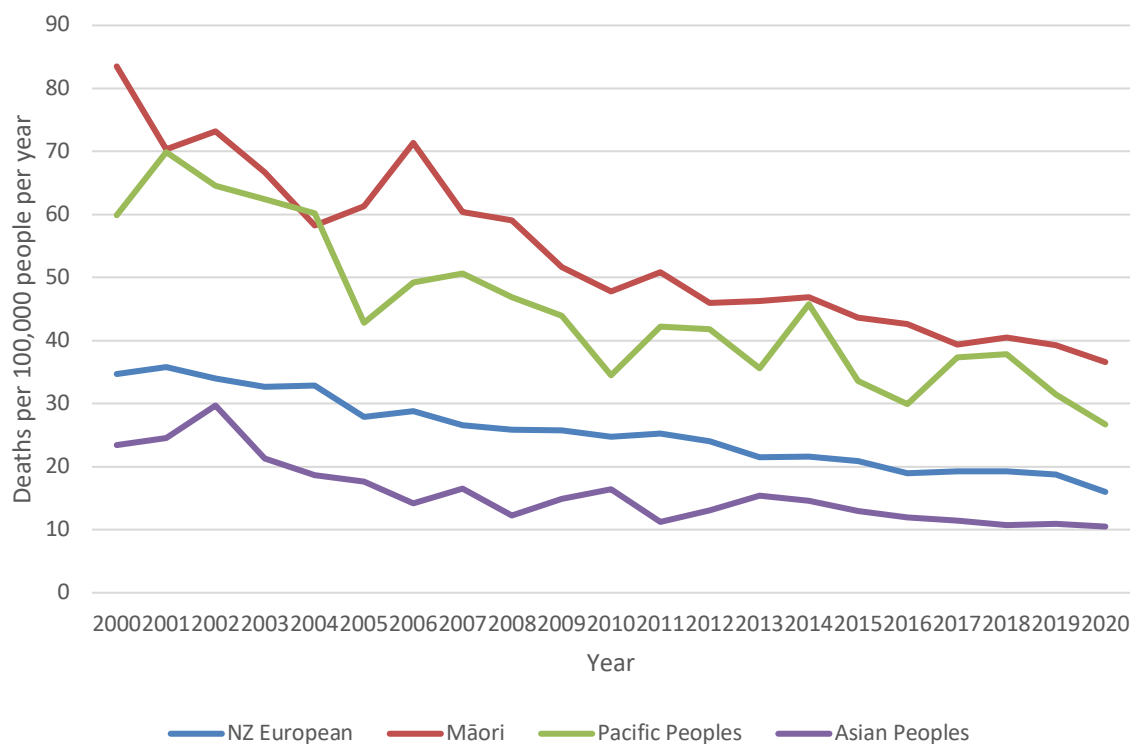
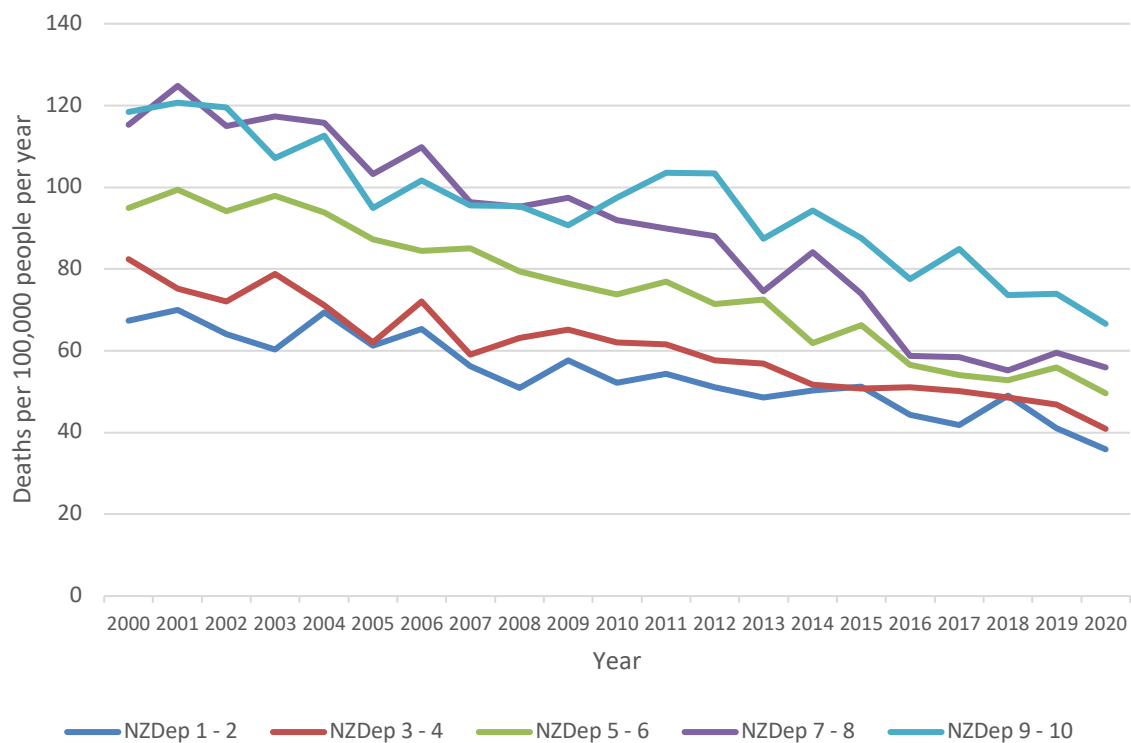


Figure 95. I25 SMI deaths per 100,000 people per year by ethnic group, 2000 - 2020.



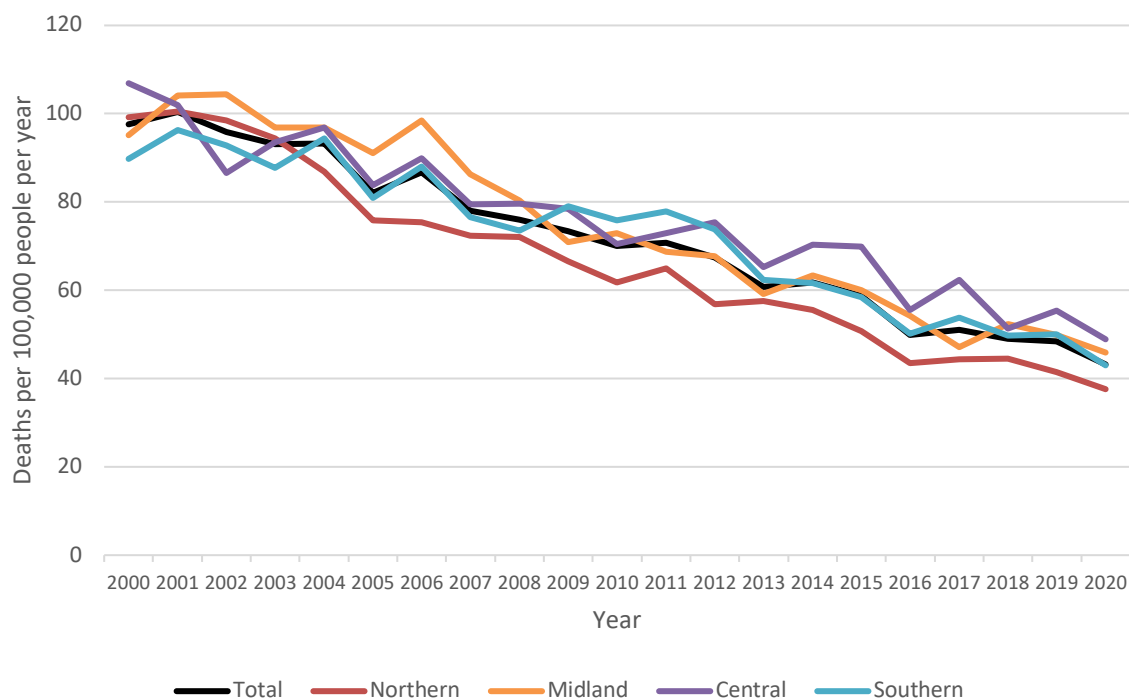
See Table A136 for data.

Figure 96. I25 SMI deaths per 100,000 people per year by NZDep quintile, 2000 - 2020.



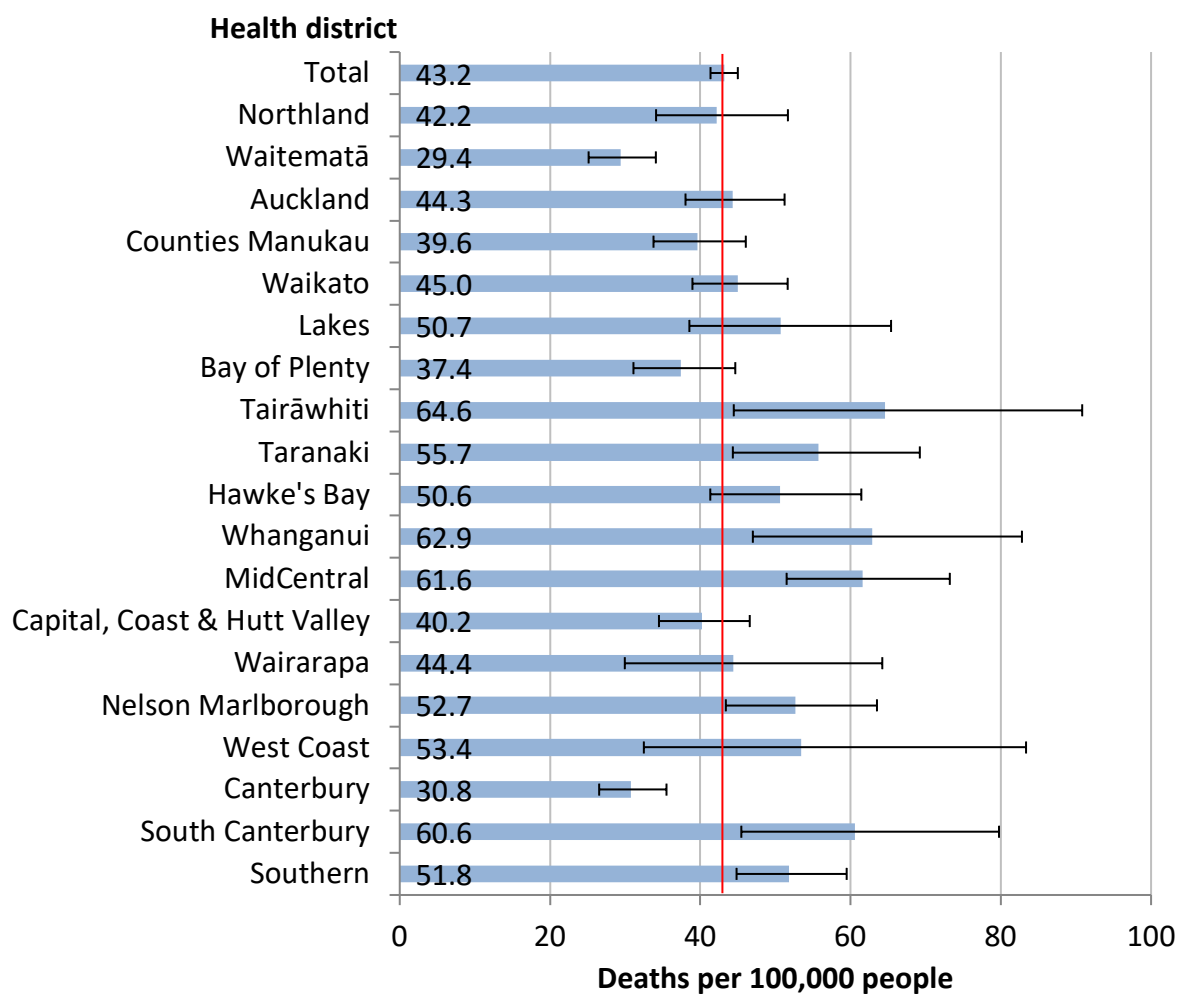
See Table A138 for data.

Figure 97. 125 SMI deaths per 100,000 people per year by health region, 2000 - 2020.



See Table A141 for data.

Figure 98. 125 SMI deaths per 100,000 people, by health district, 2020.



See Table A143 for data.

AGE

The median age at death was 69 years, substantially younger than for other conditions. For males, this was 68 years, and for females, 73 years.

GENDER

Cardiomyopathy rates increased slightly for females over the study period, but remained much the same for males. Female rates were consistently lower than male rates, with rate ratios ranging from 0.28 to 0.58.

ETHNIC GROUP

Māori rates were higher than European/Other rates in all years, with rate ratios ranging from 3.06 to 7.30, and 5.49 in 2020. Pacific Peoples' rates were also higher, with rate ratios from 1.83 to 4.98, and 3.28 in 2020. Asian Peoples' rates were lower, though numbers were small and confidence intervals were wide.

SOCIO-ECONOMIC DEPRIVATION

Across the 21 years of data, there was a clear socio-economic gradient in cardiomyopathy rates. The rate ratio of NZDep 9 – 10 to NZDep 1 -2 averaged 3.07 from 2000 to 2020.

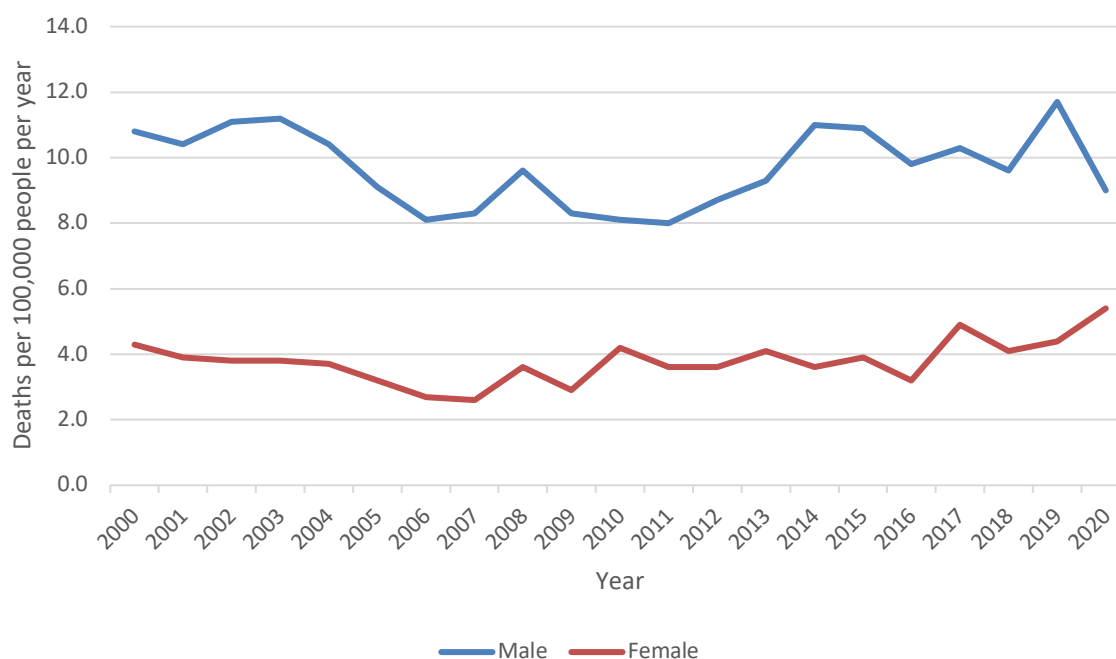
HEALTH REGION

There was no significant difference between regions in cardiomyopathy mortality rates (Figure 103).

HEALTH DISTRICT

Cardiomyopathy mortality rates were highest in Northland and Tairāwhiti health districts, and lowest in South Canterbury. However, disaggregation left small numbers in some regions and results should be treated with caution.

Figure 99. I42 cardiomyopathy deaths per 100,000 people per year, by gender, 2000 - 2020.



See Table A146 for data.

Figure 100. Median age at death from cardiopathy by gender, 2016 - 2020.

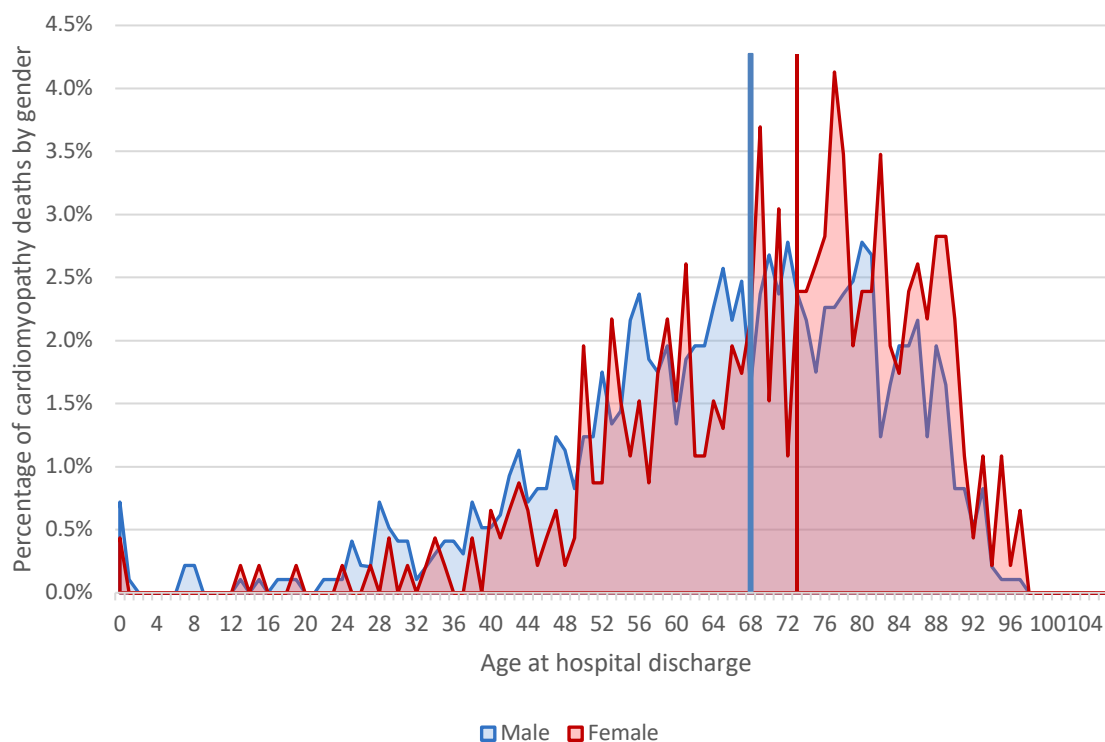
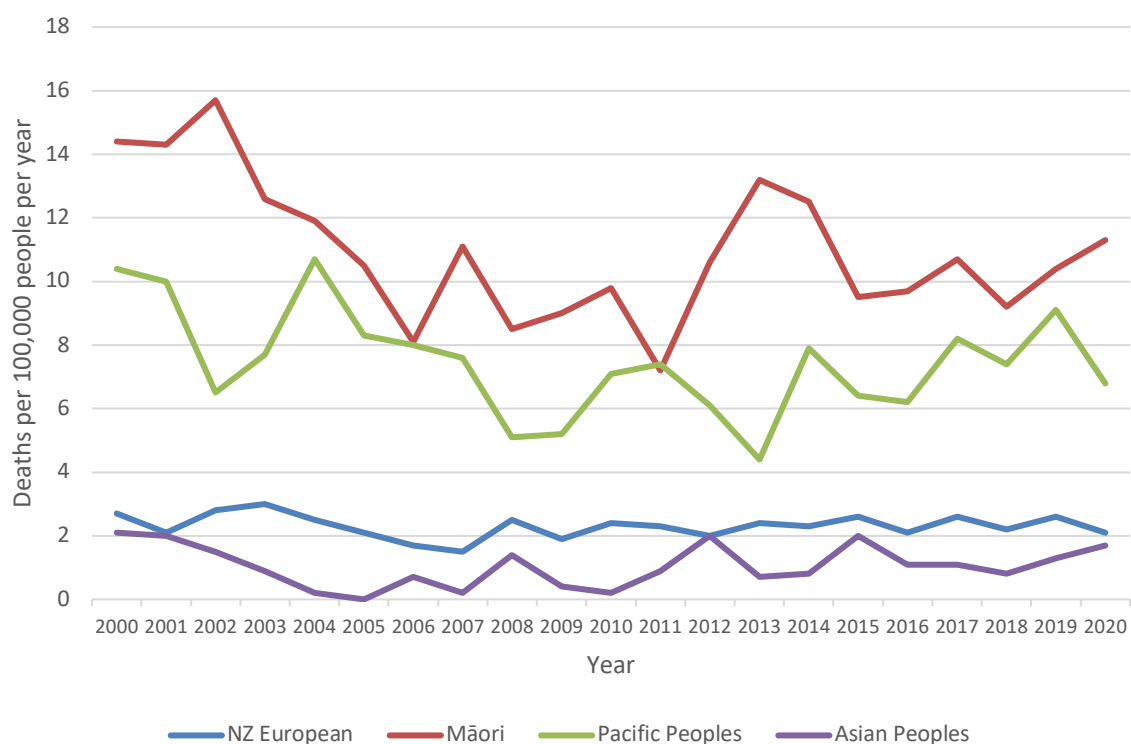
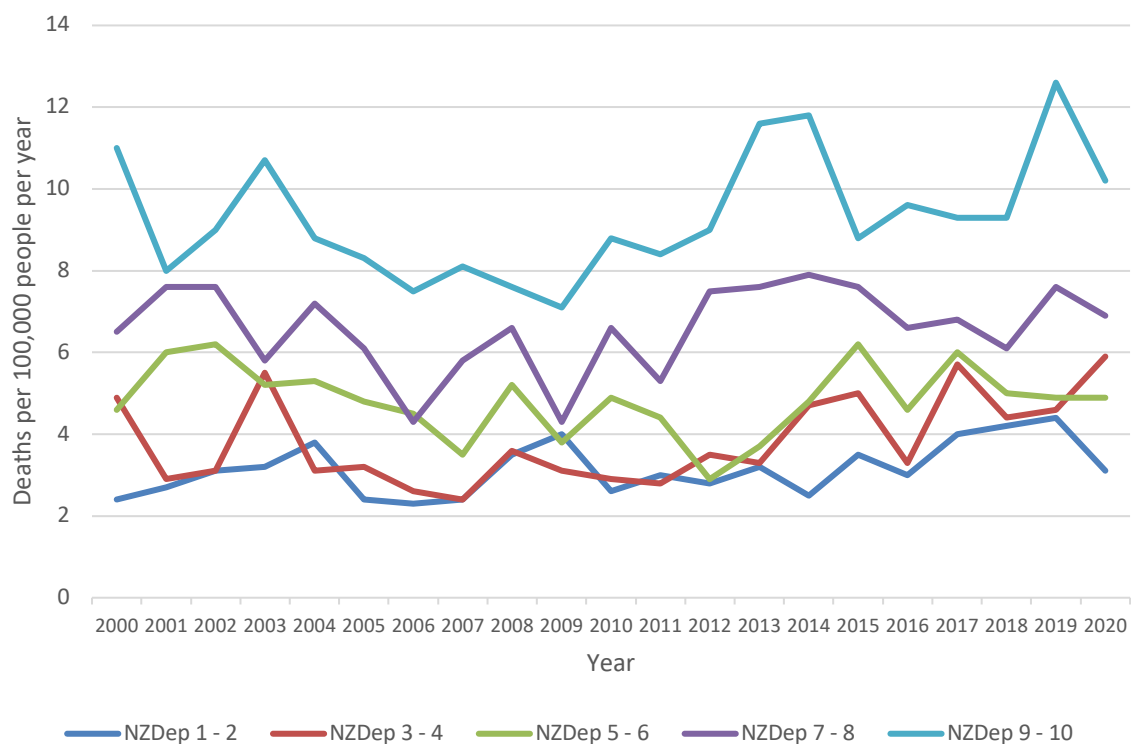


Figure 101. 142 cardiomyopathy deaths per 100,000 people per year, by ethnic group, 2000 - 2020.



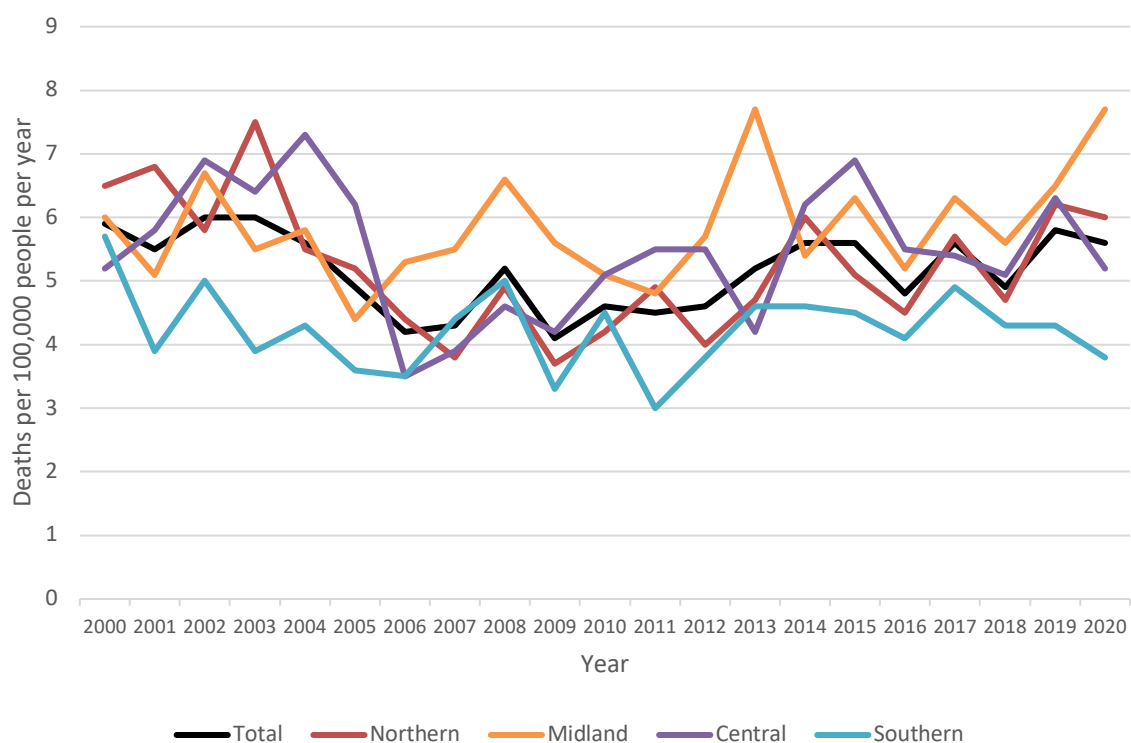
See Table A148 for data.

Figure 102. I42 cardiomyopathy deaths per 100,000 people per year, by NZDep quintile, 2000 - 2020.



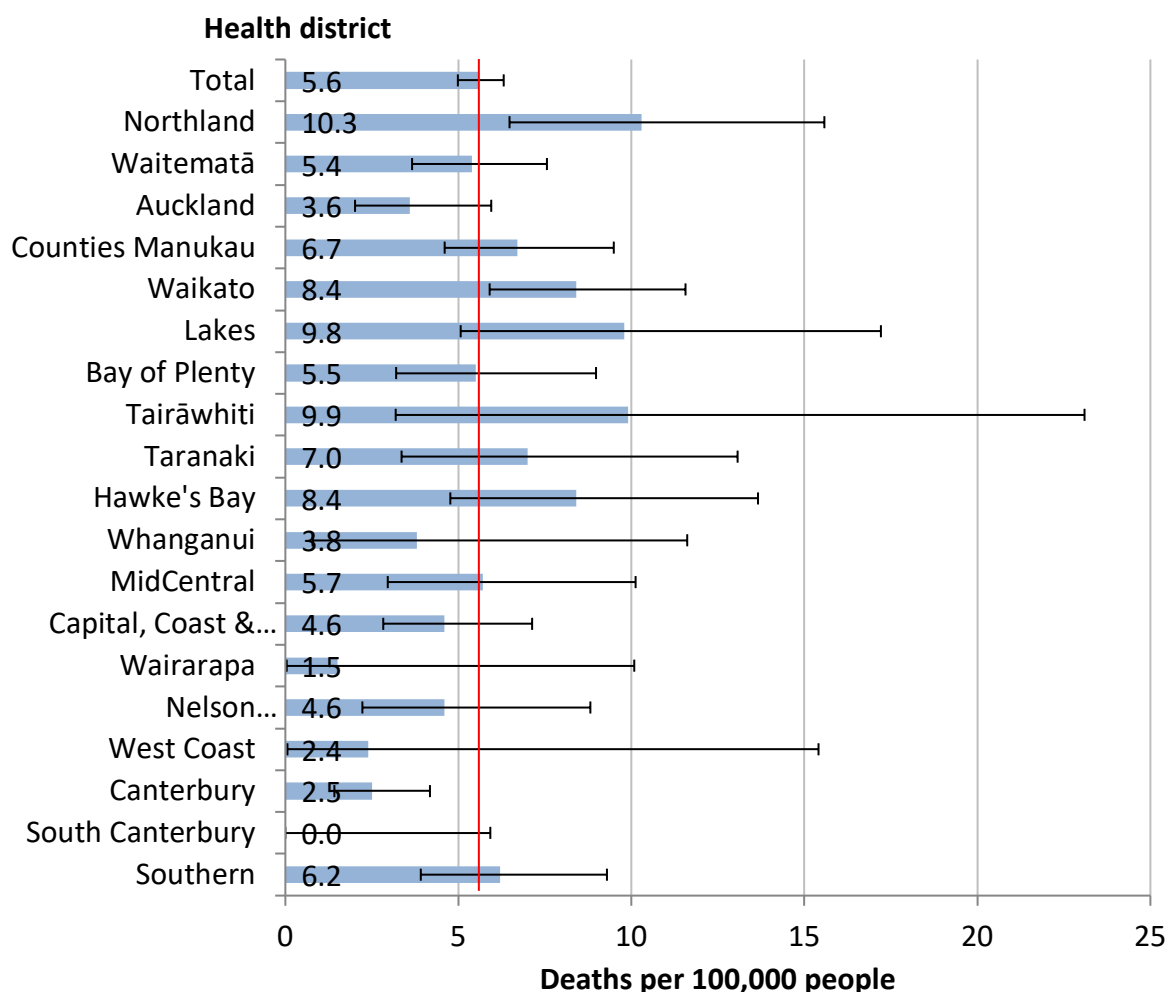
See Table A150 for data.

Figure 103. I42 cardiomyopathy deaths per 100,000 people per year, by health region, 2000 - 2020.



See Table A153 for data.

Figure 104. I42 cardiomyopathy deaths per 100,000 people per year, by health district, 2020.



See Table A155 for data.

I48 ATRIAL FIBRILLATION AND FLUTTER (AFF)

There were 668 deaths due to AFF in 2020, putting the mortality rate at 13.5 people per 100,000 people per year. This represented a 2.9-fold increase from a study period low of 4.7 in 2007.

AGE

The median age at death from AFF was 87 years. The median was 85 for males and 88 for females. These ages at death are older than the median age of death in the total population.

Less than 3% of deaths occurred in people aged under 60 years. 80% of deaths occurred in people aged over 75 years.

GENDER

Unlike most other indicator conditions, male and female mortality rates were generally similar.

ETHNIC GROUP

Māori had the highest rates of AFF mortality, with rates 2.24 times higher than European/Other in 2020. Pacific rates were also higher, with a rate ratio of 1.74. Asian rates were lower, with a rate ratio of 0.67.

SOCIO-ECONOMIC DEPRIVATION

There was some variability in the socio-economic gradient due to overall relatively low numbers of deaths. However, in 2020, there was a clear gradient, and NZDep 9 – 10 AFF rates were 1.39 times those in NZDep 1 – 2

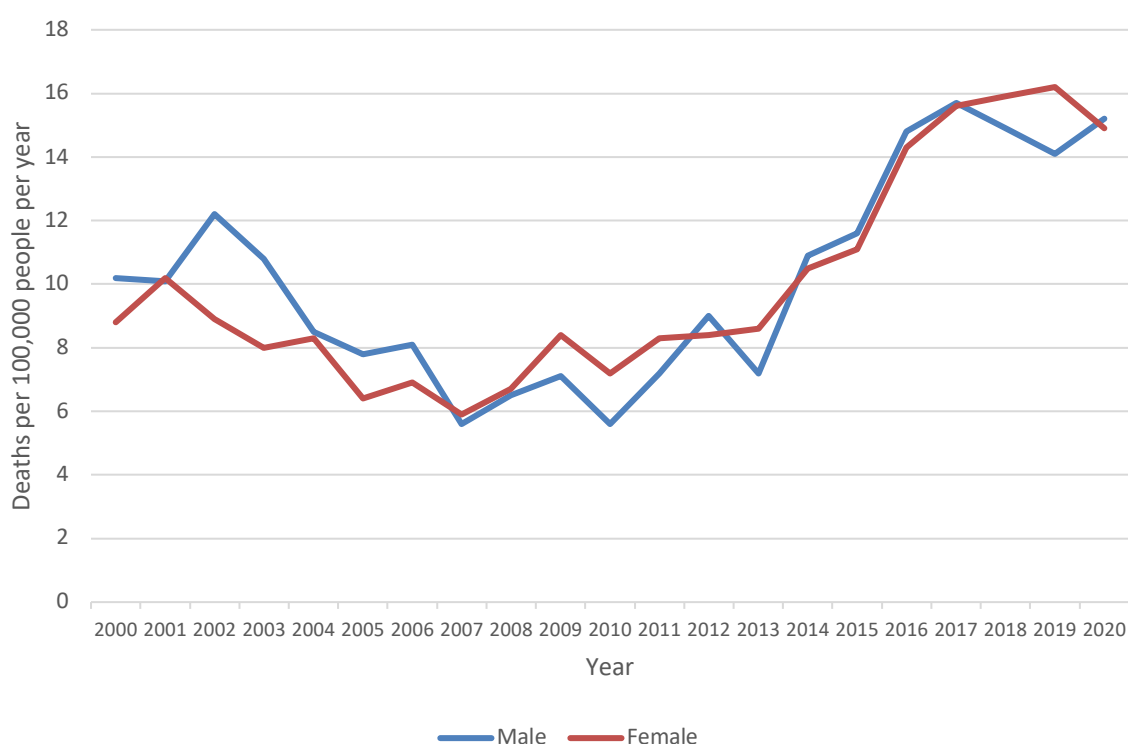
HEALTH REGION

Before 2012, there was no significant difference between regions in AFF mortality rates. Since 2012, rates have diverged, with Northern and Southern/Te Waipounamu rates becoming consistently lower than the national average, and Midland/Te Manawa Taki and Central/Te Ikaroa consistently higher (Figure 109).

HEALTH DISTRICT

2020 AFF mortality rates were highest in Tairāwhiti and lowest in Hawke's Bay and Waitematā. Only Capital, Coast and Hutt Valley (higher) and Waitematā (lower) were significantly different from national rates.

Figure 105. 148 AFF deaths per 100,000 people per year by gender, 2000 2020.



See Table A158 for data.

Figure 106. I48 AFF mortality distribution by gender and age at death, 2016-2020.

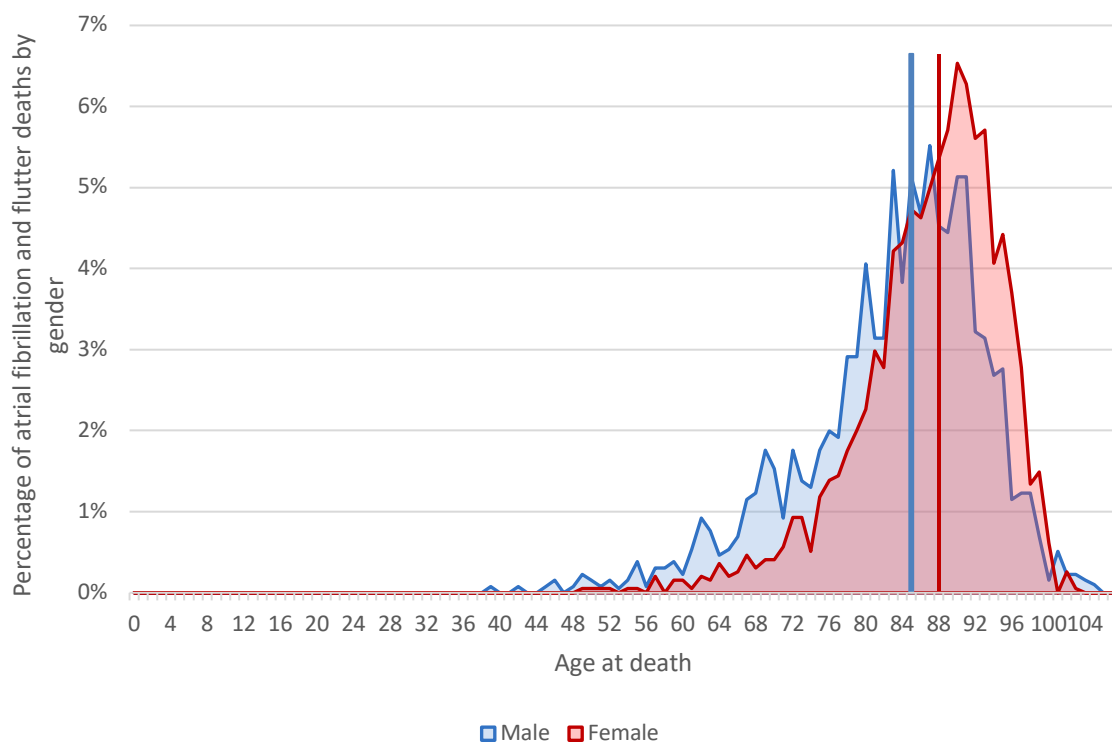
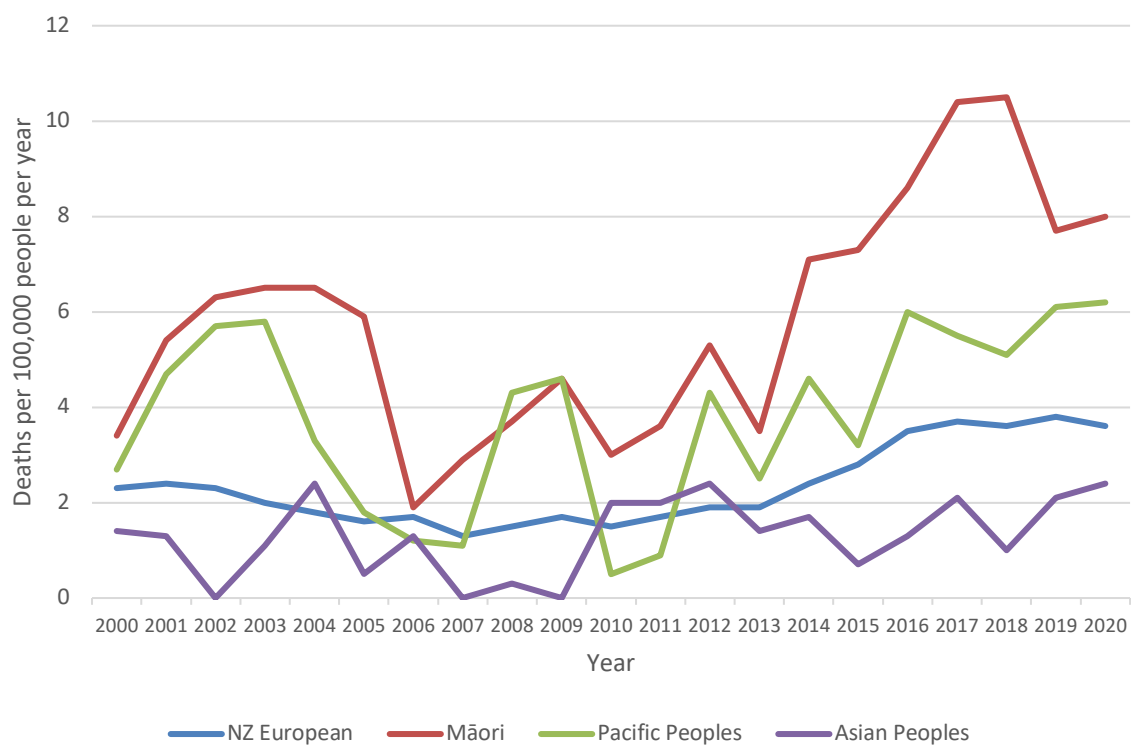
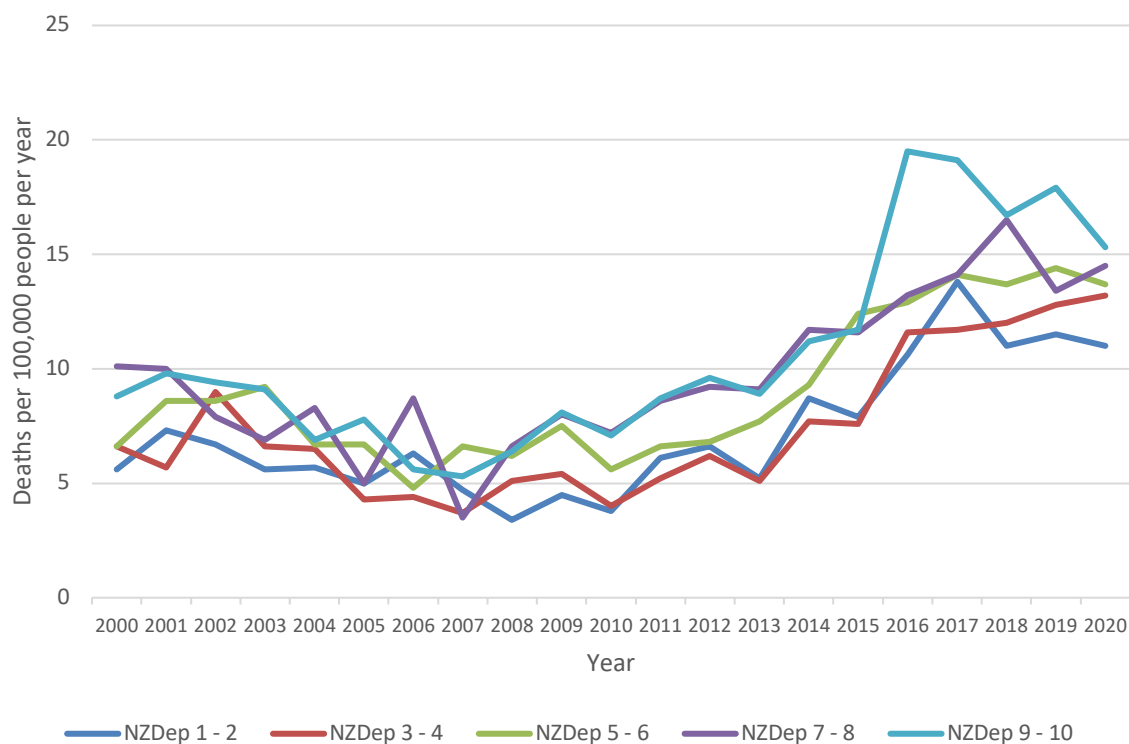


Figure 107. I48 AFF deaths per 100,000 people per year, by ethnic group, 2000 - 2020.



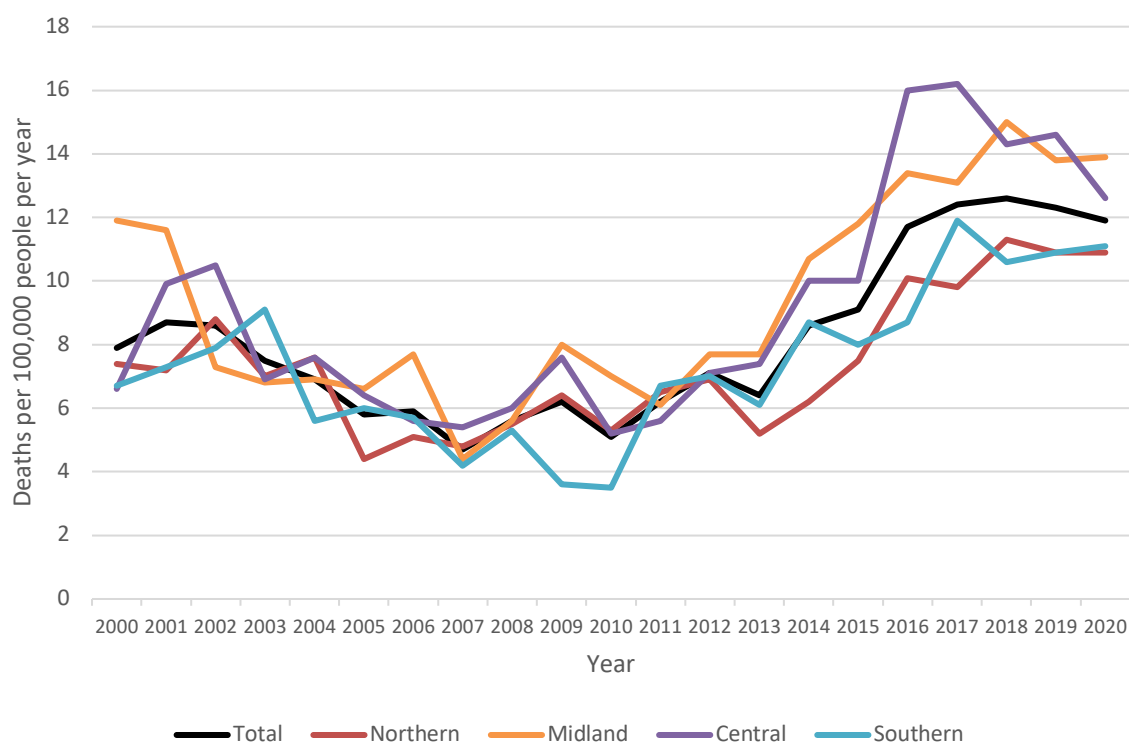
See Table A160 for data.

Figure 108. I48 AFF deaths per 100,000 people per year, by NZDep quintile, 2000 - 2020.



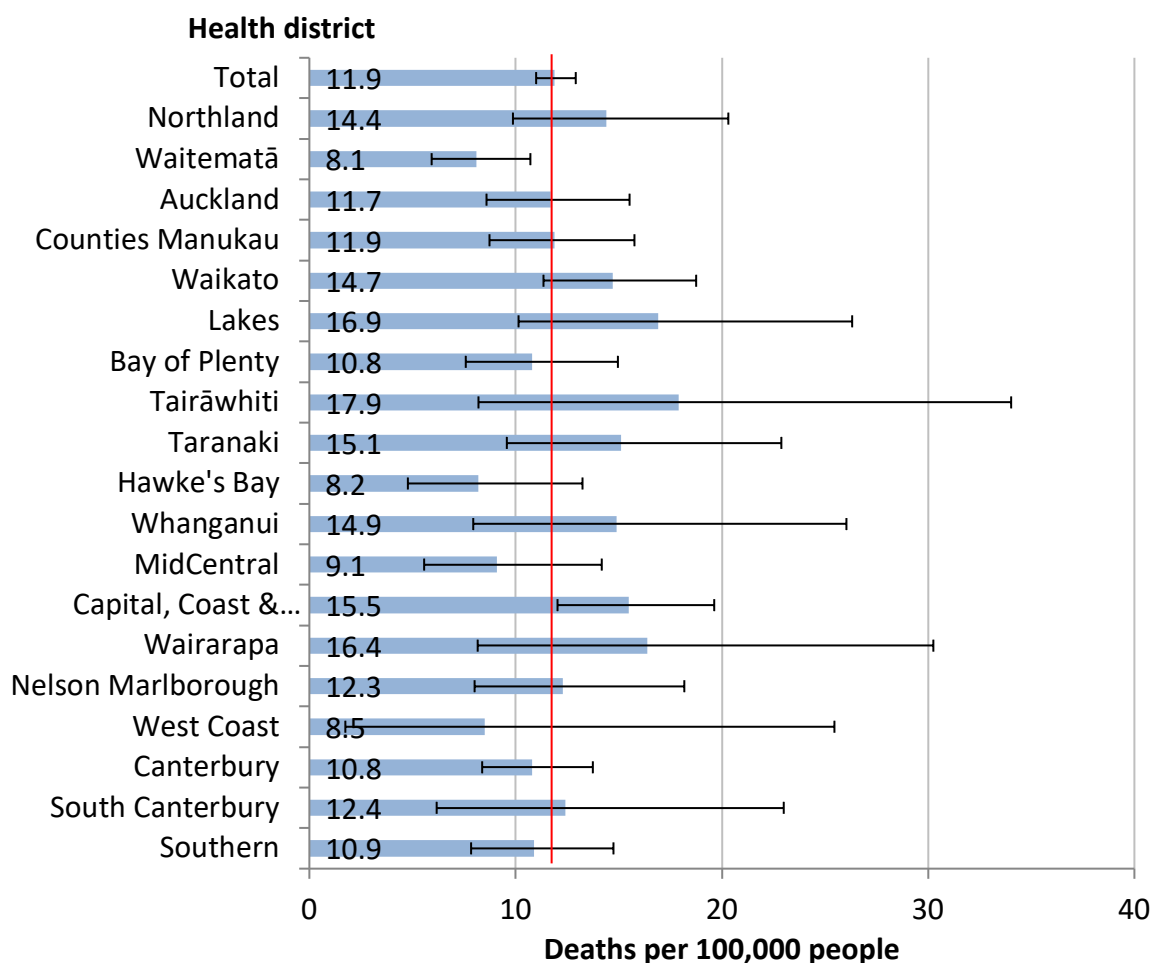
See Table A162 for data.

Figure 109. I48 AFF deaths per 100,000 people per year, by health region, 2000 - 2020.



See Table A165 for data.

Figure 110. 148 AFF deaths per 100,000 people, by health district, 2020.



See Table A167 for data.

150 HEART FAILURE

In 2000, heart failure was the third most frequent cause of death of the five indicator codes, with 14.1 deaths per 100,000 people per year. By 2020 it had fallen to the least common cause of death, with 5.3 deaths per 100,000 people per year. The median age of death was 83 years.

AGE AND GENDER

Unlike other conditions, there was no significant difference in heart failure rates between males and females. The median age at death was 87 for males and 90 for females.

ETHNIC GROUP

Heart failure rates were highest among Māori, with a 2020 rate ratio to European/Other of 1.84. Year-to-year rates were not significantly different from European/Other for Pacific Peoples or Asian Peoples, however, aggregating data for the whole study period showed Pacific rates to be higher (rate ratio 1.28) and Asian rates lower (rate ratio 0.46). The median age at death was younger for Māori (82) and Pacific Peoples (83) than Asian Peoples (89) and European/Other (90).

SOCIO-ECONOMIC DEPRIVATION

Heart failure mortality rates dropped for all NZDep quintiles, but dropped most for NZDep 7 – 8. Mortality rates did not increase with each quintile in the same way as for other conditions, even across aggregate data, and in

2020, while rates were highest in NZDep 9 – 10, they were second highest in NZDep 1-2 and lowest in NZDep 3-4.

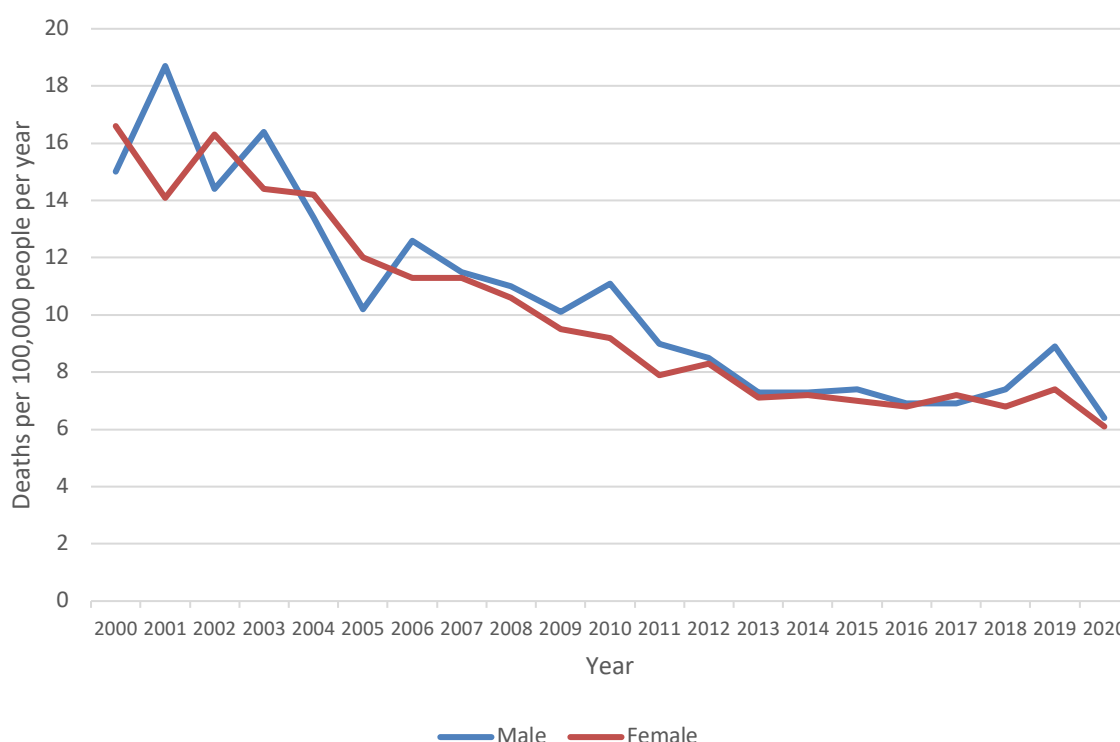
HEALTH REGION

Heart failure mortality rates were consistently lower than the national average in the Northern health region, but were not significantly different in other regions (Figure 115).

HEALTH DISTRICT

Heart failure mortality rates were highest in South Canterbury and Northland health districts, and lowest in Waitematā.

Figure 111. 150 heart failure mortality rates per 100,000 people per year by gender, 2000 2020.



See Table A170 for data.

Figure 112. I50 Heart failure mortality distribution by gender and age at death, 2016-2020.

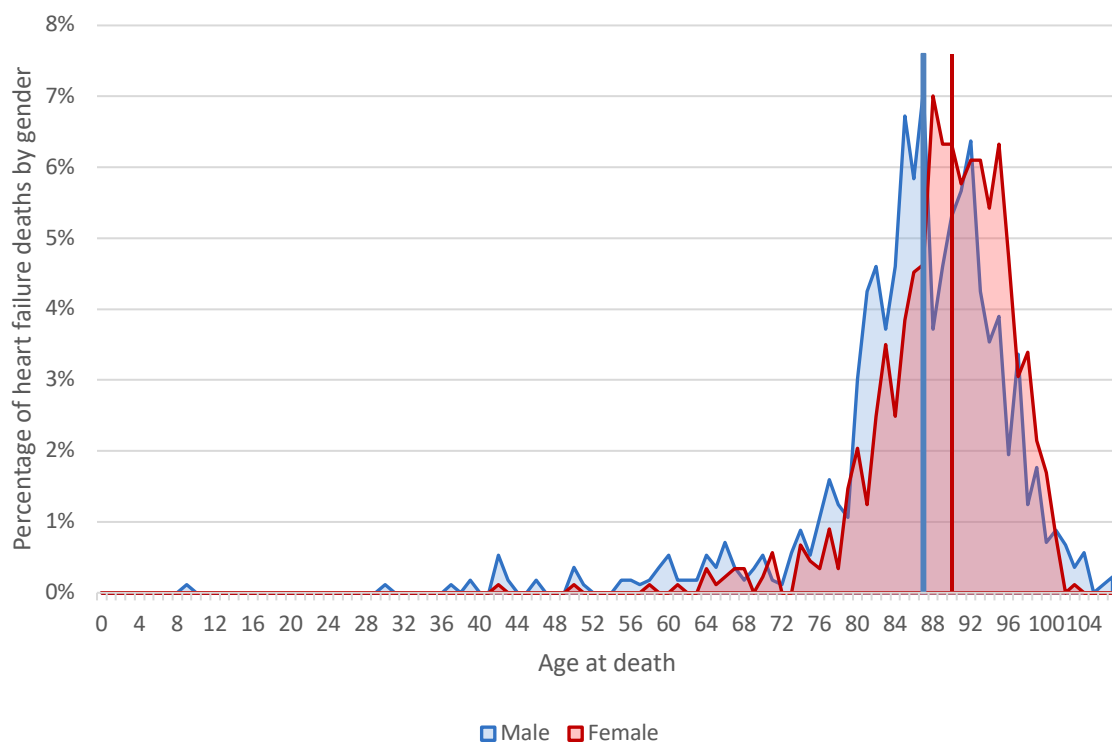
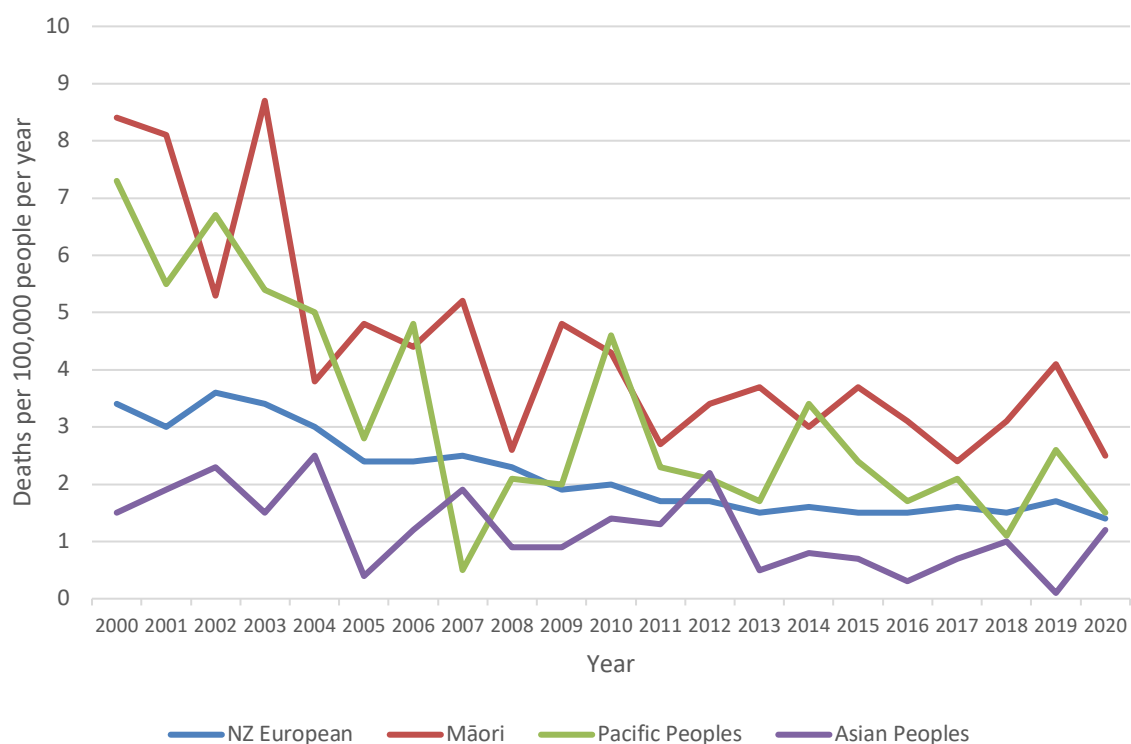
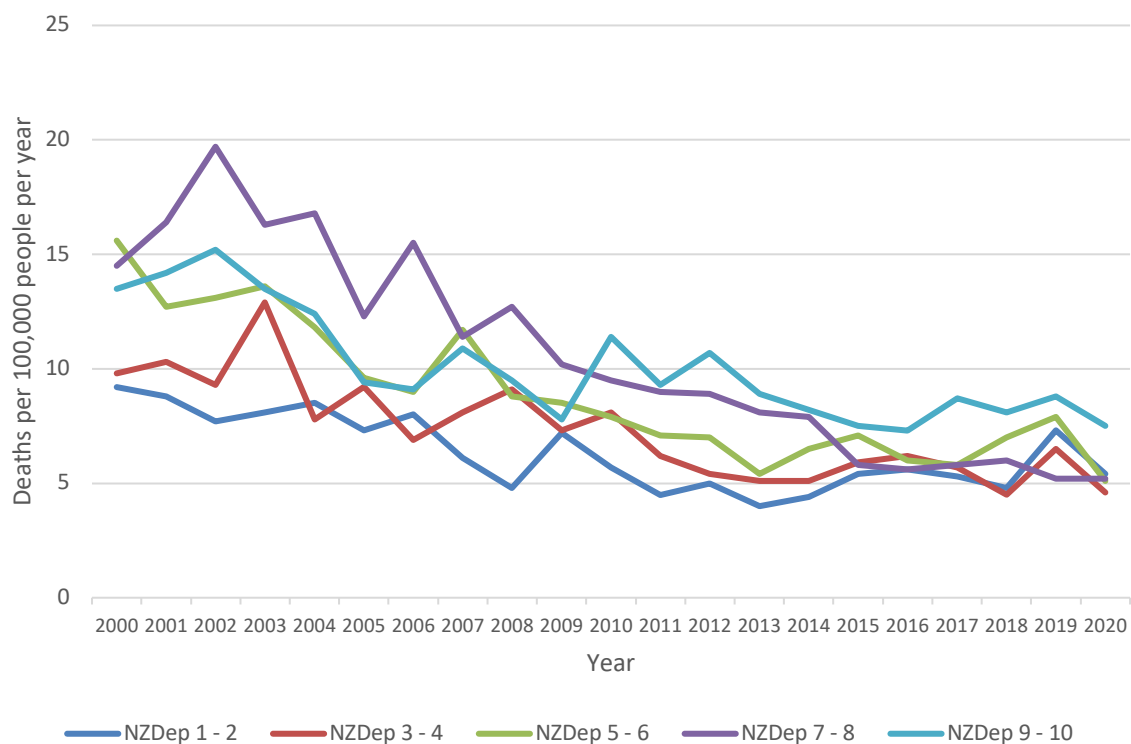


Figure 113. I50 heart failure deaths per 100,000 people per year, by ethnic group, 2000 - 2020.



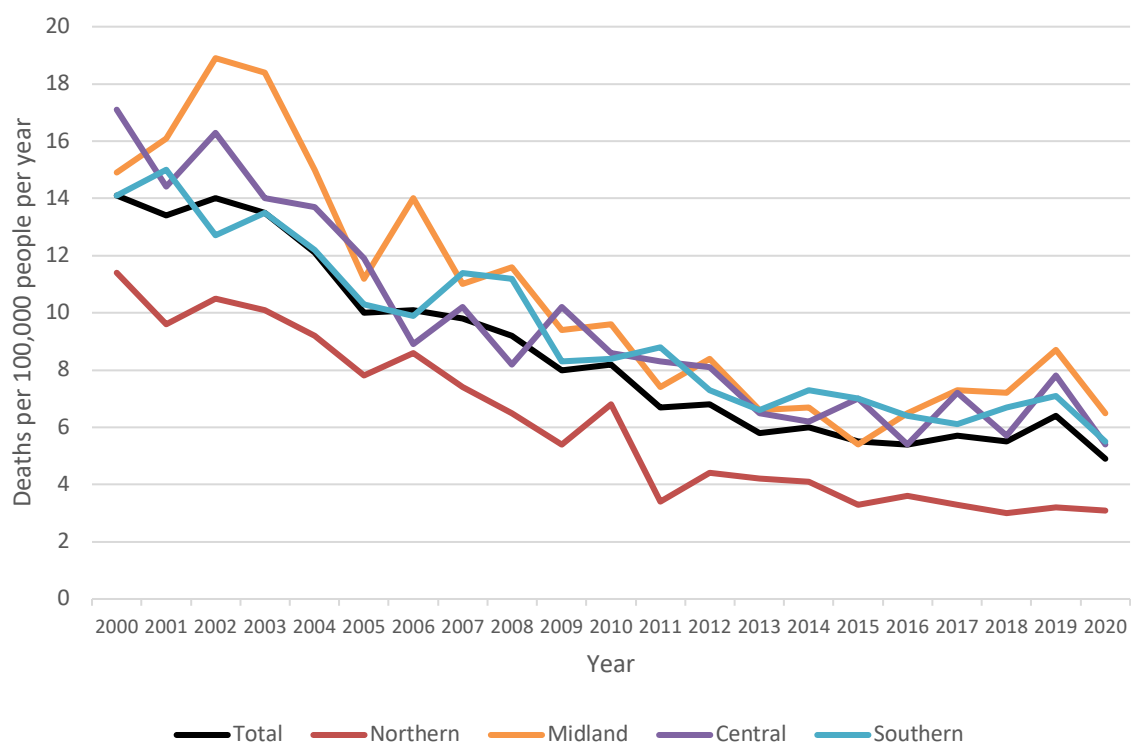
See Table A172 for data.

Figure 114. 150 heart failure deaths per 100,000 people per year, by NZDep quintile, 2000 - 2020.



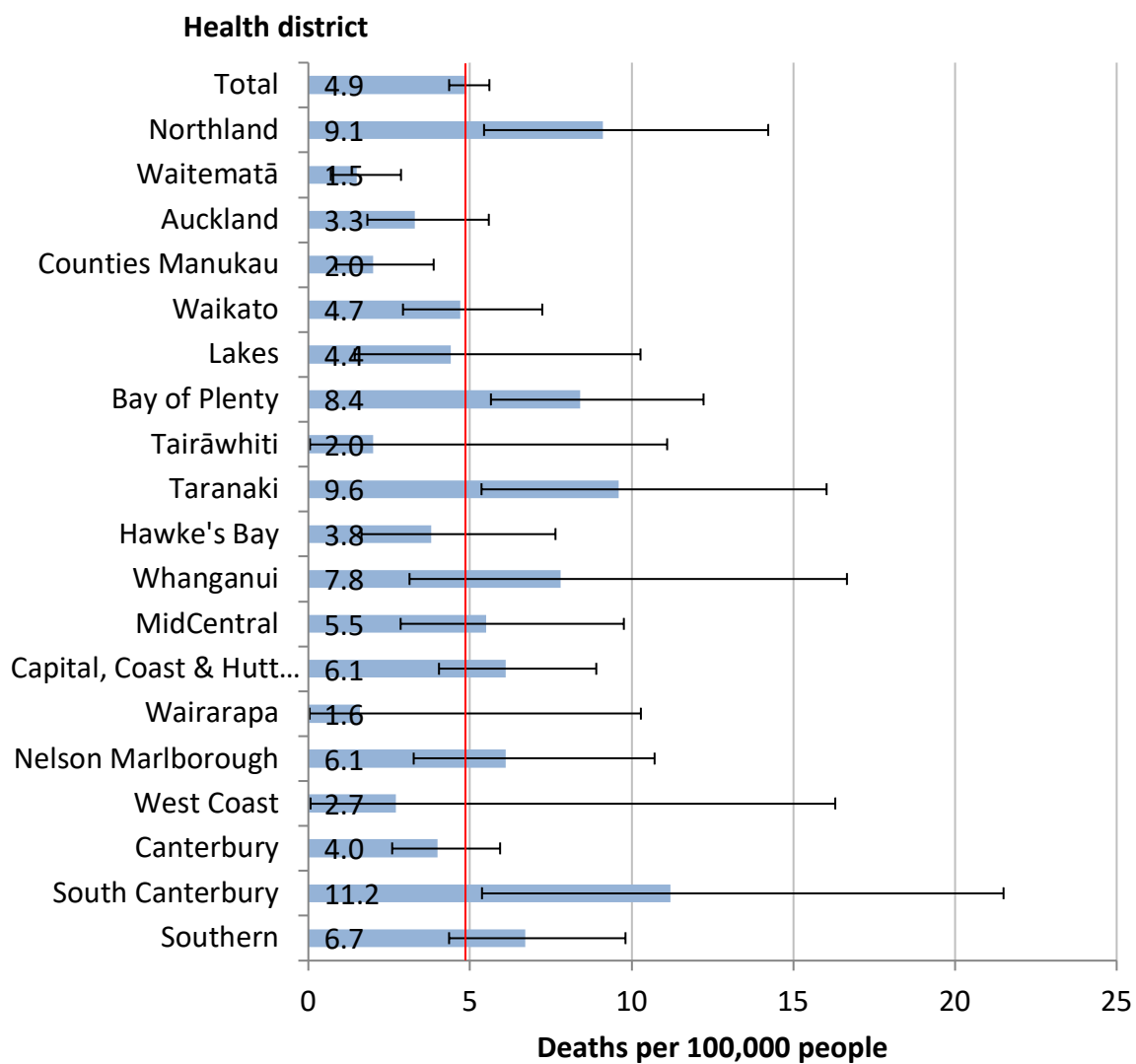
See Table A174 for data.

Figure 115. 150 heart failure deaths per 100,000 people per year, by health region, 2000 - 2020.



See Table A177 for data.

Figure 116. 150 heart failure deaths per 100,000 people, by health district, 2020.



See Table A179 for data.

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APPENDIX 1: LITERATURE

Publication	Data year	NZ Location	n	Age; Ethnicity (or other demography)	Outcome measured	Rate/ prevalence/% per year/ lifetable risk
Total/combined heart disease; coronary heart disease; acute coronary syndrome						
Scragg et al 2017 ²⁴	2013 - 2015	Auckland	2552 (placebo)	50 to 84 years	Any CVD incident	7.7%
					Heart failure/ cardiomyopathy event	1.5%
Wang et al 2020 ²⁵	2006 - 2016	All NZ	Total population	20+ years	Acute coronary syndrome hospital admission	2006: 685 per 100k 2016: 424 per 100k
Thornley et al 2011 ²⁶	2008	All NZ	“Health contact population” (~90% of total population)	Men 15+ years	Coronary heart disease diagnosis or treatment history	6.5%
				Women 15+ years		4.1%
Chan et al 2008 ²⁷	1993 - 2005	All NZ	Total population	Total population	Coronary heart disease first hospital admission	2005: 162.2/100k
Holmes et al 2011 ⁵	2001 - 2005	All NZ	Total population	15 – 64 years, male	Coronary heart/ischaemic diseases	51.3 (49.2 - 53.3)/ 100k
Tobias et al 2008 ²⁸	2001 - 2003	All NZ	Total population	Males (rates available by age group)	Coronary heart disease lifetable risk	35.0%
				Females (rates available by age group)		28.3%
Tobias et al 2009 ⁴	2000 - 2002	All NZ	Total Māori	Māori Males	Coronary heart disease lifetable risk	36.6%
				Māori Females		33.5%
			Total non-Māori	Non-Māori Males		33.9%
				Non-Māori females		27.0%
Ischaemic heart disease						
Grey et al 2022 ²⁹	2005 - 2016	All NZ	2.65 (2005) – 3.10 (2016) million	25+ years men (also available by age group)	IHD incidence (death or hospitalisation without prior hospitalisation)	2005: ~900/ 100k 2016: 600/ 100k
				25+ years women (also available by age group)		2005: ~550/ 100k 2016: 330/ 100k
				25+ years men (also available by age group)	IHD prevalence	2005: 6.7% 2016: 5.0%
				25+ years women (also available by age group)		2005: 4.1% 2016: 2.5%
AMI						
Scragg et al 2017 ²⁴	2013 - 2015	Auckland	2552 (placebo)	50 to 84 years	Myocardial infarction hospitalisation	0.8%
Chan et al 2008 ²⁷	1993 - 2005	All NZ	Total population	Total population	AMI first hospital admission	2005: 84.2/100k

Publication	Data year	NZ Location	n	Age; Ethnicity (or other demography)	Outcome measured	Rate/ prevalence/% per year/ lifetable risk
Angina						
Scragg et al 2017 ²⁴	2013 - 2015	Auckland	2552 (placebo)	50 to 84 years	Angina prevalence	0.8%
Chan et al 2008 ²⁷	1993 - 2005	All NZ	Total population	Total population	Angina first hospital admission	2005: 116/100k
AFF						
Teh et al 2023 ³	2010	Bay of Plenty/ northern Lakes DHBs	421	Māori 80+ years	AF prevalence	25.9%
			516	Non-Māori 80+ years		17.7%
Heart failure						
Chan et al 2024 ²	2006 - 2018	All NZ	Total population	20+ years by ethnic group	Heart failure hospitalisation incidence	*multiple, see https://heart.bmj.com/content/110/4/281.long#DC1
Chan et al 2022 ³⁰	2006 - 2018	All NZ	Total population	20+ years	Heart failure hospitalisation incidence	2006: 403/100k 2018: 323/100k

APPENDIX 2: DETAILED DATA TABLES

TOTAL HOSPITALISATIONS FOR HEART DISEASE, ALL CODES, 2000 TO 2022

Table A1. Total hospitalisations for heart disease ICD-10 codes 2000 to 2022

Code	ICD sub-section	Label	Total	Māori
I05	Rheumatic	Rheumatic mitral valve diseases	3,159	1,004
I06	Rheumatic	Rheumatic aortic valve diseases	640	185
I07	Rheumatic	Rheumatic tricuspid valve diseases	749	189
I08	Rheumatic	Multiple valve diseases	10,569	2,629
I09	Rheumatic	Other rheumatic heart diseases	462	236
I11	Hypertensive	Hypertensive heart disease	2,453	630
I20	Ischaemic	Angina pectoris	226,958	19,155
I21	Ischaemic	Acute myocardial infarction (AMI)	271,469	27,182
I22	Ischaemic	Subsequent myocardial infarction	2,482	163
I23	Ischaemic	Complications following myocardial infarction	336	36
I24	Ischaemic	Other acute IHD	1,711	137
I25	Ischaemic	Chronic IHD	65,866	6,518
I30	Other	Acute pericarditis	5,106	493
I31	Other	Other diseases of the pericardium	12,226	1,395
I32	Other	Pericarditis in DCE	112	22
I33	Other	Acute and subacute endocarditis	5,981	1,027
I34	Other	Nonrheumatic mitral valve disorders	10,595	1,117
I35	Other	Nonrheumatic aortic valve disorders	34,623	2,323
I36	Other	Nonrheumatic tricuspid valve disorders	55	10
I37	Other	Pulmonary valve disorders	390	71
I38	Other	Endocarditis, valve unspecified	630	104
I39	Other	Endocarditis and heart valve disorders in DCE	1	0
I40	Other	Acute myocarditis	1,267	165
I41	Other	Myocarditis in DCE	25	3
I42	Other	Cardiomyopathy	18,429	4,357
I43	Other	Cardiomyopathy in DCE	233	25
I44	Other	Atrioventricular and left bundle-branch block	21,025	1,111
I45	Other	Other conduction disorders	6,063	714
I46	Other	Cardiac arrest	4,266	866
I47	Other	Paroxysmal tachycardia	52,679	8,099
I48	Other	Atrial fibrillation and flutter (AFF)	219,776	23,898
I49	Other	Other cardiac arrhythmias	29,014	3,453
I50	Other	Heart failure	210,074	36,070
I51	Other	Complications and ill-defined descriptions of heart disease	6,098	837
I52	Other	Other heart disorders in DCE	1	0

*DCE = “diseases classified elsewhere”

Figures in bold are highest four.

MAP TO FIGURES

NZ HEALTH SURVEY

Measure		Total	Sex	Eth	Dep	Health region
IHD	Prevalence 11/12 – 23/24	Figure 14	Figure 14	Figure 15	Figure 16	Figure 17
Heart failure	Prevalence 11/12 – 23/24	Figure 18	Figure 18	Figure 19	Figure 20	Figure 21

STATIN PRESCRIPTIONS

Measure		Total	Age group	Sex	Eth	Dep	Health region	Health district	GCH
Total	Rates 05 – 22	Figure 6		Figure 6	Figure 7	Figure 9	Figure 11		
	RRs 05 - 22				Figure 8	Figure 10			
	Rates 2022		Figure 4					Figure 12	
	RRs 2022								Figure 13
	Median age 22	Figure 3		Figure 5					

HEART DISEASE HOSPITALISATION

Measure		Total	Sex	Eth	Dep	Health region	Health district	GCH	Eth x Dep
Total	Rates 00 – 22	Figure 22	Figure 28	Figure 30	Figure 32	Figure 35			
	RRs 00 - 22					Figure 36			
	Rates 2022						Figure 37		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 29	Figure 31	Figure 33				Figure 34
IHD	Rates 00 - 22	Figure 22	Figure 38	Figure 40	Figure 41				
	RRs 00 - 22				Figure 42	Figure 43			
	Rates 2022						Figure 44		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 39						
I21 AMI	Rates 00 - 22	Figure 22	Figure 45	Figure 47		Figure 50			
	RRs 00 - 22								
	Rates 2022						Figure 51		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 46						
I48 AFF	Rates 00 - 22	Figure 22	Figure 52	Figure 54		Figure 57			
	RRs 00 - 22								
	Rates 2022						Figure 58		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 53						
I50 Heart failure	Rates 00 - 22	Figure 22	Figure 59	Figure 61		Figure 64			
	RRs 00 - 22								
	Rates 2022						Figure 65		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 60						
I20 Angina pectoris	Rates 00 - 22	Figure 22	Figure 117	Figure 119		Figure 121			
	RRs 00 - 22								
	Rates 2022						Figure 58		
	RRs 2022		Figure 24	Figure 25	Figure 26			Figure 27	
	Median age 18 - 22	Figure 23	Figure 118						

HEART DISEASE MORTALITY

Measure		Total	Sex	Eth	Dep	Health region	Health district	GCH
Total	Rates 00 – 20	Figure 67	Figure 71	Figure 74	Figure 77	Figure 78		
	RRs 00 - 20							
	Rates 2020						Figure 79	Figure 70
	Median age 16 - 20		Figure 72	Figure 73	Figure 76			
IHD	Rates 1948 - 2022	Figure 80	Figure 80					
	Rates 1996 - 2022			Figure 80				
	Rates 00 – 20	Figure 67	Figure 81	Figure 83	Figure 84	Figure 85		
	RRs 00 - 20							
	Rates 2020						Figure 86	Figure 70
	Median age 16 - 20		Figure 82					
I21 AMI	Rates 00 – 20	Figure 67	Figure 87	Figure 89	Figure 90	Figure 91		
	RRs 00 - 20							
	Rates 2020						Figure 92	Figure 70
	Median age 16 - 20		Figure 88					
I25 SMI	Rates 00 – 20	Figure 67	Figure 93	Figure 95	Figure 96	Figure 97		
	RRs 00 - 20							
	Rates 2020						Figure 98	Figure 70
	Median age 16 - 20		Figure 94					
I48 AFF	Rates 00 – 20	Figure 67	Figure 105	Figure 107	Figure 108	Figure 109		
	RRs 00 - 20							
	Rates 2020						Figure 110	Figure 70
	Median age 16 - 20		Figure 106					
I50 Heart failure	Rates 00 – 20	Figure 67	Figure 111	Figure 113	Figure 114	Figure 115		
	RRs 00 - 20							
	Rates 2020						Figure 116	Figure 70
	Median age 16 - 20		Figure 112					
I42 Cardio-myopathy	Rates 00 – 20	Figure 67	Figure 99	Figure 101	Figure 102	Figure 103		
	RRs 00 - 20							
	Rates 2020						Figure 104	Figure 70
	Median age 16 - 20		Figure 100					

MAP TO TABLES

NZ HEALTH SURVEY

Measure		Total	Age group	Sex	Eth	Dep	Health region
IHD	Prevalence 11/12 – 23/24	Table A15	Table A15	Table A15	Table A16	Table A17	Table A18
Heart failure	Prevalence 11/12 – 23/24	Table A19	Table A19	Table A19	Table A20	Table A21	Table A22

STATIN PRESCRIPTIONS

Measure		Total	Age group	Sex	Eth	Dep	Health region	Health district	GCH
Total	Rates 00 – 22	Table A6	Table A6	Table A5	Table A7	Table A9	Table A11		
	RRs 00 - 22				Table A8	Table A10	Table A12		
	Rates 2022							Table A13	Table A14

HEART DISEASE HOSPITALISATION

Measure		Total	Age group	Sex	Eth	Dep	Health region	Heath district	GCH
Total	Rates 00 – 22	Table A24	Table A26	Table A25	Table A27	Table A29	Table A32		
	RRs 00 - 22				Table A28	Table A30	Table A33		
	Rates and RRs 2022					Table A31		Table A34	Table A35
IHD	Rates 00 - 22	Table A36	Table A38	Table A37	Table A39	Table A41	Table A44		Table A47
	RRs 00 - 22				Table A40	Table A42	Table A45		
	Rates and RRs 2022					Table A43		Table A46	
I21 AMI	Rates 00 - 22	Table A60	Table A62	Table A61	Table A63	Table A65	Table A68		Table A71
	RRs 00 - 22				Table A64	Table A66	Table A69		
	Rates and RRs 2022					Table A67		Table A70	
I48 AFF	Rates 00 - 22	Table A72	Table A74	Table A73	Table A75	Table A77	Table A80		Table A83
	RRs 00 - 22				Table A76	Table A78	Table A81		
	Rates and RRs 2022					Table A79		Table A82	
I50 Heart failure	Rates 00 - 22	Table A84	Table A86	Table A85	Table A87	Table A89	Table A92		Table A95
	RRs 00 - 22				Table A88	Table A90	Table A93		
	Rates and RRs 2022					Table A91		Table A94	
I20 Angina pectoris	Rates 00 - 22	Table A48	Table A50	Table A49	Table A51	Table A53	Table A56		Table A59
	RRs 00 - 22				Table A52	Table A54	Table A57		
	Rates and RRs 2022					Table A55		Table A58	

HEART DISEASE MORTALITY

Measure		Total	Age group	Sex	Eth	Dep	Health region	Health district	GCH
Total	Rates 00 – 20	Table A97	Table A99	Table A98	Table A100	Table A102	Table A105		
	RRs 00 - 20				Table A101	Table A103			
	Rates and RRs 2020					Table A104		Table A107	Table A108
IHD	Rates 00 – 20	Table A109	Table A111	Table A110	Table A112	Table A114	Table A117		
	RRs 00 - 20				Table A113	Table A115			
	Rates and RRs 2020					Table A116		Table A119	Table A120
I21 AMI	Rates 00 – 20	Table A121	Table A123	Table A122	Table A124	Table A126	Table A129		
	RRs 00 - 20				Table A125	Table A127			
	Rates and RRs 2020					Table A128		Table A131	Table A132
I25 SMI	Rates 00 – 20	Table A133	Table A135	Table A134	Table A136	Table A138	Table A141		
	RRs 00 - 20				Table A137	Table A139			
	Rates and RRs 2020					Table A140		Table A143	Table A144
I42 Cardio myopathy	Rates 00 – 20	Table A145	Table A147	Table A146	Table A148	Table A150	Table A153		
	RRs 00 - 20				Table A149	Table A151			
	Rates and RRs 2020					Table A152		Table A155	Table A156
I48 AFF	Rates 00 – 20	Table A157	Table A159	Table A158	Table A160	Table A162	Table A165		
	RRs 00 - 20				Table A161	Table A163			
	Rates and RRs 2020					Table A164		Table A167	Table A168
I50 Heart failure	Rates 00 – 20	Table A169	Table A171	Table A170	Table A172	Table A174	Table A177		
	RRs 00 - 20				Table A173	Table A175			
	Rates and RRs 2020					Table A176		Table A179	Table A180

NOTES ON RATES

All rates reported are per 100,000 people per year, and age-standardised unless otherwise specified. Standard populations are shown in Table A2.

Table A2. Age-standardisation populations

Analysis	Disaggregation	Age distribution population standard
Time trend 2000 to 2020/22; Mortality	Ethnic group	2020 Māori
	Gender, NZDep, GCH, Health district	2020 Total population
Hospitalisation	Ethnic group	2022 Māori
	Gender, NZDep, GCH, Health district	2022 Total population

TABLES

ANZACS-QI

Table A3. ANZACS-QI differences in treatment timeliness, 2023- 2024, by age group, gender, ethnic group, and health region.

	Symptoms to FMC within 60 minutes		NSTEMI door to cath within 3 days		FMC to fibrinolysis within 60 minutes		FMC to primary PCI within 140 minutes		FMC to fibrinolysis/ primary PCI within 60/140 minutes	
Age group ¹	n	Coef.	n	Coef.	n	Coef.	n	Coef.	n	Coef.
<55 years	559	-0.08	2,200	0.16	116	0.00	341	0.01	457	0.01
55 - 64 years	733	0.06	3,461	0.08	180	-0.13	467	0.08	647	0.02
65 - 74 years rate	706	50.3%	4,073	62.8%	190	66.3%	450	62.4%	640	63.6%
75 - 84 years	465	0.00	2,790	-0.05	133	-0.15	322	-0.14	455	-0.14
85+ years	109	0.03	370	-0.17	36	-0.27	78	-0.10	114	-0.15
Gender ²										
Male rate	1915	50.8%	8,582	65.4%	466	59.7%	1219	64.2%	1685	62.9%
Females	657	-0.06	4,312	0.00	189	0.10	439	-0.10	628	-0.04
Ethnic group ²										
Euro/Other rate	1,831	51.6%	9,004	66.1%	545	61.5%	1154	61.3%	1,699	61.3%
Māori	298	-0.04	1,791	-0.21	77	-0.08	173	-0.23	250	-0.18
Pacific	152	-0.10	904	-0.12	7	-0.38	114	0.02	121	0.00
Asian	290	-0.12	1,194	-0.02	25	0.08	217	0.15	242	0.14
Health region ³										
National rate	859	50.2%	4,134	64.7%	52	61.2%	717	62.0%	769	61.8%
Northern	489	-0.08	3,417	0.11	216	-0.11	191	0.06	407	0.05
Midland	525	0.04	2,226	-0.33	201	0.06	294	-0.44	495	-0.17
Central	699	0.13	3,117	-0.19	186	-0.11	456	0.10	642	0.02
Te Waipounamu	1915	-0.06	2,200	0.32	116	0.08	341	0.04	457	0.05

Non-percentage results ("coefficients") show how much more or less likely people in each group were to receive timely treatment compared to the reference group. For example, -0.08 means the group was 8% less likely to get timely treatment than the reference group, after accounting for age, gender, and ethnicity.

Grey cells are baseline rates. Green/red cells are significantly better/worse than baseline (p<0.05).

1. Models include age groups (as shown), gender, and ethnicity.

2. Models include 5-year age group (to 95 – 99), gender, and ethnicity.

3. Models include 5-year age group (to 95-99), gender, ethnicity and health region

Table A4. ANZACS-QI numbers of people seeking treatment.

	Symptoms to FMC within 60 minutes		NSTEMI door to cath within 3 days		FMC to fibrinolysis within 60 minutes		FMC to primary PCI within 140 minutes		FMC to fibrinolysis/primary PCI within 60/140 minutes	
DHB	n	Coef.	n	Coef.	n	Coef.	n	Coef.	n	Coef.
National rate	2572	50.2%	12894	64.7%	655	61.2%	1028	62.0%	2313	61.8%
Northland	144	-0.16	738	0.18	44	-0.14	23	-0.38	100	-0.27
Waitemata	249	-0.01	1,098	-0.12	1	0.53	151	0.01	238	0.01
Auckland	204	-0.05	875	0.26	5	0.01	129	0.12	187	0.12
Counties Manukau	262	-0.06	1,423	0.04	2	-0.23	166	0.09	244	0.09
Waikato	213	0.06	1,517	-0.44	47	-0.08	66	-0.38	202	-0.31
Bay of Plenty	141	0.02	1,026	0.13	76	0.04	10	-0.52	105	-0.09
Taranaki	59	0.03	385	-0.51	41	0.01	0	-14.07	44	-0.06
Lakes	56	-0.25	338	-0.59	37	0.20	1	-0.54	40	0.16
Tairāwhiti	20	0.48	151	-0.79	15	0.08	0	-11.71	16	0.06
Whanganui	44	0.27	232	-0.87	30	0.08	0	-13.94	33	-0.01
MidCentral	98	0.10	572	0.05	74	-0.09	5	-1.02	96	-0.24
Hawkes Bay	72	-0.09	388	-0.42	57	-0.26	2	0.10	60	-0.20
Capital and Coast	181	0.19	652	0.15	16	-0.06	109	0.08	182	0.06
Hutt Valley	92	0.07	249	-0.63	2	-0.19	72	0.28	93	0.25
Wairarapa	38	-0.06	133	-0.76	22	0.10	6	0.16	31	0.10
Nelson Marlborough	117	-0.02	418	0.35	53	0.17	27	0.26	88	0.20
West Coast	22	0.14	117	-0.02	9	-0.61	6	-0.02	19	-0.25
Canterbury	336	0.01	1,482	0.28	28	0.06	200	0.04	342	0.04
South Canterbury	47	0.00	154	0.09	31	0.19	10	-1.84	41	-0.04
Southern	177	-0.23	946	0.20	65	-0.03	54	0.01	152	-0.01

Grey cells are baseline rates. Green/red cells are significantly better/worse than baseline ($p < 0.05$).

Model includes 5 year age group (to 95 – 99), gender, ethnic group and (former) DHB.

STATINS

Table A5. Number and percentage of population prescribed statins, total and by gender, 2005 - 2022.

Year	Total		Male		Female		Rate ratio female to male	
	n	%	n	%	n	%	RR	95% CI
2005	292490	8.4	159786	9.7	132704	7.4	0.76	(0.76-0.77)
2006	320234	8.9	176565	10.5	143669	7.9	0.75	(0.74-0.75)
2007	349515	9.5	193324	11.3	156191	8.3	0.74	(0.73-0.74)
2008	384235	10.2	213289	12.1	170946	8.9	0.73	(0.73-0.74)
2009	425720	11.0	236254	13.1	189466	9.6	0.73	(0.73-0.74)
2010	451519	11.5	251416	13.7	200103	9.9	0.73	(0.72-0.73)
2011	472808	11.7	264157	14.1	208651	10.1	0.72	(0.71-0.72)
2012	491442	11.9	276050	14.4	215392	10.2	0.71	(0.71-0.71)
2013	505541	12.0	285908	14.6	219633	10.2	0.70	(0.69-0.70)
2014	514489	11.9	292735	14.6	221754	10.0	0.69	(0.69-0.69)
2015	517008	11.7	295881	14.3	221127	9.7	0.68	(0.68-0.68)
2016	519077	11.4	298940	14.1	220137	9.5	0.67	(0.67-0.68)
2017	524495	11.2	303964	13.9	220531	9.2	0.66	(0.66-0.67)
2018	533805	11.1	311016	13.9	222789	9.1	0.66	(0.65-0.66)
2019	539528	11.1	315951	13.9	223577	9.0	0.65	(0.64-0.65)
2020	548661	11.1	321768	14.0	226893	9.0	0.64	(0.64-0.65)
2021	568815	11.3	333049	14.3	235766	9.2	0.64	(0.64-0.65)
2022	601690	11.8	350988	14.8	250702	9.6	0.65	(0.65-0.65)

Table A6. Number and percentage of people prescribed statins, by age group, 2000 – 2022

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	%	n	%	n	%	n	%	n	%
2005	6577	0.3	63788	5.4	80048	19.3	81495	30.1	60582	26.3
2006	5229	0.3	68229	5.7	89496	20.8	88011	31.9	69269	29.4
2007	4680	0.2	73262	6.1	97343	22.0	96393	33.5	77837	32.4
2008	4243	0.2	80892	6.7	107884	23.8	105694	35.3	85522	35.0
2009	4567	0.2	89905	7.4	119934	25.8	116972	37.5	94342	37.9
2010	4694	0.2	93917	7.7	126720	26.6	125566	38.8	100622	39.7
2011	4611	0.2	95866	7.9	131830	27.0	133966	39.9	106535	41.4
2012	4559	0.2	97169	8.0	134426	26.8	143260	41.2	112028	42.8
2013	4564	0.2	97046	8.0	136272	26.6	151319	42.1	116340	43.7
2014	4461	0.2	95333	7.8	136716	25.9	157064	42.1	120915	44.0
2015	4313	0.2	92986	7.5	136397	25.1	159980	41.4	123332	43.6
2016	4172	0.2	89668	7.2	136158	24.4	161872	40.5	127207	43.7
2017	4385	0.2	88023	7.0	137211	24.0	164338	39.8	130538	43.5
2018	4553	0.2	87395	6.9	140029	23.8	169290	39.7	132538	43.0
2019	4633	0.2	85676	6.8	140517	23.8	172787	39.8	135915	42.6
2020	4776	0.2	84724	6.7	140982	23.8	176854	40.0	141325	42.8
2021	5121	0.2	86673	6.8	143680	24.1	183093	40.7	150248	44.1
2022	5571	0.2	91034	7.1	149788	25.1	191410	41.8	163887	46.6

Table A7. Number and percentage of population prescribed statins by ethnic group, 2005 – 2022

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2005	234591	4.8	25096	5.8	15672	8.2	16978	5.4	1676	7.3
2006	255082	5.1	27691	6.2	17593	8.9	19704	5.9	1903	8.0
2007	275996	5.4	30965	6.6	19771	9.5	22617	6.2	2168	8.5
2008	299326	5.7	35018	7.2	22700	10.5	26996	6.9	2577	9.2
2009	327613	6.1	40028	7.9	25750	11.4	32144	7.6	3026	10.1
2010	343526	6.3	43476	8.2	28139	12.0	36261	8.1	3401	10.6
2011	356713	6.3	46578	8.5	29958	12.3	39485	8.3	3649	10.8
2012	367130	6.4	49907	8.8	31868	12.7	42648	8.5	3803	10.8
2013	373828	6.3	52849	9.0	33342	12.8	45706	8.6	4030	10.9
2014	376759	6.2	55003	8.8	34710	12.7	48302	8.4	4165	10.3
2015	375298	6.1	56518	8.6	35308	12.3	50216	8.1	4279	9.7
2016	373350	5.9	57415	8.3	36286	12.1	52473	7.8	4386	9.1
2017	373382	5.8	58593	8.0	37416	11.9	55614	7.8	4574	8.8
2018	374915	5.7	60166	7.9	39147	11.9	60117	7.9	4811	8.6
2019	375570	5.6	61177	7.7	40181	11.9	63195	7.9	4964	8.5
2020	379177	5.6	62864	7.6	41061	11.8	66126	8.0	5204	8.4
2021	391382	5.7	65568	7.7	42300	11.8	69927	8.1	5588	8.6
2022	411351	6.0	69396	7.9	45026	12.2	76204	8.5	6148	9.0

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A8. Statin prescribed population rate ratios to NZ European rates by ethnic group, 2005 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2005	1.20	(1.18-1.21)	1.70	(1.67-1.72)	1.13	(1.11-1.14)	1.52	(1.44-1.60)
2006	1.22	(1.20-1.23)	1.75	(1.72-1.77)	1.16	(1.14-1.18)	1.58	(1.50-1.66)
2007	1.24	(1.23-1.26)	1.78	(1.76-1.81)	1.17	(1.15-1.18)	1.58	(1.51-1.65)
2008	1.27	(1.25-1.28)	1.85	(1.82-1.87)	1.21	(1.20-1.23)	1.62	(1.55-1.69)
2009	1.29	(1.28-1.31)	1.87	(1.85-1.89)	1.25	(1.24-1.26)	1.65	(1.59-1.71)
2010	1.32	(1.30-1.33)	1.92	(1.89-1.94)	1.29	(1.27-1.30)	1.69	(1.63-1.75)
2011	1.34	(1.33-1.36)	1.94	(1.92-1.97)	1.31	(1.29-1.32)	1.70	(1.64-1.76)
2012	1.38	(1.37-1.39)	1.99	(1.96-2.01)	1.33	(1.32-1.34)	1.70	(1.64-1.76)
2013	1.42	(1.41-1.43)	2.02	(2.00-2.05)	1.36	(1.35-1.37)	1.73	(1.67-1.78)
2014	1.42	(1.41-1.43)	2.04	(2.01-2.06)	1.34	(1.33-1.36)	1.65	(1.60-1.70)
2015	1.42	(1.41-1.43)	2.03	(2.01-2.05)	1.33	(1.32-1.34)	1.60	(1.55-1.65)
2016	1.41	(1.39-1.42)	2.05	(2.03-2.07)	1.33	(1.32-1.35)	1.55	(1.50-1.60)
2017	1.39	(1.38-1.41)	2.06	(2.04-2.09)	1.35	(1.33-1.36)	1.53	(1.48-1.58)
2018	1.38	(1.37-1.40)	2.10	(2.08-2.12)	1.38	(1.37-1.40)	1.52	(1.47-1.56)
2019	1.37	(1.36-1.38)	2.11	(2.09-2.13)	1.41	(1.40-1.43)	1.50	(1.46-1.55)
2020	1.36	(1.35-1.37)	2.10	(2.08-2.12)	1.42	(1.41-1.44)	1.50	(1.46-1.54)
2021	1.35	(1.33-1.36)	2.06	(2.04-2.08)	1.42	(1.41-1.43)	1.50	(1.46-1.54)
2022	1.32	(1.31-1.33)	2.05	(2.03-2.07)	1.43	(1.42-1.44)	1.52	(1.48-1.56)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A9. Number and percentage of population prescribed statins by NZDep quintile 2005 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2005	48094	6.9	51382	7.2	61728	8.7	71398	10.1	59394	9.1
2006	53656	7.6	56364	7.8	67511	9.3	77903	10.7	64309	9.6
2007	58858	8.0	61590	8.3	73458	9.9	84589	11.5	70489	10.4
2008	64948	8.5	67935	8.8	80400	10.6	92491	12.3	77908	11.4
2009	72543	9.1	75489	9.5	88870	11.5	101637	13.3	86591	12.6
2010	74128	9.0	80097	9.8	90661	11.5	104278	13.5	101782	14.8
2011	77925	9.1	84086	10.1	94875	11.8	108556	13.8	106790	15.4
2012	81535	9.3	87315	10.2	98294	12.0	112604	14.1	111102	15.9
2013	84556	9.3	89717	10.3	101015	12.1	115249	14.2	114407	16.3
2014	86648	9.4	91676	10.2	102569	11.9	116671	13.9	116351	15.9
2015	88083	9.4	92502	10.0	102636	11.5	116524	13.4	116735	15.3
2016	88808	9.4	102131	10.8	100425	10.9	109573	12.1	117663	14.9
2017	90778	9.5	103969	10.7	100708	10.6	110056	11.8	118492	14.4
2018	93766	9.7	106228	10.6	101728	10.4	111598	11.6	120048	14.1
2019	95247	9.5	107671	10.6	102302	10.3	112814	11.6	121082	14.1
2020	98116	9.6	110248	10.6	103684	10.3	114027	11.6	122190	14.1
2021	100356	9.5	112959	10.7	117036	11.4	111370	11.2	126783	14.5
2022	107745	10.0	120039	11.1	123175	11.9	117674	11.7	132728	15.0

Table A10. Statin prescribed population rate ratios to NZDep 1-2 by NZDep quintile 2005 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2005	1.04	(1.03 - 1.06)	1.25	(1.24 - 1.27)	1.46	(1.45 - 1.48)	1.31	(1.30 - 1.33)
2006	1.02	(1.01 - 1.03)	1.22	(1.20 - 1.23)	1.41	(1.39 - 1.42)	1.25	(1.24 - 1.27)
2007	1.03	(1.02 - 1.04)	1.23	(1.22 - 1.25)	1.43	(1.41 - 1.44)	1.30	(1.28 - 1.31)
2008	1.04	(1.03 - 1.05)	1.25	(1.23 - 1.26)	1.45	(1.44 - 1.46)	1.35	(1.33 - 1.36)
2009	1.05	(1.03 - 1.06)	1.26	(1.24 - 1.27)	1.46	(1.45 - 1.48)	1.39	(1.37 - 1.40)
2010	1.10	(1.09 - 1.11)	1.28	(1.26 - 1.29)	1.50	(1.49 - 1.51)	1.64	(1.63 - 1.66)
2011	1.10	(1.09 - 1.11)	1.29	(1.28 - 1.30)	1.51	(1.50 - 1.53)	1.69	(1.67 - 1.70)
2012	1.10	(1.09 - 1.11)	1.29	(1.28 - 1.30)	1.52	(1.51 - 1.54)	1.72	(1.71 - 1.74)
2013	1.10	(1.09 - 1.11)	1.30	(1.28 - 1.31)	1.53	(1.51 - 1.54)	1.75	(1.74 - 1.77)
2014	1.08	(1.07 - 1.09)	1.26	(1.25 - 1.27)	1.47	(1.46 - 1.49)	1.69	(1.67 - 1.70)
2015	1.06	(1.05 - 1.07)	1.22	(1.20 - 1.23)	1.41	(1.40 - 1.43)	1.62	(1.61 - 1.64)
2016	1.15	(1.13 - 1.16)	1.16	(1.15 - 1.17)	1.29	(1.28 - 1.30)	1.58	(1.57 - 1.60)
2017	1.13	(1.12 - 1.14)	1.12	(1.11 - 1.13)	1.25	(1.23 - 1.26)	1.52	(1.51 - 1.54)
2018	1.10	(1.09 - 1.11)	1.07	(1.07 - 1.08)	1.20	(1.19 - 1.21)	1.46	(1.44 - 1.47)
2019	1.11	(1.10 - 1.12)	1.08	(1.07 - 1.09)	1.22	(1.2 - 1.23)	1.48	(1.46 - 1.49)
2020	1.11	(1.10 - 1.12)	1.08	(1.07 - 1.09)	1.21	(1.2 - 1.22)	1.47	(1.46 - 1.49)
2021	1.12	(1.11 - 1.13)	1.20	(1.19 - 1.21)	1.17	(1.16 - 1.18)	1.52	(1.50 - 1.53)
2022	1.11	(1.10 - 1.12)	1.19	(1.18 - 1.20)	1.17	(1.16 - 1.18)	1.50	(1.49 - 1.51)

Table A11. Number and percentage of population prescribed statins by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	262226	7.7	92117	8.2	58164	8.4	50778	7.4
2001	286784	8.3	99421	8.6	63334	8.9	55675	7.9
2002	312884	8.8	107098	9.0	68770	9.4	62445	8.7
2003	343469	9.4	118130	9.7	75419	10.1	69280	9.5
2004	380222	10.2	130405	10.4	84459	11.1	77633	10.4
2005	403005	10.6	139029	10.8	90102	11.5	82558	10.8
2006	421869	10.8	144443	10.9	95736	11.9	87014	11.1
2007	437965	10.9	149449	11.0	100623	12.2	89656	11.2
2008	450175	11.0	153358	11.0	104590	12.5	91016	11.2
2009	457656	10.9	155395	10.8	106502	12.3	92174	11.0
2010	459446	10.7	156112	10.6	106110	12.0	92516	10.8
2011	460518	10.4	157972	10.5	105622	11.6	91785	10.5
2012	464462	10.2	161613	10.4	105286	11.1	90975	10.1
2013	471685	10.1	168217	10.6	105539	10.8	90947	9.9
2014	476040	10.0	171729	10.5	105549	10.6	90739	9.7
2015	483586	9.8	175095	10.4	106469	10.3	91454	9.5
2016	500955	10.0	180920	10.6	110019	10.4	94429	9.6
2017	529316	10.4	193024	11.2	115378	10.8	98857	10.0
2018	262226	7.7	92117	8.2	58164	8.4	50778	7.4
2019	286784	8.3	99421	8.6	63334	8.9	55675	7.9
2020	312884	8.8	107098	9.0	68770	9.4	62445	8.7
2021	343469	9.4	118130	9.7	75419	10.1	69280	9.5
2022	380222	10.2	130405	10.4	84459	11.1	77633	10.4

Table A12. Statin prescribed population rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.06	(1.05 - 1.07)	1.08	(1.07 - 1.09)	0.95	(0.95 - 0.96)	0.89	(0.89 - 0.90)
2001	1.04	(1.04 - 1.05)	1.08	(1.07 - 1.09)	0.96	(0.95 - 0.97)	0.91	(0.91 - 0.92)
2002	1.03	(1.02 - 1.04)	1.07	(1.06 - 1.08)	0.99	(0.98 - 1.00)	0.91	(0.91 - 0.92)
2003	1.03	(1.02 - 1.04)	1.07	(1.06 - 1.08)	1.00	(1.00 - 1.01)	0.90	(0.89 - 0.91)
2004	1.02	(1.02 - 1.03)	1.09	(1.08 - 1.09)	1.02	(1.01 - 1.03)	0.89	(0.88 - 0.89)
2005	1.02	(1.02 - 1.03)	1.09	(1.08 - 1.10)	1.02	(1.02 - 1.03)	0.87	(0.87 - 0.88)
2006	1.01	(1.00 - 1.02)	1.11	(1.10 - 1.11)	1.03	(1.02 - 1.04)	0.87	(0.87 - 0.88)
2007	1.00	(1.00 - 1.01)	1.12	(1.11 - 1.13)	1.02	(1.02 - 1.03)	0.88	(0.87 - 0.88)
2008	1.00	(0.99 - 1.00)	1.13	(1.13 - 1.14)	1.01	(1.01 - 1.02)	0.88	(0.87 - 0.89)
2009	1.00	(0.99 - 1.00)	1.13	(1.12 - 1.14)	1.01	(1.00 - 1.02)	0.89	(0.88 - 0.89)
2010	1.00	(0.99 - 1.00)	1.12	(1.11 - 1.13)	1.01	(1.00 - 1.02)	0.89	(0.89 - 0.90)
2011	1.01	(1.00 - 1.01)	1.11	(1.10 - 1.12)	1.00	(1.00 - 1.01)	0.89	(0.89 - 0.90)
2012	1.02	(1.02 - 1.03)	1.09	(1.08 - 1.10)	0.99	(0.98 - 1.00)	0.90	(0.89 - 0.91)
2013	1.04	(1.04 - 1.05)	1.07	(1.06 - 1.08)	0.98	(0.97 - 0.98)	0.89	(0.89 - 0.90)
2014	1.05	(1.05 - 1.06)	1.06	(1.05 - 1.07)	0.97	(0.96 - 0.98)	0.89	(0.89 - 0.90)
2015	1.06	(1.05 - 1.07)	1.05	(1.04 - 1.06)	0.96	(0.96 - 0.97)	0.90	(0.89 - 0.90)
2016	1.06	(1.06 - 1.07)	1.04	(1.04 - 1.05)	0.96	(0.96 - 0.97)	0.90	(0.90 - 0.91)
2017	1.07	(1.07 - 1.08)	1.03	(1.03 - 1.04)	0.96	(0.95 - 0.96)	0.90	(0.89 - 0.90)
2018	1.06	(1.05 - 1.07)	1.08	(1.07 - 1.09)	0.95	(0.95 - 0.96)	0.89	(0.89 - 0.90)
2019	1.04	(1.04 - 1.05)	1.08	(1.07 - 1.09)	0.96	(0.95 - 0.97)	0.91	(0.91 - 0.92)
2020	1.03	(1.02 - 1.04)	1.07	(1.06 - 1.08)	0.99	(0.98 - 1.00)	0.91	(0.91 - 0.92)
2021	1.03	(1.02 - 1.04)	1.07	(1.06 - 1.08)	1.00	(1.00 - 1.01)	0.90	(0.89 - 0.91)
2022	1.02	(1.02 - 1.03)	1.09	(1.08 - 1.09)	1.02	(1.01 - 1.03)	0.89	(0.88 - 0.89)

Table A13. Number and percentage of population prescribed statins, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	529316	10.6	10.6	(10.6-10.7)	1.00	Baseline
Northland	22657	11.8	9.7	(9.5-9.8)	0.91	(0.89 - 0.92)
Waitematā	54850	8.7	9.4	(9.4-9.5)	0.89	(0.88 - 0.89)
Auckland	50288	10.7	12.5	(12.4-12.6)	1.18	(1.17 - 1.19)
Counties Manukau	65229	11.2	13.9	(13.8-14.0)	1.31	(1.30 - 1.32)
Waikato	50154	11.5	11.4	(11.3-11.5)	1.07	(1.06 - 1.08)
Lakes	13100	11.5	11.1	(10.9-11.2)	1.04	(1.02 - 1.06)
Bay of Plenty	27941	10.7	9.2	(9.1-9.3)	0.87	(0.86 - 0.88)
Tairāwhiti	6348	12.5	12.6	(12.3-12.9)	1.18	(1.15 - 1.21)
Taranaki	17835	14.2	12.9	(12.7-13.1)	1.21	(1.19 - 1.23)
Hawke's Bay	20093	11.5	10.3	(10.1-10.4)	0.97	(0.95 - 0.98)
Whanganui	8666	12.8	10.8	(10.5-11.0)	1.01	(0.99 - 1.03)
MidCentral	23505	12.8	11.6	(11.5-11.8)	1.09	(1.08 - 1.11)
Capital, Coast & Hutt Valley	39796	8.6	9.4	(9.3-9.5)	0.88	(0.87 - 0.89)
Wairarapa	6797	13.9	10.6	(10.4-10.9)	1.00	(0.97 - 1.02)
Nelson Marlborough	18783	11.8	9.1	(9.0-9.2)	0.85	(0.84 - 0.87)
West Coast	4627	13.9	10.5	(10.2-10.8)	0.99	(0.96 - 1.02)
Canterbury	48285	8.3	8.2	(8.1-8.2)	0.77	(0.76 - 0.77)
South Canterbury	8522	14.0	11.0	(10.8-11.3)	1.04	(1.01 - 1.06)
Southern	41840	12.2	11.5	(11.4-11.7)	1.09	(1.07 - 1.10)

Table A14. Number and percentage of population prescribed statins, and rate ratios to total rate, by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	362340	11.3	11.3	(11.3-11.4)	1.00	Baseline
U2	114052	12.6	10.3	(10.3-10.4)	0.91	(0.91-0.92)
R1	80813	13.1	10.0	(9.9-10.1)	0.88	(0.88-0.89)
R2	37470	12.9	9.8	(9.7-9.9)	0.86	(0.85-0.87)
R3	6674	13.5	9.8	(9.6-10.1)	0.87	(0.85-0.89)

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Table A15. NZHS IHD prevalence, total and by sex and age group, 2011/12 – 2023/24.

Year	Total	Sex		Age group						
		Men	Women	15-24	25-34	35-44	45-54	55-64	65-74	75+
2011/12	5.5	7.0	4.1	0.2 e	0.3 e	0.4 e	3.2	7.9	16.1	28.4
2012/13	4.8	5.9	3.9	0.3 e	0.2 e	1.0	2.8	6.9	14.4	22.1
2013/14	4.7	6.0	3.5	0.1 e	0.2 e	1.3	3.4	6.1	12.6	21.5
2014/15	4.6	5.6	3.7	0.1 e	0.4 e	1.1	2.7	6.1	13.4	20.9
2015/16	4.6	5.9	3.4	0.4 e	0.7 e	0.9	2.2	6.9	11.9	21.3
2016/17	4.8	6.2	3.5	0.1 e	0.3 e	1.5	2.6	6.7	13.3	21.6
2017/18	4.6	5.9	3.3	0.1 e	0.5 e	0.6	2.4	6.7	11.7	22.1
2018/19	4.2	5.1	3.4	0.2 e	0.2 e	1.3	2.1	5.6	10.9	20.1
2019/20	4.3	5.1	3.6	0.1 e	0.1 e	0.6 e	2.4	6.5	12.2	18.6
2020/21	4.2	5.5	3.0	0.2 e	0.9 e	0.2 e	3.2	5.6	9.5	19.2
2021/22	4.8	5.7	3.9	s	0.7 e	0.6 e	1.9 e	5.6	13.1	21.8
2022/23	4.3	5.7	3.0	0.3 e	0.5 e	0.6 e	2.1 e	5.6	11.5	18.2
2023/24	4.5	5.8	3.3	0.9 e	0.6 e	0.6 e	3.4	6.2	10.4	17.6

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

Table A16. NZHS IHD prevalence, by ethnic group and sex, 2011/12 – 2023/24.

Year	Māori			Pacific			Asian			European/Other		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
2011/12	5.0	5.4	4.6	1.7	2.0e	1.4e	1.8	2.9	0.9e	6.1	7.8	4.5
2012/13	4.5	4.8	4.2	3.3	4.8e	2.1	2.3	2.8	1.7e	5.2	6.3	4.1
2013/14	3.7	3.9	3.5	3.7	4.0	3.5e	1.3	1.5e	1.2	5.2	6.9	3.7
2014/15	4.4	4.7	4.2	4.6	6.2	3.1	1.9	3.0	0.8e	4.9	5.9	4.0
2015/16	4.7	5.6	3.8	2.8	4.5	1.3e	2.1	2.8	1.4e	4.9	6.3	3.6
2016/17	4.8	5.1	4.4	3.6	5.0	2.3e	1.7	1.3e	2.2	5.3	7.0	3.7
2017/18	4.3	5.1	3.6	2.8	2.3e	3.2	2.6	3.8	1.4e	4.8	6.2	3.5
2018/19	3.7	3.7	3.7	2.6	2.5e	2.7e	2.4	2.8	2.0e	4.5	5.6	3.4
2019/20	3.8	3.6	3.9	2.7	2.2e	3.2e	2.0	2.9	1.0e	4.9	5.7	4.1
2020/21	3.6	3.7	3.5	2.1e	3.2e	1.1e	1.7	1.7	1.7e	4.7	6.5	3.1
2021/22	4.8	6.1	3.5	2.3e	1.8e	2.8e	1.4e	2.0e	0.7e	5.5	6.7	4.3
2022/23	5.0	6.3	3.8	2.4e	2.9e	2.0e	1.6	1.6e	1.6e	4.9	6.9	3.1
2023/24	4.6	5.5	3.6	5.9	8.1	3.6	1.6	2.0	1.3	5.0	6.6	3.5

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

Table A17. NZHS IHD prevalence, by NZDep quintile, 2011/12 – 2023/24.

Year	NZDep quintile				
	1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
2011/12	4.7	5.1	4.7	6.3	6.8
2012/13	4.7	4.2	4.3	5.3	5.8
2013/14	4.9	4.7	4.1	4.9	4.9
2014/15	3.9	4.1	4.5	4.5	6.1
2015/16	3.5	4.4	4.0	5.7	5.4
2016/17	3.9	4.4	5.0	5.4	5.3
2017/18	3.7	4.0	4.9	4.4	5.9
2018/19	3.0	3.9	3.7	5.6	4.8
2019/20	4.0	3.5	4.3	4.9	5.2
2020/21	3.8	3.6	4.1	5.4	4.2
2021/22	4.3	3.3	3.2	6.2	6.9
2022/23	3.9	3.5	4.3	4.8	5.1
2023/24	3.0	4.2	4.6	5.0	5.8

Table A18. NZHS IHD prevalence, by health region and sex, 2011/12 – 2023/24.

Year	Northern			Te Manawa Taki			Central			Te Waipounamu		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
2011/12	4.4	5.3	3.5	6.3	8.2	4.7	5.4	6.9	4.1	6.4	8.5	4.3
2012/13	4.1	5.4	2.8	5.8	6.9	4.8	5.4	6.5	4.4	4.7	5.3	4.1
2013/14	4.3	5.5	3.1	4.6	6.0	3.3	4.7	5.9	3.7	5.4	6.8	4.0
2014/15	4.2	5.4	3.1	4.8	5.9	3.8	4.5	5.4	3.8	5.1	5.6	4.5
2015/16	4.2	5.4	2.9	4.9	6.2	3.5	4.4	5.9	3.1	5.1	6.1	4.1
2016/17	4.0	5.2	2.8	4.9	5.9	4.0	5.2	6.9	3.6	5.5	7.1	4.0
2017/18	4.7	6.4	3.0	4.4	5.5	3.4	4.3	4.8	3.8	4.7	6.3	3.2
2018/19	3.4	3.9	2.9	4.9	5.5	4.3	4.2	5.6	2.9	4.8	6.1	3.6
2019/20	3.6	3.8	3.4	5.4	6.3	4.7	4.3	5.0	3.6	4.6	5.9	3.2
2020/21	4.1	5.6	2.6	4.0	5.6	2.5	4.0	4.7	3.3	4.8	5.9	3.8
2021/22	4.0	4.0	4.0	6.5	7.9	5.2	4.1	4.4	3.8	5.1	7.3	2.5
2022/23	3.7	4.7	2.8	5.2	6.3	4.1	3.9	5.1	2.8	4.8	7.1	2.7 e
2023/24	4.1	5.2	3.0	4.4	5.8	3.1	4.8	5.7	4.0	5.0	6.6	3.3

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

Table A19. NZHS heart failure prevalence, total and by sex and age group, 2011/12 – 2023/24.

Year	Total	Sex		Age group						
		Men	Women	15-24	25-34	35-44	45-54	55-64	65-74	75+
2011/12	2.0	2.2	1.9	0.2 e	0.4 e	0.3 e	0.8 e	2.7	4.9	11.7
2012/13	2.1	2.7	1.5	0.4 e	0.3 e	0.8 e	0.9	2.4	6.1	9.1
2013/14	2.0	2.3	1.6	0.1 e	0.3 e	0.6 e	1.2	2.3	4.3	10.5
2014/15	1.9	2.1	1.8	0.1 e	0.2 e	0.7 e	1.6	1.9	5.0	9.2
2015/16	1.9	2.0	1.9	0.2 e	0.3 e	0.5 e	1.3	2.3	4.7	9.2
2016/17	2.1	2.6	1.7	0.2 e	0.4 e	0.7	1.2	2.8	5.0	10.2
2017/18	1.9	2.2	1.6	0.4 e	0.3 e	0.6	1.0	2.2	4.0	9.6
2018/19	1.9	2.0	1.8	0.3 e	0.4 e	0.5 e	0.9	2.6	4.4	8.2
2019/20	1.8	2.2	1.4	0.2 e	0.2 e	0.8 e	1.1 e	2.3	4.4	7.5
2020/21	1.6	1.9	1.3	S	0.3 e	0.4 e	0.9	2.4	4.4	5.9
2021/22	1.8	2.0	1.6	s	0.1 e	0.3 e	0.9 e	1.6	4.1	9.8
2022/23	2.9	3.3	2.5	0.2 e	0.3 e	1.0 e	1.1 e	3.4	7.2	12.8
2023/24	2.5	2.7	2.2	0.2 e	0.5 e	0.5 e	1.9	3.6	5.2	9.5

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

Table A20. NZHS heart failure prevalence, by ethnic group and sex, 2011/12 – 2023/24.

Year	Māori			Pacific			Asian			European/Other		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
2011/12	2.3	2.6	2.0	1.6	2.2 e	1.1 e	0.9 e	1.1 e	0.7 e	2.1	2.1	2.1
2012/13	2.6	2.7	2.5	2.3 e	3.7 e	1.1 e	0.9 e	1.1 e	0.6 e	2.1	2.7	1.6
2013/14	2.0	2.5	1.5	2.9	2.8 e	2.9 e	0.4 e	0.4 e	0.4 e	2.1	2.5	1.7
2014/15	2.1	1.9	2.3	2.9	4.3 e	1.6 e	0.8 e	1.1 e	0.5 e	2.0	2.0	1.9
2015/16	2.3	2.2	2.4	1.0 e	1.3 e	0.7 e	1.0 e	1.1 e	0.8 e	2.0	2.1	2.0
2016/17	2.4	2.6	2.3	2.6	3.8 e	1.4 e	0.6 e	0.3 e	1.1 e	2.2	2.8	1.7
2017/18	2.1	1.7	2.5	1.8	1.3 e	2.3 e	0.4 e	0.6 e	0.2 e	2.0	2.4	1.7
2018/19	2.0	1.9	2.0	1.9 e	0.9 e	2.7 e	0.6 e	0.4 e	0.9 e	2.0	2.3	1.8
2019/20	1.7	1.0 e	2.3	2.3	3.0 e	1.6 e	0.4 e	0.3 e	0.5 e	2.0	2.6	1.4
2020/21	2.3	2.9	1.8	1.0 e	2.0 e	0.2 e	0.4 e	0.5 e	S	1.7	1.9	1.4
2021/22	2.2	2.2	2.3	1.4 e	2.2 e	0.7 e	0.5 e	0.6 e	S	1.9	2.1	1.7
2022/23	3.6	4.1	3.2	2.0 e	3.6 e	0.6 e	0.7 e	0.7 e	0.7 e	3.3	3.7	2.9
2023/24	2.5	2.7	2.3	2.5	3.0 e	2.1 e	1.1 e	0.6 e	1.6 e	2.6	3.0	2.3

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

Table A21. NZHS heart failure prevalence, by NZDep quintile, 2011/12 – 2023/24.

Year	NZDep quintile				
	1 - 2	3 - 4	5 - 6	7 - 8	9 - 10
2011/12	1.7	1.8	1.4	2.6	2.7
2012/13	1.7	1.9	2.1	2.0	2.7
2013/14	2.0	1.8	1.4	2.1	2.5
2014/15	2.0	1.7	1.9	2.0	2.2
2015/16	1.6	1.6	1.7	2.5	2.3
2016/17	1.4	2.0	2.3	2.2	2.9
2017/18	1.2	1.9	1.7	2.1	2.4
2018/19	1.2	1.7	2.0	2.4	2.0
2019/20	1.6 e	1.3	1.4	1.9	2.8
2020/21	1.2	1.6	1.7	1.6	1.9
2021/22	1.1 e	0.7 e	1.0 e	2.5	3.6
2022/23	4.0	1.7	3.0	2.8	2.9
2023/24	2.2	1.9	2.1	2.9	3.2

Table A22. NZHS heart failure prevalence, by health region and sex, 2011/12 – 2023/24.

Year	Northern			Te Manawa Taki			Central			Te Waipounamu		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
2011/12	1.6	1.5	1.7	2.7	2.6	2.8	2.5	3.2	1.9	1.8	2.1	1.4
2012/13	2.3	3.0	1.6	2.1	2.8	1.5	1.9	2.1	1.7	1.9	2.5	1.3
2013/14	1.8	2.5	1.2	2.1	2.3	1.9	2.2	2.7	1.7	1.8	1.6	2.0
2014/15	2.2	2.4	2.0	1.6	1.5	1.7	2.5	2.7	2.4	1.3	1.5	1.2
2015/16	2.2	2.5	2.0	1.9	1.6	2.1	1.7	1.8	1.6	1.8	1.6	1.9
2016/17	2.3	2.9	1.7	2.1	2.5	1.7	2.2	2.7	1.7	1.9	2.3	1.6
2017/18	1.9	2.3	1.4	2.0	2.2	1.7	1.8	1.9	1.7	2.0	2.1	1.8
2018/19	1.6	1.7	1.5	1.5	1.7	1.3	1.8	1.9	1.7	2.7	2.7	2.8
2019/20	1.6	1.8	1.3	2.1	3.0 e	1.3	2.2	2.6	1.8	1.5	1.8	1.2 e
2020/21	1.5	2.1	0.9 e	1.8	2.3	1.4	1.2	1.5	1.0	1.9	1.7	2.1
2021/22	1.9	2.3 e	1.5	1.9	2.3 e	1.4	1.2	1.0 e	1.3 e	2.2	2.2	2.2
2022/23	2.0	2.4	1.5	2.5	2.7	2.4	2.5	2.5	2.5	4.9	5.6	4.2
2023/24	2.3	2.2	2.4	2.0	2.5	1.6	2.4	3.0	1.8	3.1	3.4	2.8

e=interpret with caution as relative sampling error over 30%

s=suppressed because sample denominator less than 30 people, or relative sampling error over 100%

HOSPITALISATION

Table A23. Male and female heart disease hospitalisation rates and rate ratios by condition, 2022.

Condition	Female		Male		RR female to male	
	n	rate	n	rate	95% CI	
Total	21469	912.4	31541	900.2	0.75	(0.74-0.76)
IHD	6335	267.7	12205	261.1	0.56	(0.55-0.58)
I20 Angina pectoris	2324	97.8	3945	93.8	0.65	(0.62-0.68)
I21 Acute myocardial infarction	3242	138.4	6111	133.6	0.58	(0.56-0.60)
I48 Atrial fibrillation and flutter	5591	236.0	6660	229.9	0.93	(0.90-0.97)
I50 Heart failure	4846	213.0	6178	207.0	0.95	(0.92-0.99)

TOTAL HEART DISEASE HOSPITALISATIONS

Table A24. Total heart disease hospitalisation numbers and rates, 2000 to 2022

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	45577	1193.3	1499.7	(1485.9-1513.7)
2001	45886	1182.5	1471.7	(1458.2-1485.3)
2002	44584	1131.2	1391.3	(1378.3-1404.4)
2003	42695	1066.8	1298.3	(1285.9-1310.7)
2004	42635	1049.3	1263.6	(1251.5-1275.7)
2005	42880	1039.8	1239.5	(1227.7-1251.3)
2006	44108	1054.0	1247.2	(1235.5-1259.0)
2007	43186	1023.0	1189.6	(1178.3-1200.9)
2008	43911	1031.2	1180.0	(1168.9-1191.1)
2009	45199	1052.3	1184.8	(1173.8-1195.8)
2010	45622	1053.2	1169.2	(1158.5-118.00)
2011	46109	1055.4	1156.2	(1145.7-1166.9)
2012	47555	1079.5	1167.6	(1157.1-1178.2)
2013	47065	1059.5	1132.3	(1122.1-1142.6)
2014	47124	1039.4	1100.3	(1090.4-1110.3)
2015	48123	1040.4	1092.4	(1082.7-1102.2)
2016	49639	1052.3	1097.1	(1087.4-1106.8)
2017	51463	1070.2	1107.5	(1098.0-1117.1)
2018	52188	1064.9	1094.4	(1085.0-1103.8)
2019	53002	1077.4	1092.1	(1082.8-1101.4)
2020	54020	1094.0	1094.0	(1084.8-1103.2)
2021	55039	1110.4	1096.3	(1087.2-1105.5)
2022	53074	1066.8	1040.3	(1031.5-1049.2)

Table A25. Total heart disease hospitalisation numbers and rates by gender, 2000 to 2022

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	25922	1889.0	19627	1168.7	0.62	(0.61-0.63)
2001	25845	1829.8	20020	1162.1	0.64	(0.62-0.65)
2002	25567	1755.8	18989	1073.4	0.61	(0.60-0.62)
2003	24396	1635.4	18264	1004.5	0.61	(0.60-0.63)
2004	24336	1589.0	18263	980.0	0.62	(0.60-0.63)
2005	24670	1564.6	18166	954.2	0.61	(0.60-0.62)
2006	25041	1552.2	19021	977.9	0.63	(0.62-0.64)
2007	24808	1493.3	18331	921.4	0.62	(0.61-0.63)
2008	25108	1473.3	18771	920.2	0.62	(0.61-0.64)
2009	25985	1483.2	19174	919.0	0.62	(0.61-0.63)
2010	26112	1456.5	19481	913.8	0.63	(0.62-0.64)
2011	26695	1453.7	19370	890.2	0.61	(0.60-0.62)
2012	27712	1476.7	19781	892.0	0.60	(0.59-0.62)
2013	27424	1425.7	19576	867.0	0.61	(0.60-0.62)
2014	27722	1399.0	19326	832.0	0.59	(0.58-0.61)
2015	28358	1384.2	19708	826.0	0.60	(0.59-0.61)
2016	29442	1398.7	20144	825.7	0.59	(0.58-0.60)
2017	30607	1412.4	20796	831.3	0.59	(0.58-0.60)
2018	31105	1394.3	21020	820.8	0.59	(0.58-0.60)
2019	31707	1396.2	21214	813.7	0.58	(0.57-0.59)
2020	32362	1397.8	21592	814.2	0.58	(0.57-0.59)
2021	32832	1394.4	22143	822.2	0.59	(0.58-0.60)
2022	31545	1317.6	21464	784.3	0.60	(0.58-0.61)

Table A26. Total heart disease hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	1324	67.3	8272	753.0	9109	2692.9	13643	5443.0	17090	8427.0
2001	1400	71.5	7986	719.2	9576	2734.2	13556	5385.8	17893	8567.0
2002	1543	77.8	7606	674.3	9331	2526.0	12863	5072.2	17837	8339.3
2003	1266	62.8	7625	663.4	8725	2251.3	12143	4740.6	17899	8153.3
2004	1297	63.9	7480	639.8	9020	2233.1	11753	4519.5	18210	8109.2
2005	1312	64.5	7783	656.7	9127	2182.1	11763	4412.7	18292	7959.3
2006	1373	67.3	7465	620.1	9140	2127.2	11829	4290.5	19277	8171.0
2007	1357	66.5	7650	628.2	9219	2090.7	11937	4188.3	18843	7841.8
2008	1382	67.7	7498	611.3	9216	2019.2	11751	4040.8	19489	7979.8
2009	1434	69.9	7802	633.0	9527	2026.4	11921	3967.8	20008	8071.0
2010	1428	69.1	7837	634.3	9554	1974.5	12213	3920.6	20583	8168.5
2011	1599	77.0	7626	619.4	9784	1967.8	12248	3782.0	21198	8274.0
2012	1565	75.4	7599	620.7	10106	2002.4	13138	3839.3	21571	8271.4
2013	1557	74.7	7170	588.4	10075	1964.8	13225	3675.7	20964	7875.6
2014	1569	74.0	7525	615.8	9587	1826.9	13420	3575.8	20938	7662.0
2015	1717	79.1	7719	627.8	9827	1826.5	13701	3526.1	21532	7644.7
2016	1684	75.6	7530	607.4	10500	1893.7	14425	3607.2	22101	7567.3
2017	1800	79.1	7758	619.8	10953	1917.3	14923	3626.2	22437	7422.1
2018	1831	79.2	8084	639.0	11296	1923.1	15400	3608.7	22638	7345.9
2019	1871	80.0	7846	614.9	11405	1903.9	15764	3584.6	23529	7414.9
2020	2016	84.8	7934	612.3	11635	1900.3	15892	3477.9	23748	7214.9
2021	2024	85.7	7982	613.5	11888	1934.7	16210	3471.5	23757	6960.7
2022	2035	87.1	7633	585.4	11303	1837.4	15423	3277.9	22851	6413.2

Table A27. Total heart disease hospitalisation numbers and rates by ethnic group, 2000 – 2022

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	37184	750.4	4329	1262.5	1389	929.2	966	545.4	1909	13659.5
2001	37620	740.4	4165	1160.4	1487	939.2	1027	506.8	1817	12056.5
2002	35950	684.8	4351	1153.5	1817	1028.5	1052	462.7	1705	10674.7
2003	34659	641.1	4205	1071.2	1528	885.8	1178	474.2	1387	8176.3
2004	34566	625.4	4411	1083.2	1601	869.0	1183	435.3	1199	6650.3
2005	34710	617.1	4542	1068.9	1648	858.3	1211	409.9	1128	5866.2
2006	35331	609.1	4735	1072.7	1835	913.2	1373	438.0	1210	6068.9
2007	34486	587.0	4611	991.3	1943	920.6	1359	396.9	1164	5226.2
2008	35076	581.6	4629	954.6	2045	918.1	1486	400.6	1019	4282.1
2009	36167	589.5	5160	1019.4	2199	960.2	1637	403.2	472	1741.9
2010	36435	582.0	5357	1013.9	2291	964.2	1824	424.1	234	788.1
2011	36864	578.0	5475	999.7	2363	950.7	1790	390.2	237	751.0
2012	37994	584.4	5447	961.0	2402	932.6	2048	418.6	265	809.9
2013	37560	570.6	5309	906.4	2533	957.6	1986	388.3	246	693.2
2014	37278	553.8	5495	880.5	2536	904.2	2147	380.9	257	630.2
2015	37812	558.4	5763	872.0	2708	913.3	2230	362.9	272	617.3
2016	38554	557.9	6207	892.5	2854	922.0	2390	358.6	287	589.2
2017	39520	562.2	6714	916.5	3098	955.5	2575	360.8	321	595.2
2018	39607	555.1	7146	930.4	3282	965.8	2819	366.8	339	614.4
2019	39841	551.2	7495	941.6	3596	1028.4	3127	387.8	343	585.4
2020	40584	559.1	7842	952.3	3784	1053.8	3112	369.9	341	548.2
2021	41140	568.8	7970	936.7	3650	990.4	3272	372.1	431	662.8
2022	38897	535.2	7947	905.0	3755	992.6	3258	359.2	420	603.3

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A28. Total heart disease hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.68	(1.63-1.74)	1.24	(1.17-1.31)	0.73	(0.68-0.78)	18.20	(17.33-19.10)
2001	1.57	(1.52-1.62)	1.27	(1.20-1.34)	0.68	(0.64-0.73)	16.28	(15.49-17.11)
2002	1.68	(1.63-1.74)	1.50	(1.43-1.58)	0.68	(0.63-0.72)	15.59	(14.81-16.40)
2003	1.67	(1.62-1.73)	1.38	(1.31-1.46)	0.74	(0.70-0.79)	12.75	(12.05-13.49)
2004	1.73	(1.68-1.79)	1.39	(1.32-1.46)	0.70	(0.65-0.74)	10.63	(10.00-11.29)
2005	1.73	(1.68-1.79)	1.39	(1.32-1.46)	0.66	(0.63-0.70)	9.51	(8.93-10.11)
2006	1.76	(1.71-1.82)	1.50	(1.43-1.57)	0.72	(0.68-0.76)	9.96	(9.38-10.58)
2007	1.69	(1.64-1.74)	1.57	(1.50-1.64)	0.68	(0.64-0.71)	8.90	(8.37-9.46)
2008	1.64	(1.59-1.69)	1.58	(1.51-1.65)	0.69	(0.65-0.73)	7.36	(6.89-7.85)
2009	1.73	(1.68-1.78)	1.63	(1.56-1.70)	0.68	(0.65-0.72)	2.95	(2.68-3.25)
2010	1.74	(1.69-1.79)	1.66	(1.59-1.73)	0.73	(0.69-0.76)	1.35	(1.18-1.55)
2011	1.73	(1.68-1.78)	1.64	(1.58-1.72)	0.68	(0.64-0.71)	1.30	(1.13-1.48)
2012	1.64	(1.60-1.69)	1.60	(1.53-1.66)	0.72	(0.68-0.75)	1.39	(1.22-1.57)
2013	1.59	(1.54-1.64)	1.68	(1.61-1.75)	0.68	(0.65-0.71)	1.21	(1.06-1.38)
2014	1.59	(1.54-1.64)	1.63	(1.57-1.70)	0.69	(0.66-0.72)	1.14	(1.00-1.29)
2015	1.56	(1.52-1.61)	1.64	(1.57-1.70)	0.65	(0.62-0.68)	1.11	(0.97-1.25)
2016	1.60	(1.56-1.64)	1.65	(1.59-1.72)	0.64	(0.62-0.67)	1.06	(0.93-1.19)
2017	1.63	(1.59-1.67)	1.70	(1.64-1.76)	0.64	(0.62-0.67)	1.06	(0.94-1.19)
2018	1.68	(1.63-1.72)	1.74	(1.68-1.80)	0.66	(0.64-0.69)	1.11	(0.99-1.23)
2019	1.71	(1.67-1.75)	1.87	(1.80-1.93)	0.70	(0.68-0.73)	1.06	(0.95-1.18)
2020	1.70	(1.66-1.75)	1.88	(1.82-1.95)	0.66	(0.64-0.69)	0.98	(0.88-1.09)
2021	1.65	(1.61-1.69)	1.74	(1.68-1.80)	0.65	(0.63-0.68)	1.17	(1.05-1.28)
2022	1.69	(1.65-1.73)	1.85	(1.79-1.92)	0.67	(0.65-0.70)	1.13	(1.02-1.25)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A29. Total heart disease hospitalisation rates by NZDep quintile 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	5400	872.0	7099	1138.6	9622	1510.4	11459	1876.4	10474	1942.9
2001	5452	869.6	7296	1148.2	9641	1476.4	11753	1863.0	10177	1821.5
2002	5173	819.3	7222	1107.6	9180	1378.8	11467	1749.2	9974	1711.4
2003	5080	787.4	7110	1071.3	8872	1299.8	10596	1568.1	10083	1668.7
2004	5360	821.3	6424	945.5	8739	1254.7	11370	1633.4	10679	1699.5
2005	5424	816.5	6389	921.7	8759	1231.8	11252	1564.9	11010	1698.4
2006	5565	832.8	6569	933.1	9067	1253.2	11596	1569.3	11270	1679.9
2007	5590	808.6	6575	902.7	8762	1184.2	11058	1468.3	11147	1649.8
2008	5694	788.1	6611	885.8	8829	1166.9	11522	1499.3	11125	1632.6
2009	6169	821.7	7187	937.9	9213	1189.8	11496	1471.0	11094	1622.3
2010	5963	767.0	7155	910.2	9088	1155.4	11088	1396.1	12348	1792.0
2011	6452	807.0	7281	904.8	9171	1143.0	10962	1357.8	12339	1779.8
2012	6633	804.9	7669	928.7	9415	1153.4	11427	1394.7	12517	1799.1
2013	6694	786.5	7618	900.1	9398	1131.2	11258	1353.4	12090	1727.9
2014	6789	792.5	7677	876.3	9331	1077.8	11222	1295.8	12077	1651.0
2015	7035	813.2	7835	865.4	9552	1063.5	11440	1274.3	12222	1601.3
2016	7372	836.5	9553	1026.9	9821	1055.6	10532	1134.7	12380	1564.8
2017	7738	865.8	9817	1021.7	10009	1038.4	11308	1176.6	12760	1553.2
2018	8069	894.3	10157	1027.5	10137	1018.5	11335	1144.2	12871	1507.9
2019	8209	880.8	10079	995.3	10415	1030.9	11460	1145.2	13554	1572.7
2020	8642	886.8	10465	1010.4	10663	1039.7	11795	1166.5	13512	1552.7
2021	8699	865.5	10867	1026.4	11689	1125.8	11248	1104.8	13498	1538.0
2022	8511	819.8	10031	928.1	10991	1044.4	10938	1064.1	13298	1501.3

Table A30. Total heart disease hospitalisation rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.31	(1.26 - 1.35)	1.73	(1.67 - 1.79)	2.15	(2.08 - 2.22)	2.23	(2.16 - 2.30)
2001	1.32	(1.27 - 1.37)	1.70	(1.64 - 1.76)	2.14	(2.07 - 2.21)	2.09	(2.03 - 2.17)
2002	1.35	(1.30 - 1.40)	1.68	(1.63 - 1.74)	2.13	(2.07 - 2.21)	2.09	(2.02 - 2.16)
2003	1.36	(1.31 - 1.41)	1.65	(1.59 - 1.71)	1.99	(1.92 - 2.06)	2.12	(2.05 - 2.19)
2004	1.15	(1.11 - 1.19)	1.53	(1.48 - 1.58)	1.99	(1.92 - 2.06)	2.07	(2.00 - 2.14)
2005	1.13	(1.09 - 1.17)	1.51	(1.46 - 1.56)	1.92	(1.85 - 1.98)	2.08	(2.01 - 2.15)
2006	1.12	(1.08 - 1.16)	1.50	(1.45 - 1.56)	1.88	(1.82 - 1.95)	2.02	(1.95 - 2.08)
2007	1.12	(1.08 - 1.16)	1.46	(1.42 - 1.52)	1.82	(1.76 - 1.88)	2.04	(1.98 - 2.11)
2008	1.12	(1.08 - 1.17)	1.48	(1.43 - 1.53)	1.90	(1.84 - 1.96)	2.07	(2.01 - 2.14)
2009	1.14	(1.10 - 1.18)	1.45	(1.40 - 1.50)	1.79	(1.73 - 1.85)	1.97	(1.91 - 2.04)
2010	1.19	(1.15 - 1.23)	1.51	(1.46 - 1.56)	1.82	(1.76 - 1.88)	2.34	(2.26 - 2.41)
2011	1.12	(1.08 - 1.16)	1.42	(1.37 - 1.46)	1.68	(1.63 - 1.74)	2.21	(2.14 - 2.27)
2012	1.15	(1.12 - 1.19)	1.43	(1.39 - 1.48)	1.73	(1.68 - 1.79)	2.24	(2.17 - 2.30)
2013	1.14	(1.11 - 1.18)	1.44	(1.39 - 1.48)	1.72	(1.67 - 1.77)	2.20	(2.13 - 2.26)
2014	1.11	(1.07 - 1.14)	1.36	(1.32 - 1.40)	1.64	(1.59 - 1.69)	2.08	(2.02 - 2.15)
2015	1.06	(1.03 - 1.10)	1.31	(1.27 - 1.35)	1.57	(1.52 - 1.62)	1.97	(1.91 - 2.03)
2016	1.23	(1.19 - 1.27)	1.26	(1.22 - 1.30)	1.36	(1.32 - 1.40)	1.87	(1.82 - 1.93)
2017	1.18	(1.14 - 1.22)	1.20	(1.16 - 1.24)	1.36	(1.32 - 1.40)	1.79	(1.74 - 1.85)
2018	1.15	(1.12 - 1.18)	1.14	(1.11 - 1.17)	1.28	(1.24 - 1.32)	1.69	(1.64 - 1.73)
2019	1.13	(1.10 - 1.16)	1.17	(1.14 - 1.21)	1.30	(1.26 - 1.34)	1.79	(1.74 - 1.84)
2020	1.14	(1.11 - 1.17)	1.17	(1.14 - 1.21)	1.32	(1.28 - 1.35)	1.75	(1.70 - 1.80)
2021	1.19	(1.15 - 1.22)	1.30	(1.26 - 1.34)	1.28	(1.24 - 1.31)	1.78	(1.73 - 1.83)
2022	1.13	(1.10 - 1.17)	1.27	(1.24 - 1.31)	1.30	(1.26 - 1.34)	1.83	(1.78 - 1.88)

Table A31. Total heart disease hospitalisation numbers, rates, and rate ratios by NZDep, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	8511	876.3	819.8	(802.3-837.6)	1.00	Baseline
3 - 4	10031	1025.7	928.1	(910.0-946.5)	1.13	(1.10-1.17)
5 - 6	10991	1118.3	1044.4	(1024.9-1064.2)	1.27	(1.24-1.31)
7 - 8	10938	1090.6	1064.1	(1044.2-1084.3)	1.30	(1.26-1.34)
9 - 10	13298	1279.9	1501.3	(1475.8-1527.0)	1.83	(1.78-1.88)

Table A32. Total heart disease hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	13701	1440.6	10483	1727.8	9442	1517.3	11794	1479.3
2001	13750	1413.5	10561	1704.2	9263	1475.7	12092	1485.3
2002	14026	1396.3	9960	1570.5	9080	1414.6	11471	1381.7
2003	13258	1288.8	9461	1452.3	8893	1364.4	10987	1292.8
2004	13081	1239.8	10071	1508.2	8599	1293.3	10850	1248.9
2005	13476	1244.9	9848	1437.1	8724	1279.9	10835	1219.4
2006	14277	1292.5	9876	1396.8	9362	1343.4	10594	1162.5
2007	14089	1235.4	9282	1282.5	9140	1281.6	10651	1142.4
2008	14498	1242.9	9078	1227.3	9405	1292.0	10861	1139.0
2009	14503	1211.2	10093	1329.9	9837	1320.2	10745	1100.9
2010	15156	1229.9	9995	1283.5	9505	1249.1	11015	1106.2
2011	15073	1182.7	10226	1282.8	9295	1189.2	11631	1152.8
2012	15885	1209.4	10718	1308.7	9248	1158.9	11837	1156.5
2013	15679	1165.1	10298	1232.4	9513	1170.6	11592	1108.8
2014	15842	1138.9	10262	1192.3	9705	1159.9	11313	1055.8
2015	15820	1106.3	10622	1200.8	9876	1151.8	11856	1080.5
2016	16320	1109.8	11072	1212.6	10088	1147.7	12191	1078.7
2017	16920	1116.8	12129	1282.9	10329	1150.1	12278	1060.3
2018	17403	1118.6	12150	1247.8	10671	1161.3	12356	1046.0
2019	17863	1119.1	12648	1266.7	10831	1155.4	12384	1023.4
2020	18325	1111.6	13238	1283.3	10947	1136.9	12577	1006.8
2021	18634	1108.8	13849	1311.9	10956	1114.7	12572	981.9
2022	18481	1083.6	13398	1247.5	10238	1028.8	11652	891.0

Table A33. Total heart disease hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.94	(0.93 - 0.96)	1.13	(1.11 - 1.16)	0.99	(0.97 - 1.02)	0.97	(0.95 - 0.99)
2001	0.94	(0.92 - 0.96)	1.13	(1.11 - 1.16)	0.98	(0.96 - 1.00)	0.99	(0.97 - 1.01)
2002	0.97	(0.96 - 0.99)	1.10	(1.07 - 1.12)	0.99	(0.96 - 1.01)	0.96	(0.94 - 0.98)
2003	0.96	(0.94 - 0.98)	1.08	(1.06 - 1.11)	1.02	(1.00 - 1.04)	0.96	(0.94 - 0.99)
2004	0.95	(0.93 - 0.97)	1.15	(1.13 - 1.18)	0.99	(0.96 - 1.01)	0.95	(0.93 - 0.97)
2005	0.97	(0.95 - 0.99)	1.12	(1.09 - 1.14)	1.00	(0.97 - 1.02)	0.95	(0.93 - 0.97)
2006	1.00	(0.98 - 1.02)	1.08	(1.06 - 1.11)	1.04	(1.02 - 1.07)	0.90	(0.88 - 0.92)
2007	1.00	(0.99 - 1.02)	1.04	(1.02 - 1.07)	1.04	(1.02 - 1.07)	0.93	(0.91 - 0.95)
2008	1.02	(1.00 - 1.04)	1.00	(0.98 - 1.03)	1.06	(1.03 - 1.08)	0.93	(0.91 - 0.95)
2009	0.99	(0.97 - 1.00)	1.08	(1.06 - 1.11)	1.07	(1.05 - 1.10)	0.90	(0.88 - 0.92)
2010	1.01	(1.00 - 1.03)	1.06	(1.04 - 1.08)	1.03	(1.01 - 1.05)	0.91	(0.89 - 0.93)
2011	0.99	(0.97 - 1.01)	1.07	(1.05 - 1.09)	0.99	(0.97 - 1.02)	0.96	(0.94 - 0.98)
2012	1.00	(0.98 - 1.02)	1.08	(1.06 - 1.11)	0.96	(0.94 - 0.98)	0.96	(0.94 - 0.98)
2013	1.00	(0.98 - 1.02)	1.06	(1.03 - 1.08)	1.00	(0.98 - 1.03)	0.95	(0.93 - 0.97)
2014	1.00	(0.99 - 1.02)	1.05	(1.03 - 1.07)	1.02	(1.00 - 1.05)	0.93	(0.91 - 0.95)
2015	0.98	(0.96 - 1.00)	1.06	(1.04 - 1.09)	1.02	(1.00 - 1.04)	0.96	(0.94 - 0.98)
2016	0.98	(0.96 - 1.00)	1.07	(1.05 - 1.09)	1.01	(0.99 - 1.04)	0.95	(0.93 - 0.97)
2017	0.98	(0.96 - 0.99)	1.12	(1.10 - 1.14)	1.00	(0.98 - 1.03)	0.93	(0.91 - 0.94)
2018	0.98	(0.97 - 1.00)	1.10	(1.08 - 1.12)	1.02	(1.00 - 1.04)	0.92	(0.90 - 0.94)
2019	0.99	(0.97 - 1.00)	1.12	(1.10 - 1.14)	1.02	(1.00 - 1.04)	0.90	(0.89 - 0.92)
2020	0.99	(0.97 - 1.00)	1.14	(1.12 - 1.16)	1.01	(0.99 - 1.03)	0.89	(0.88 - 0.91)
2021	0.99	(0.97 - 1.01)	1.17	(1.15 - 1.19)	0.99	(0.97 - 1.01)	0.88	(0.86 - 0.89)
2022	1.02	(1.01 - 1.04)	1.18	(1.16 - 1.20)	0.97	(0.95 - 0.99)	0.84	(0.83 - 0.86)

Table A34. Total heart disease hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	53769	1080.8	1080.8	(1071.6-1089.9)	1.00	Baseline
Northland	2892	1503.4	1257.9	(1211.9-1305.2)	1.16	(1.12 - 1.21)
Waitematā	6142	977.9	1057.2	(1030.9-108.04)	0.98	(0.95 - 1.00)
Auckland	4357	925.9	1081.9	(1049.8-1114.7)	1.00	(0.97 - 1.03)
Counties Manukau	5090	875.2	1109.7	(1079.0-1140.9)	1.03	(1.00 - 1.06)
Waikato	5507	1267.1	1248.2	(1215.5-1281.7)	1.15	(1.12 - 1.19)
Lakes	1702	1490.6	1449.8	(1381.6-1520.5)	1.34	(1.28 - 1.41)
Bay of Plenty	3566	1365.9	1175.2	(1136.7-1214.8)	1.09	(1.05 - 1.13)
Tairāwhiti	753	1482.1	1513.4	(1407.0-1625.6)	1.40	(1.30 - 1.50)
Taranaki	1870	1493.6	1341.9	(1281.6-1404.4)	1.24	(1.18 - 1.30)
Hawke's Bay	2214	1269.2	1138.7	(1091.6-1187.3)	1.05	(1.01 - 1.10)
Whanganui	1138	1680.6	1404.4	(1323.4-1489.3)	1.30	(1.22 - 1.38)
MidCentral	2129	1155.7	1040.9	(997.0-1086.3)	0.96	(0.92 - 1.01)
Capital, Coast & Hutt Valley	4202	907.4	979.7	(950.3-1009.9)	0.91	(0.88 - 0.94)
Wairarapa	555	1131.8	874.7	(802.8-951.8)	0.81	(0.74 - 0.88)
Nelson Marlborough	1813	1140.6	889.5	(848.6-932.0)	0.82	(0.78 - 0.86)
West Coast	504	1517.5	1208.3	(1103.3-1321.2)	1.12	(1.02 - 1.22)
Canterbury	4988	855.1	837.6	(814.5-861.2)	0.77	(0.75 - 0.80)
South Canterbury	737	1212.1	932.5	(865.7-1003.4)	0.86	(0.80 - 0.93)
Southern	3610	1056.1	996.0	(963.7-1029.1)	0.92	(0.89 - 0.95)

Table A35. Total heart disease hospitalisation rates and rate ratios by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	29571	924.7	924.7	(914.2-935.3)	1.00	Baseline
U2	12075	1333.2	1086.2	(1066.7-1106)	1.17	(1.15-1.20)
R1	7784	1261.9	963.7	(942.0-985.9)	1.04	(1.02-1.07)
R2	3670	1261.7	963.1	(931.5-995.6)	1.04	(1.01-1.08)
R3	668	1352.2	1003.7	(926.8-1085.7)	1.09	(1.00-1.18)

IHD HOSPITALISATION

Table A36. IHD hospitalisation numbers and rates 2000 to 2022

Year	Total IHD			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	26492	693.6	876.8	(866.2-887.5)
2001	25940	668.5	837.5	(827.3-847.8)
2002	24536	622.5	771.8	(762.1-781.6)
2003	23496	587.1	719.4	(710.2-728.7)
2004	22622	556.8	675.4	(666.6-684.3)
2005	22850	554.1	665.6	(657.0-674.4)
2006	22657	541.4	644.1	(635.7-652.6)
2007	21608	511.8	597.8	(589.8-605.9)
2008	21692	509.4	585.5	(577.7-593.4)
2009	21170	492.9	557.4	(549.9-565.0)
2010	20909	482.7	537.6	(530.3-544.9)
2011	20653	472.8	519.2	(512.1-526.3)
2012	20721	470.3	509.7	(502.7-516.7)
2013	19656	442.5	472.9	(466.3-479.6)
2014	18403	405.9	429.9	(423.7-436.1)
2015	18237	394.3	414.1	(408.2-420.2)
2016	18940	401.5	418.6	(412.6-424.6)
2017	19004	395.2	409.0	(403.2-414.8)
2018	19060	388.9	399.3	(393.6-405.0)
2019	19358	393.5	398.7	(393.1-404.4)
2020	19322	391.3	391.3	(385.8-396.9)
2021	19413	391.7	386.8	(381.3-392.2)
2022	18932	380.5	371.2	(365.9-376.5)

Table A37. IHD hospitalisation rates and rate ratios by gender, 2000 - 2022

Year	Male		Female		Rate ratio female to male	
	N	Rate	N	Rate	RR	95% CI
2000	15818	1172.7	10582	658.2	0.56	(0.55-0.58)
2001	15325	1111.0	10522	636.5	0.57	(0.56-0.59)
2002	14796	1042.4	9621	568.0	0.54	(0.53-0.56)
2003	14220	978.3	9190	526.7	0.54	(0.52-0.55)
2004	13657	915.1	8838	495.2	0.54	(0.53-0.56)
2005	13808	899.4	8894	487.5	0.54	(0.53-0.56)
2006	13537	860.1	8962	478.9	0.56	(0.54-0.57)
2007	13158	809.0	8306	434.1	0.54	(0.52-0.55)
2008	13246	796.7	8355	425.1	0.53	(0.52-0.55)
2009	12961	757.4	8082	402.3	0.53	(0.52-0.55)
2010	12799	729.7	7945	385.9	0.53	(0.51-0.54)
2011	12798	712.1	7620	363.0	0.51	(0.50-0.52)
2012	13032	709.7	7468	348.9	0.49	(0.48-0.51)
2013	12316	651.4	7119	325.8	0.50	(0.49-0.52)
2014	11658	598.3	6529	290.4	0.49	(0.47-0.50)
2015	11694	581.6	6302	273.2	0.47	(0.46-0.48)
2016	12031	580.8	6687	283.0	0.49	(0.47-0.50)
2017	12295	577.3	6432	265.6	0.46	(0.45-0.47)
2018	12249	557.5	6456	259.9	0.47	(0.45-0.48)
2019	12341	553.0	6441	255.1	0.46	(0.45-0.48)
2020	12342	543.2	6313	245.6	0.45	(0.44-0.47)
2021	12463	539.3	6469	247.7	0.46	(0.45-0.47)
2022	12199	518.9	6332	238.7	0.46	(0.45-0.47)

Table A38. IHD hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 - 54 years		55 - 64 years		65 - 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	190	9.7	5281	480.7	6196	1831.7	8553	3412.3	8821	4349.6
2001	153	7.8	4848	436.6	6287	1795.1	8246	3276.1	9505	4550.9
2002	106	5.3	4483	397.4	5991	1621.8	7796	3074.1	9282	4339.6
2003	105	5.2	4528	394.0	5624	1451.2	7375	2879.2	9414	4288.3
2004	147	7.2	4246	363.2	5629	1393.6	7002	2692.6	9237	4113.4
2005	115	5.7	4490	378.9	5660	1353.2	7148	2681.5	9298	4045.8
2006	123	6.0	4194	348.4	5346	1244.2	6768	2454.8	9500	4026.8
2007	96	4.7	4260	349.8	5464	1239.1	6719	2357.5	9026	3756.3
2008	126	6.2	4028	328.4	5379	1178.5	6481	2228.6	9165	3752.6
2009	118	5.8	3920	318.1	5272	1121.4	6405	2131.9	8955	3612.3
2010	79	3.8	3879	314.0	5391	1114.1	6402	2055.2	8928	3543.1
2011	87	4.2	3687	299.5	5301	1066.2	6315	1950.0	8908	3477.0
2012	77	3.7	3617	295.5	5352	1060.5	6694	1956.2	8908	3415.8
2013	105	5.0	3340	274.1	5233	1020.5	6422	1784.9	8255	3101.2
2014	70	3.3	3222	263.7	4805	915.6	6213	1655.5	7717	2823.9
2015	89	4.1	3230	262.7	4763	885.3	6294	1619.8	7642	2713.2
2016	105	4.7	3108	250.7	5134	925.9	6723	1681.2	7864	2692.6
2017	113	5.0	3039	242.8	5163	903.8	6789	1649.7	7786	2575.6
2018	137	5.9	3214	254.1	5452	928.2	6792	1591.6	7591	2463.3
2019	129	5.5	3107	243.5	5383	898.6	6832	1553.5	7866	2478.9
2020	160	6.7	3011	232.4	5391	880.5	6780	1483.8	7705	2340.9
2021	108	4.6	2996	230.3	5379	875.4	6931	1484.3	7537	2208.3
2022	111	4.8	2921	224.0	5180	842.1	6684	1420.6	7475	2097.9

Table A39. IHD hospitalisation rates by ethnic group, 2000 - 2022

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	22154	459.7	1948	572.6	656	462.6	693	389.7	1100	7919.8
2001	21816	433.7	1827	513.3	667	443.0	678	331.1	1017	6768.5
2002	20579	395.8	1707	460.7	674	422.6	691	306.8	960	6010.9
2003	19564	362.9	1789	461.8	685	413.5	771	311.0	773	4615.3
2004	18855	342.1	1773	439.5	676	380.4	741	275.9	674	3823.0
2005	18952	336.4	1956	469.7	688	372.6	710	243.6	636	3316.8
2006	18518	317.1	1986	453.2	713	368.5	843	268.4	695	3534.9
2007	17647	299.3	1827	396.5	765	377.7	834	242.0	637	2902.5
2008	17714	293.0	1771	370.0	852	402.1	924	251.1	544	2336.5
2009	17293	279.4	1944	390.0	848	383.9	969	238.4	240	903.9
2010	17063	271.0	1952	372.7	872	378.5	1046	243.8	123	428.2
2011	16855	261.9	1940	356.9	891	372.5	1009	220.3	119	392.1
2012	16906	258.2	1907	338.8	793	319.7	1100	225.0	132	414.3
2013	15989	242.0	1711	294.1	941	364.2	1039	202.6	119	344.4
2014	14824	219.2	1643	264.5	843	309.0	1126	200.0	103	270.9
2015	14584	213.3	1620	246.6	904	314.9	1181	193.0	116	283.4
2016	15004	214.8	1890	272.7	877	291.9	1213	182.5	111	237.8
2017	14882	210.7	1925	263.6	920	293.9	1280	180.6	150	296.2
2018	14585	204.9	2021	263.8	1022	309.5	1428	188.3	141	255.1
2019	14658	201.8	2124	267.4	1078	317.9	1546	195.2	118	206.4
2020	14593	200.5	2161	262.8	1060	302.6	1537	185.5	138	234.1
2021	14533	198.3	2202	259.1	1056	293.6	1587	184.5	176	287.2
2022	13912	189.1	2270	258.7	1109	299.8	1630	183.4	176	262.1

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A40. IHD hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.25	(1.19-1.31)	1.01	(0.93-1.09)	0.85	(0.78-0.92)	17.23	(16.15-18.35)
2001	1.18	(1.13-1.24)	1.02	(0.94-1.11)	0.76	(0.70-0.83)	15.61	(14.60-16.66)
2002	1.16	(1.11-1.22)	1.07	(0.99-1.15)	0.78	(0.72-0.84)	15.19	(14.18-16.24)
2003	1.27	(1.21-1.34)	1.14	(1.05-1.23)	0.86	(0.79-0.92)	12.72	(11.78-13.70)
2004	1.28	(1.22-1.35)	1.11	(1.03-1.20)	0.81	(0.75-0.87)	11.17	(10.30-12.10)
2005	1.40	(1.33-1.46)	1.11	(1.02-1.20)	0.72	(0.67-0.78)	9.86	(9.06-10.70)
2006	1.43	(1.36-1.50)	1.16	(1.08-1.25)	0.85	(0.79-0.91)	11.15	(10.29-12.06)
2007	1.32	(1.26-1.39)	1.26	(1.17-1.36)	0.81	(0.75-0.87)	9.70	(8.91-10.52)
2008	1.26	(1.20-1.33)	1.37	(1.28-1.47)	0.86	(0.80-0.92)	7.97	(7.29-8.70)
2009	1.40	(1.33-1.46)	1.37	(1.28-1.47)	0.85	(0.80-0.91)	3.24	(2.82-3.69)
2010	1.38	(1.31-1.44)	1.40	(1.30-1.50)	0.90	(0.84-0.96)	1.58	(1.30-1.90)
2011	1.36	(1.30-1.43)	1.42	(1.33-1.52)	0.84	(0.79-0.90)	1.50	(1.23-1.80)
2012	1.31	(1.25-1.38)	1.24	(1.15-1.33)	0.87	(0.82-0.93)	1.60	(1.33-1.91)
2013	1.21	(1.15-1.28)	1.50	(1.41-1.61)	0.84	(0.78-0.89)	1.42	(1.17-1.71)
2014	1.21	(1.15-1.27)	1.41	(1.31-1.51)	0.91	(0.86-0.97)	1.24	(1.00-1.51)
2015	1.16	(1.10-1.22)	1.48	(1.38-1.58)	0.90	(0.85-0.96)	1.33	(1.09-1.60)
2016	1.27	(1.21-1.33)	1.36	(1.27-1.46)	0.85	(0.80-0.90)	1.11	(0.90-1.34)
2017	1.25	(1.19-1.31)	1.40	(1.30-1.49)	0.86	(0.81-0.91)	1.41	(1.18-1.66)
2018	1.29	(1.23-1.35)	1.51	(1.42-1.61)	0.92	(0.87-0.97)	1.25	(1.04-1.47)
2019	1.32	(1.26-1.39)	1.58	(1.48-1.68)	0.97	(0.92-1.02)	1.02	(0.84-1.23)
2020	1.31	(1.25-1.37)	1.51	(1.42-1.61)	0.93	(0.88-0.98)	1.17	(0.98-1.38)
2021	1.31	(1.25-1.37)	1.48	(1.39-1.58)	0.93	(0.88-0.98)	1.45	(1.24-1.68)
2022	1.37	(1.31-1.43)	1.59	(1.49-1.69)	0.97	(0.92-1.02)	1.39	(1.18-1.61)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A41. IHD hospitalisation rates by NZDep quintile, 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	3129	504.0	4131	663.6	5681	899.4	6776	1120.5	5864	1100.1
2001	3032	486.1	4182	663.3	5526	852.2	6712	1072.9	5572	1007.3
2002	2816	447.8	3946	609.0	5115	773.1	6380	986.9	5309	921.5
2003	2795	436.0	3959	600.0	4885	721.1	5957	890.1	5337	892.7
2004	2761	424.9	3420	505.9	4670	675.5	6217	901.1	5431	874.5
2005	2788	420.9	3456	502.3	4622	654.6	6127	860.2	5729	895.0
2006	2747	412.5	3312	474.0	4683	650.5	6207	846.2	5577	839.4
2007	2747	396.8	3278	450.8	4460	606.2	5664	757.4	5321	795.8
2008	2818	389.6	3232	434.3	4406	585.1	5772	757.5	5337	791.3
2009	2752	365.9	3343	435.5	4373	568.3	5496	710.1	5078	749.8
2010	2714	347.9	3240	411.8	4223	538.7	5144	654.1	5478	802.7
2011	2913	361.5	3360	415.9	4193	523.7	4843	605.8	5234	764.3
2012	2824	340.7	3353	404.2	4315	529.5	5076	626.7	5072	736.4
2013	2791	323.1	3145	369.0	3967	476.9	4873	591.6	4744	685.1
2014	2638	303.3	3092	350.0	3676	425.1	4401	514.5	4443	614.1
2015	2621	296.2	3062	335.9	3718	415.3	4356	491.6	4335	574.7
2016	2770	303.9	3618	385.7	3777	407.1	4062	442.5	4598	586.7
2017	2871	311.8	3530	364.8	3768	393.3	4161	438.4	4578	562.7
2018	2921	314.4	3665	368.0	3751	379.4	4156	425.2	4463	527.8
2019	2925	304.5	3640	357.6	3743	372.8	4155	420.0	4815	563.5
2020	3008	300.1	3757	360.8	3762	369.4	4193	419.8	4546	526.9
2021	3022	293.1	3831	360.2	4083	395.3	3932	390.9	4526	519.4
2022	2983	281.7	3540	326.1	3894	372.5	3888	382.9	4595	522.6

Table A42. IHD hospitalisation rate ratios to NZDep 1-2 by NZDep quintile, 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.32	(1.26 - 1.38)	1.78	(1.71 - 1.87)	2.22	(2.13 - 2.32)	2.18	(2.09 - 2.28)
2001	1.36	(1.30 - 1.43)	1.75	(1.68 - 1.83)	2.21	(2.11 - 2.31)	2.07	(1.98 - 2.17)
2002	1.36	(1.30 - 1.43)	1.73	(1.65 - 1.81)	2.20	(2.11 - 2.31)	2.06	(1.96 - 2.16)
2003	1.38	(1.31 - 1.45)	1.65	(1.58 - 1.73)	2.04	(1.95 - 2.14)	2.05	(1.95 - 2.15)
2004	1.19	(1.13 - 1.25)	1.59	(1.52 - 1.67)	2.12	(2.03 - 2.22)	2.06	(1.96 - 2.16)
2005	1.19	(1.13 - 1.26)	1.56	(1.48 - 1.63)	2.04	(1.95 - 2.14)	2.13	(2.03 - 2.23)
2006	1.15	(1.09 - 1.21)	1.58	(1.50 - 1.65)	2.05	(1.96 - 2.15)	2.03	(1.94 - 2.13)
2007	1.14	(1.08 - 1.20)	1.53	(1.46 - 1.60)	1.91	(1.82 - 2.00)	2.01	(1.91 - 2.10)
2008	1.11	(1.06 - 1.17)	1.50	(1.43 - 1.58)	1.94	(1.86 - 2.04)	2.03	(1.94 - 2.13)
2009	1.19	(1.13 - 1.25)	1.55	(1.48 - 1.63)	1.94	(1.85 - 2.03)	2.05	(1.96 - 2.15)
2010	1.18	(1.12 - 1.25)	1.55	(1.47 - 1.63)	1.88	(1.79 - 1.97)	2.31	(2.20 - 2.42)
2011	1.15	(1.09 - 1.21)	1.45	(1.38 - 1.52)	1.68	(1.60 - 1.76)	2.11	(2.02 - 2.21)
2012	1.19	(1.13 - 1.25)	1.55	(1.48 - 1.63)	1.84	(1.76 - 1.93)	2.16	(2.06 - 2.27)
2013	1.14	(1.08 - 1.20)	1.48	(1.41 - 1.55)	1.83	(1.75 - 1.92)	2.12	(2.02 - 2.22)
2014	1.15	(1.09 - 1.22)	1.40	(1.33 - 1.47)	1.70	(1.61 - 1.78)	2.02	(1.93 - 2.13)
2015	1.13	(1.08 - 1.20)	1.40	(1.33 - 1.48)	1.66	(1.58 - 1.74)	1.94	(1.85 - 2.04)
2016	1.27	(1.21 - 1.33)	1.34	(1.27 - 1.41)	1.46	(1.39 - 1.53)	1.93	(1.84 - 2.03)
2017	1.17	(1.11 - 1.23)	1.26	(1.20 - 1.33)	1.41	(1.34 - 1.48)	1.80	(1.72 - 1.89)
2018	1.17	(1.11 - 1.23)	1.21	(1.15 - 1.27)	1.35	(1.29 - 1.42)	1.68	(1.60 - 1.76)
2019	1.17	(1.12 - 1.23)	1.22	(1.17 - 1.29)	1.38	(1.31 - 1.45)	1.85	(1.77 - 1.94)
2020	1.20	(1.15 - 1.26)	1.23	(1.17 - 1.29)	1.40	(1.33 - 1.47)	1.76	(1.68 - 1.84)
2021	1.23	(1.17 - 1.29)	1.35	(1.29 - 1.41)	1.33	(1.27 - 1.40)	1.77	(1.69 - 1.86)
2022	1.16	(1.10 - 1.22)	1.32	(1.26 - 1.39)	1.36	(1.30 - 1.43)	1.86	(1.77 - 1.94)

Table A43. IHD hospitalisation numbers, rates, and rate ratios by NZDep quintile, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	2983	307.1	281.7	(271.6-292.1)	1.00	Baseline
3 - 4	3540	362.0	326.1	(315.5-337.1)	1.16	(1.10-1.22)
5 - 6	3894	396.2	372.5	(360.9-384.4)	1.32	(1.26-1.39)
7 - 8	3888	387.7	382.9	(371.0-395.2)	1.36	(1.30-1.43)
9 - 10	4595	442.3	522.6	(507.6-537.9)	1.86	(1.77-1.94)

Table A44. IHD hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	7642	812.2	5961	983.0	5508	886.0	7222	909.0
2001	7372	768.0	5789	937.7	5402	863.4	7192	888.3
2002	7170	727.9	5378	850.4	5134	805.2	6718	813.6
2003	6872	675.0	5107	786.9	5010	773.0	6384	754.9
2004	6411	615.1	5317	799.0	4617	698.2	6172	714.2
2005	6499	609.6	5405	791.0	4720	697.3	6123	693.6
2006	6722	615.2	5019	710.0	5088	735.2	5719	628.8
2007	6453	571.8	4459	616.0	4812	678.9	5764	620.6
2008	6804	589.2	4281	580.4	4899	675.1	5613	590.7
2009	6226	525.9	4535	599.1	4830	650.8	5456	559.8
2010	6397	522.4	4349	558.7	4430	584.5	5640	567.5
2011	6254	495.8	4438	556.3	4020	517.0	5841	579.7
2012	6451	493.5	4519	551.3	3828	481.3	5850	572.1
2013	6189	461.4	4043	482.2	3823	471.0	5469	522.0
2014	5931	428.5	3839	445.7	3442	411.3	5048	471.3
2015	5600	392.9	3846	433.7	3528	411.7	5147	469.1
2016	5866	400.2	4134	452.2	3697	421.8	5129	453.3
2017	5744	381.2	4441	468.7	3746	417.2	4986	430.2
2018	6046	389.4	4303	440.7	3679	400.0	4931	416.3
2019	6056	379.0	4688	468.3	3662	390.5	4873	401.5
2020	6070	368.7	4785	462.8	3696	383.6	4719	377.0
2021	6202	370.2	4982	471.8	3559	362.0	4654	362.4
2022	6264	368.6	4931	458.2	3404	341.8	4301	328.5

Table A45. IHD hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.91	(0.89 - 0.94)	1.11	(1.07 - 1.14)	1.00	(0.97 - 1.03)	1.02	(1.00 - 1.05)
2001	0.90	(0.88 - 0.92)	1.10	(1.07 - 1.13)	1.01	(0.98 - 1.04)	1.04	(1.01 - 1.07)
2002	0.92	(0.89 - 0.94)	1.07	(1.04 - 1.11)	1.02	(0.99 - 1.05)	1.03	(1.00 - 1.06)
2003	0.91	(0.89 - 0.94)	1.06	(1.03 - 1.10)	1.04	(1.01 - 1.08)	1.02	(0.99 - 1.05)
2004	0.88	(0.86 - 0.91)	1.15	(1.11 - 1.18)	1.00	(0.97 - 1.03)	1.02	(1.00 - 1.05)
2005	0.89	(0.86 - 0.91)	1.15	(1.12 - 1.18)	1.01	(0.98 - 1.05)	1.01	(0.98 - 1.04)
2006	0.93	(0.90 - 0.95)	1.07	(1.04 - 1.10)	1.11	(1.07 - 1.14)	0.95	(0.92 - 0.98)
2007	0.93	(0.90 - 0.96)	1.00	(0.97 - 1.03)	1.10	(1.07 - 1.14)	1.01	(0.98 - 1.04)
2008	0.97	(0.95 - 1.00)	0.96	(0.93 - 0.99)	1.12	(1.08 - 1.15)	0.98	(0.95 - 1.01)
2009	0.91	(0.89 - 0.94)	1.04	(1.01 - 1.08)	1.13	(1.10 - 1.17)	0.97	(0.94 - 1.00)
2010	0.94	(0.92 - 0.97)	1.01	(0.97 - 1.04)	1.05	(1.02 - 1.09)	1.02	(0.99 - 1.05)
2011	0.93	(0.90 - 0.95)	1.04	(1.01 - 1.08)	0.97	(0.93 - 1.00)	1.08	(1.05 - 1.12)
2012	0.94	(0.92 - 0.97)	1.05	(1.02 - 1.09)	0.92	(0.89 - 0.95)	1.09	(1.06 - 1.12)
2013	0.95	(0.93 - 0.98)	1.00	(0.96 - 1.03)	0.97	(0.94 - 1.01)	1.08	(1.05 - 1.11)
2014	0.97	(0.94 - 1.00)	1.01	(0.98 - 1.05)	0.93	(0.90 - 0.97)	1.07	(1.04 - 1.10)
2015	0.92	(0.90 - 0.95)	1.02	(0.98 - 1.06)	0.97	(0.93 - 1.00)	1.10	(1.07 - 1.14)
2016	0.93	(0.90 - 0.96)	1.05	(1.02 - 1.09)	0.98	(0.95 - 1.02)	1.06	(1.02 - 1.09)
2017	0.91	(0.88 - 0.94)	1.12	(1.08 - 1.15)	0.99	(0.96 - 1.03)	1.03	(0.99 - 1.06)
2018	0.95	(0.92 - 0.98)	1.08	(1.04 - 1.11)	0.98	(0.94 - 1.01)	1.02	(0.99 - 1.05)
2019	0.93	(0.91 - 0.96)	1.15	(1.12 - 1.19)	0.96	(0.93 - 1.00)	0.99	(0.96 - 1.02)
2020	0.94	(0.91 - 0.96)	1.17	(1.14 - 1.21)	0.97	(0.94 - 1.01)	0.96	(0.93 - 0.99)
2021	0.95	(0.93 - 0.98)	1.22	(1.18 - 1.25)	0.93	(0.90 - 0.97)	0.93	(0.90 - 0.96)
2022	0.99	(0.96 - 1.02)	1.23	(1.19 - 1.27)	0.92	(0.89 - 0.95)	0.88	(0.85 - 0.91)

Table A46. IHD hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	18900	379.9	379.9	(374.5-385.3)	1.00	Baseline
Northland	1158	602.0	490.7	(462.6-520.1)	1.29	(1.22 - 1.37)
Waitematā	2036	324.1	352.1	(337.0-367.8)	0.93	(0.89 - 0.97)
Auckland	1433	304.5	359.4	(340.9-378.6)	0.95	(0.90 - 1.00)
Counties Manukau	1637	281.5	357.9	(340.6-375.8)	0.94	(0.89 - 0.99)
Waikato	1972	453.7	446.2	(426.7-466.4)	1.17	(1.12 - 1.23)
Lakes	661	578.9	561.1	(519.1-605.6)	1.48	(1.36 - 1.60)
Bay of Plenty	1200	459.6	394.5	(372.4-417.7)	1.04	(0.98 - 1.10)
Tairāwhiti	256	503.9	511.5	(450.7-578.2)	1.35	(1.19 - 1.52)
Taranaki	842	672.5	603.7	(563.5-646.0)	1.59	(1.48 - 1.70)
Hawke's Bay	723	414.5	369.1	(342.6-397.2)	0.97	(0.90 - 1.05)
Whanganui	438	646.8	534.4	(485.3-587.4)	1.41	(1.28 - 1.55)
MidCentral	749	406.6	365.2	(339.4-392.4)	0.96	(0.89 - 1.03)
Capital, Coast & Hutt Valley	1296	279.9	304.4	(288.0-321.4)	0.80	(0.76 - 0.85)
Wairarapa	198	403.8	310.0	(268.0-357.1)	0.82	(0.71 - 0.94)
Nelson Marlborough	627	394.5	305.4	(281.8-330.6)	0.80	(0.74 - 0.87)
West Coast	224	674.5	526.3	(458.7-601.8)	1.39	(1.21 - 1.59)
Canterbury	1972	338.1	331.5	(317.0-346.4)	0.87	(0.83 - 0.91)
South Canterbury	268	440.8	339.0	(299.4-382.9)	0.89	(0.79 - 1.01)
Southern	1210	354.0	334.2	(315.6-353.6)	0.88	(0.83 - 0.93)

Table A47. IHD rates and rate ratios by GCH, 2022

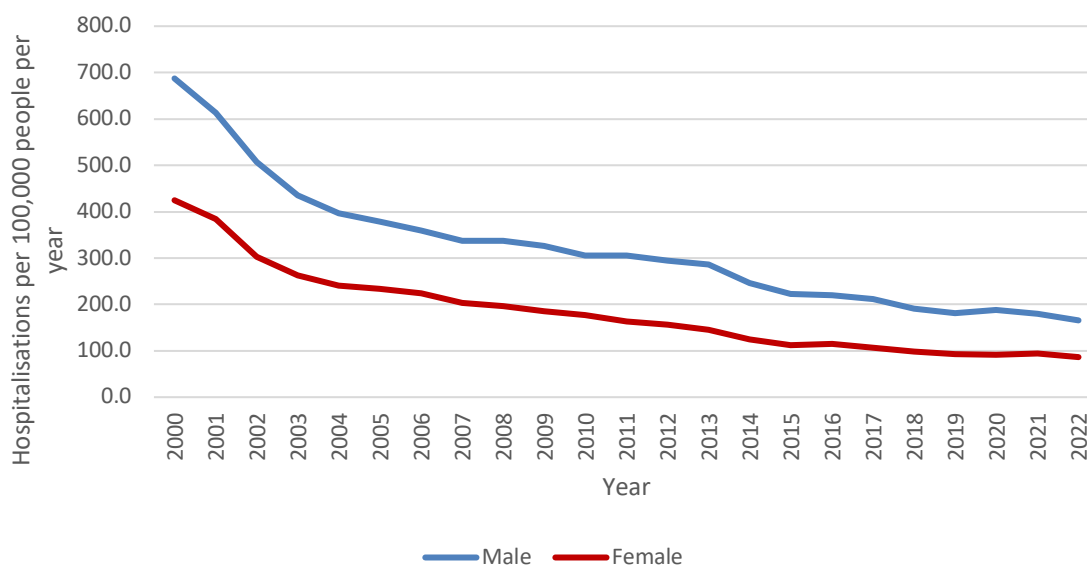
GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	9979	312	312.0	(305.9-318.2)	1.00	Baseline
U2	4428	488.9	397.2	(385.5-409.2)	1.27	(1.23-1.32)
R1	2860	463.7	352.2	(339.2-365.6)	1.13	(1.08-1.18)
R2	1385	476.2	360.7	(341.6-380.6)	1.16	(1.09-1.22)
R3	247	500	374.2	(328.0-425.7)	1.20	(1.05-1.37)

Table A48. I20 Angina pectoris hospitalisation numbers and rates, 2000 to 2022

Year	Angina pectoris			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	16125	422.2	533.8	(525.5-542.1)
2001	14833	382.3	479.2	(471.5-487.0)
2002	12383	314.2	389.5	(382.6-396.4)
2003	10993	274.7	336.5	(330.2-342.9)
2004	10274	252.9	307.2	(301.2-313.2)
2005	10117	245.3	295.4	(289.6-301.2)
2006	9891	236.4	281.9	(276.4-287.6)
2007	9428	223.3	261.3	(256.0-266.7)
2008	9501	223.1	256.9	(251.8-262.2)
2009	9298	216.5	245.4	(240.4-250.4)
2010	9021	208.2	232.5	(227.7-237.4)
2011	8971	205.3	226.1	(221.4-230.8)
2012	8757	198.8	216.2	(211.7-220.8)
2013	8619	194.0	208.1	(203.7-212.5)
2014	7592	167.4	178.0	(174.0-182.0)
2015	7054	152.5	160.8	(157.0-164.6)
2016	7284	154.4	161.4	(157.7-165.2)
2017	7114	147.9	153.4	(149.8-157.0)
2018	6663	136.0	139.9	(136.6-143.3)
2019	6481	131.7	133.7	(130.4-136.9)
2020	6730	136.3	136.3	(133.1-139.6)
2021	6703	135.2	133.5	(130.3-136.7)
2022	6269	126.0	122.6	(119.6-125.7)

I20 ANGINA HOSPITALISATIONS

Figure 117. I20 angina pectoris hospitalisation rates by gender, 2000 - 2022



See Table A49 for data.

Table A49. I20 angina pectoris hospitalisation rates and rate ratios by gender, 2000 - 2022

Year	Male		Female		Rate ratio female to male	
	N	Rate	N	Rate	RR	95% CI
2000	9291	687.3	6791	424.6	0.62	(0.60-0.64)
2001	8519	613.1	6285	383.6	0.63	(0.61-0.65)
2002	7255	507.5	5078	302.4	0.60	(0.57-0.62)
2003	6412	435.3	4548	263.2	0.60	(0.58-0.63)
2004	5961	397.2	4264	241.0	0.61	(0.58-0.63)
2005	5848	378.8	4218	233.5	0.62	(0.59-0.64)
2006	5710	359.9	4127	223.5	0.62	(0.60-0.65)
2007	5533	337.4	3847	203.8	0.60	(0.58-0.63)
2008	5659	337.5	3813	196.6	0.58	(0.56-0.61)
2009	5611	325.7	3655	184.8	0.57	(0.54-0.59)
2010	5367	304.9	3602	176.6	0.58	(0.56-0.60)
2011	5508	305.8	3406	163.9	0.54	(0.51-0.56)
2012	5417	294.4	3303	156.3	0.53	(0.51-0.55)
2013	5413	285.6	3148	145.8	0.51	(0.49-0.53)
2014	4781	246.0	2771	124.4	0.51	(0.48-0.53)
2015	4445	222.6	2564	111.9	0.50	(0.48-0.53)
2016	4519	219.4	2712	115.4	0.53	(0.50-0.55)
2017	4488	211.6	2563	106.4	0.50	(0.48-0.53)
2018	4163	190.8	2424	98.1	0.51	(0.49-0.54)
2019	4029	181.7	2343	93.2	0.51	(0.49-0.54)
2020	4247	188.0	2354	91.8	0.49	(0.46-0.51)
2021	4154	179.8	2436	93.6	0.52	(0.49-0.55)
2022	3883	165.6	2288	86.4	0.52	(0.50-0.55)

Figure 118. I20 angina pectoris hospitalisation age distribution by gender, 2018 - 2022

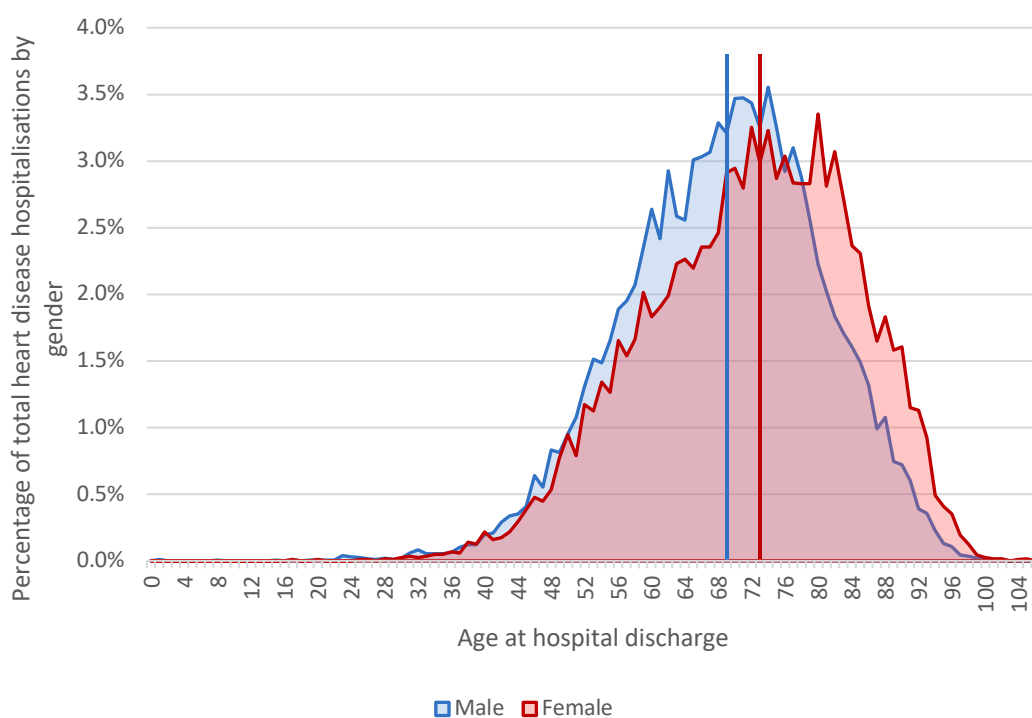
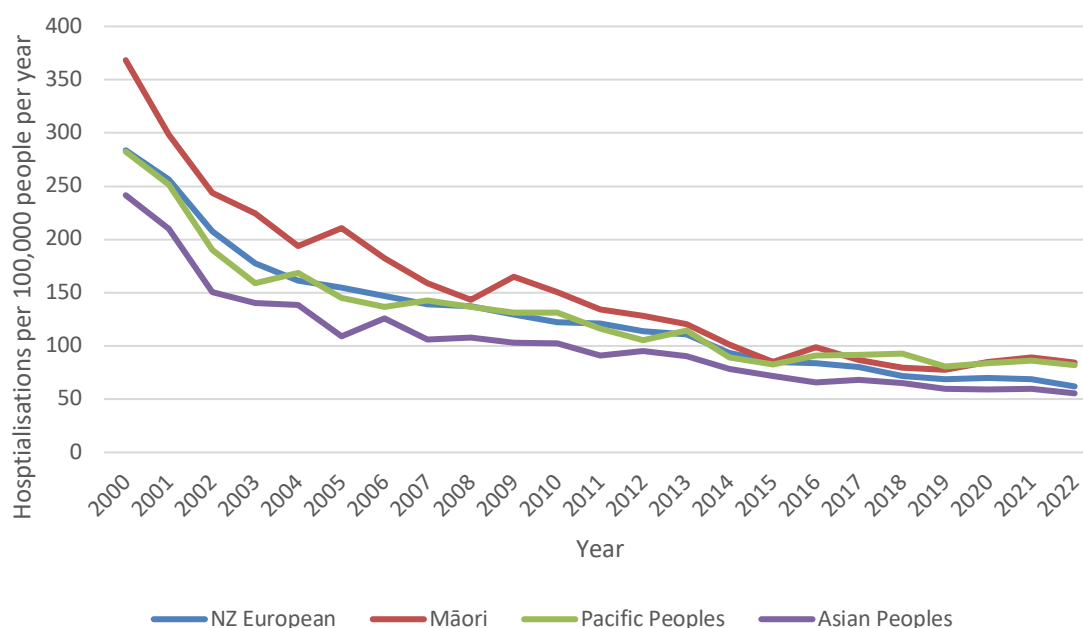


Table A50. I20 angina pectoris hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 - 54 years		55 - 64 years		65 - 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	84	4.3	3233	294.3	3820	1129.3	5398	2153.6	5010	2470.4
2001	72	3.7	2719	244.9	3742	1068.4	4932	1959.5	4827	2311.1
2002	37	1.9	2184	193.6	3075	832.4	4054	1598.6	4141	1936.0
2003	34	1.7	2019	175.7	2590	668.3	3510	1370.3	3719	1694.1
2004	45	2.2	1755	150.1	2457	608.3	3194	1228.2	3644	1622.7
2005	24	1.2	1726	145.6	2389	571.2	3231	1212.1	3573	1554.7
2006	32	1.6	1644	136.6	2314	538.6	3045	1104.5	3530	1496.3
2007	27	1.3	1632	134.0	2270	514.8	2949	1034.7	3356	1396.6
2008	34	1.7	1559	127.1	2295	502.8	2943	1012.0	3357	1374.5
2009	36	1.8	1506	122.2	2242	476.9	2889	961.6	3334	1344.9
2010	18	0.9	1409	114.0	2169	448.3	2756	884.7	3309	1313.2
2011	17	0.8	1332	108.2	2182	438.9	2711	837.1	3417	1333.7
2012	17	0.8	1197	97.8	2077	411.5	2884	842.8	3237	1241.2
2013	24	1.2	1156	94.9	2147	418.7	2838	788.8	3158	1186.4
2014	8	0.4	1025	83.9	1835	349.7	2542	677.3	2848	1042.2
2015	20	0.9	913	74.3	1638	304.4	2306	593.5	2782	987.7
2016	17	0.8	883	71.2	1733	312.5	2455	613.9	2813	963.2
2017	27	1.2	867	69.3	1669	292.2	2378	577.8	2679	886.2
2018	27	1.2	833	65.8	1570	267.3	2190	513.2	2565	832.3
2019	28	1.2	743	58.2	1476	246.4	2194	498.9	2522	794.8
2020	30	1.3	744	57.4	1561	255.0	2225	486.9	2647	804.2
2021	24	1.0	813	62.5	1618	263.3	2285	489.4	2451	718.1
2022	28	1.2	682	52.3	1438	233.8	2087	443.6	2452	688.2

Figure 119. I20 angina pectoris hospitalisation rates by ethnic group, 2000 to 2022.



See Table A51 for data.

Table A51. I20 angina pectoris age-standardised hospitalisation numbers and rates by ethnic group, 2000 - 2022

Year	NZ European		Māori		Pacific Peoples		Asian Peoples		MELAA*	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2000	13523	283.7	1244	368.3	403	282.4	426	241.5	563	4018.8
2001	12521	256.1	1069	298.4	380	251.5	429	210.0	485	3246.5
2002	10472	207.4	907	243.7	303	190.1	333	150.4	406	2536.9
2003	9215	177.4	879	224.4	267	158.7	349	140.1	319	1883.6
2004	8630	161.3	779	193.8	295	168.4	374	138.7	247	1412.7
2005	8476	154.9	867	210.4	266	145.2	320	109.2	228	1171.3
2006	8238	146.9	791	182.6	265	136.5	393	125.9	253	1285.7
2007	7890	139.0	733	158.7	284	142.9	368	106.3	207	972.7
2008	7969	137.2	692	143.4	290	136.4	396	108.0	200	864.8
2009	7706	129.7	824	164.7	290	131.3	416	103.1	110	416.8
2010	7504	122.2	792	150.6	299	131.0	439	102.3	51	184.1
2011	7559	120.8	734	134.4	277	116.2	414	90.8	55	189.1
2012	7304	114.1	719	128.0	259	105.3	461	95.0	62	190.4
2013	7161	110.6	695	120.7	294	114.7	463	90.1	55	156.2
2014	6288	93.4	629	101.5	241	89.0	438	78.2	46	121.1
2015	5840	84.8	558	85.2	234	82.4	436	71.7	47	120.3
2016	5915	83.8	682	99.1	274	91.0	431	65.5	44	97.1
2017	5712	80.1	632	86.8	283	91.5	478	67.9	59	121.1
2018	5241	71.8	610	79.7	304	92.5	494	65.3	59	108.9
2019	5137	68.9	616	77.6	274	80.7	470	59.6	39	70.1
2020	5249	69.8	701	85.2	292	83.9	485	59.3	46	78.3
2021	5107	68.8	757	89.1	309	86.0	511	59.9	72	115.0
2022	4724	62.0	741	84.3	302	81.9	494	55.5	55	84.6

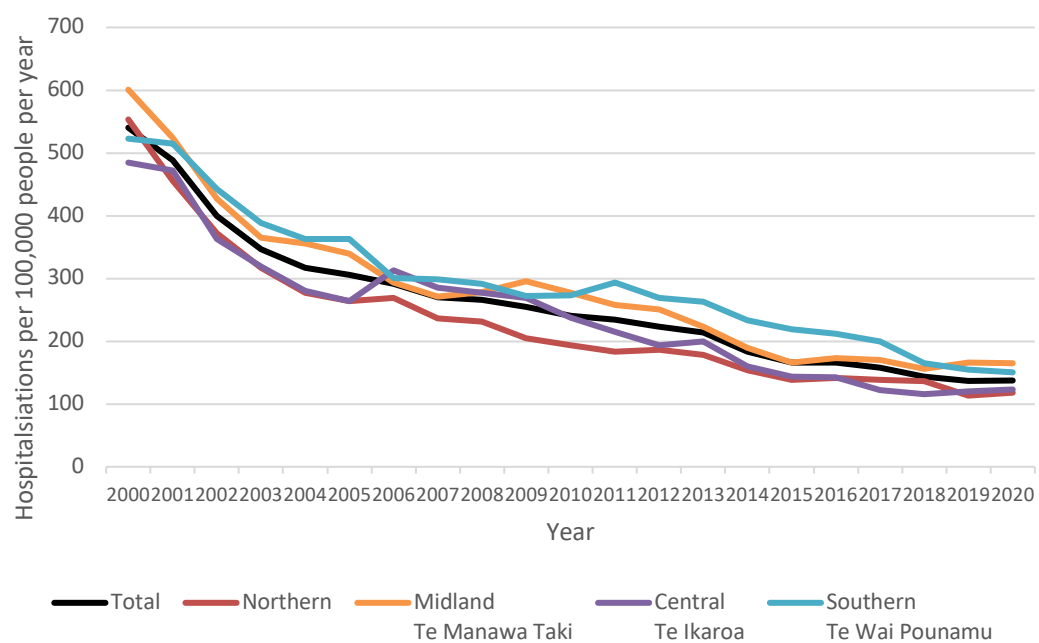
*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A52. I20 angina pectoris hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.30	(1.22-1.38)	1.00	(0.90-1.10)	0.85	(0.77-0.94)	14.17	(12.95-15.46)
2001	1.17	(1.09-1.24)	0.98	(0.88-1.09)	0.82	(0.74-0.91)	12.68	(11.51-13.93)
2002	1.18	(1.09-1.26)	0.92	(0.81-1.03)	0.73	(0.65-0.81)	12.23	(11.00-13.56)
2003	1.26	(1.18-1.36)	0.89	(0.79-1.01)	0.79	(0.71-0.88)	10.62	(9.42-11.92)
2004	1.20	(1.11-1.30)	1.04	(0.92-1.17)	0.86	(0.77-0.96)	8.76	(7.64-9.97)
2005	1.36	(1.26-1.46)	0.94	(0.82-1.06)	0.71	(0.63-0.79)	7.56	(6.55-8.67)
2006	1.24	(1.15-1.34)	0.93	(0.82-1.05)	0.86	(0.77-0.95)	8.76	(7.65-9.96)
2007	1.14	(1.05-1.23)	1.03	(0.91-1.16)	0.76	(0.69-0.85)	7.00	(6.03-8.06)
2008	1.04	(0.96-1.13)	0.99	(0.88-1.12)	0.79	(0.71-0.87)	6.30	(5.42-7.28)
2009	1.27	(1.18-1.37)	1.01	(0.90-1.14)	0.79	(0.72-0.88)	3.21	(2.61-3.90)
2010	1.23	(1.14-1.33)	1.07	(0.95-1.20)	0.84	(0.76-0.92)	1.51	(1.11-1.99)
2011	1.11	(1.03-1.20)	0.96	(0.85-1.08)	0.75	(0.68-0.83)	1.57	(1.17-2.05)
2012	1.12	(1.04-1.21)	0.92	(0.81-1.05)	0.83	(0.76-0.92)	1.67	(1.26-2.16)
2013	1.09	(1.01-1.18)	1.04	(0.92-1.17)	0.81	(0.74-0.90)	1.41	(1.05-1.85)
2014	1.09	(1.00-1.18)	0.95	(0.83-1.08)	0.84	(0.76-0.92)	1.30	(0.94-1.74)
2015	1.00	(0.92-1.10)	0.97	(0.85-1.11)	0.85	(0.76-0.93)	1.42	(1.03-1.89)
2016	1.18	(1.09-1.28)	1.09	(0.96-1.23)	0.78	(0.71-0.86)	1.16	(0.83-1.56)
2017	1.08	(1.00-1.18)	1.14	(1.01-1.29)	0.85	(0.77-0.93)	1.51	(1.14-1.96)
2018	1.11	(1.02-1.21)	1.29	(1.14-1.45)	0.91	(0.83-1.00)	1.52	(1.15-1.96)
2019	1.13	(1.03-1.23)	1.17	(1.03-1.32)	0.87	(0.78-0.95)	1.02	(0.72-1.39)
2020	1.22	(1.12-1.32)	1.20	(1.06-1.35)	0.85	(0.77-0.93)	1.12	(0.82-1.50)
2021	1.29	(1.20-1.40)	1.25	(1.11-1.40)	0.87	(0.79-0.96)	1.67	(1.30-2.12)
2022	1.36	(1.25-1.47)	1.32	(1.17-1.48)	0.89	(0.81-0.98)	1.36	(1.02-1.78)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Figure 120. I20 angina pectoris hospitalisation rates by NZDep quintile, 2000 to 2022.



See Table A53 for data.

Table A53. I20 angina pectoris hospitalisation rates by NZDep quintile 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	1834	294.6	2414	386.5	3421	542.6	4188	694.3	3703	693.8
2001	1680	269.1	2348	370.8	3097	479.8	3878	622.8	3299	596.0
2002	1344	212.6	1946	300.6	2567	389.3	3230	502.6	2827	488.9
2003	1264	195.9	1781	269.5	2285	338.4	2843	427.1	2574	430.0
2004	1188	183.2	1500	221.1	2109	306.0	2879	419.4	2545	410.0
2005	1164	176.1	1555	225.8	2104	298.4	2754	389.0	2489	390.4
2006	1138	171.4	1385	197.5	2178	303.6	2734	375.4	2417	365.3
2007	1151	165.7	1399	192.5	2018	275.6	2514	338.6	2306	343.7
2008	1207	166.4	1390	186.1	2002	266.5	2563	339.2	2296	340.7
2009	1158	153.5	1466	190.7	1959	254.9	2409	314.8	2259	333.7
2010	1115	142.6	1313	166.5	1932	246.8	2294	293.6	2337	343.2
2011	1285	157.8	1443	178.5	1919	239.9	2072	260.8	2227	326.5
2012	1206	144.9	1395	167.6	1925	236.7	2195	272.7	2014	293.9
2013	1201	138.4	1335	155.9	1831	220.6	2209	270.5	2007	291.5
2014	1098	125.3	1246	140.8	1546	179.5	1880	221.1	1779	247.2
2015	1043	119.1	1185	130.5	1496	167.6	1689	191.5	1603	213.6
2016	1011	112.0	1373	146.4	1473	159.3	1609	175.8	1788	229.2
2017	1067	116.3	1300	134.4	1467	153.0	1595	168.7	1665	205.2
2018	1030	112.1	1274	128.1	1358	137.6	1405	143.4	1571	186.6
2019	971	101.4	1203	118.3	1291	128.4	1400	141.2	1598	188.0
2020	1009	101.2	1342	128.8	1328	130.0	1436	143.8	1601	186.8
2021	1047	101.8	1275	119.9	1455	140.8	1363	135.5	1561	179.5
2022	1005	94.9	1159	106.4	1313	125.2	1322	129.8	1461	166.5

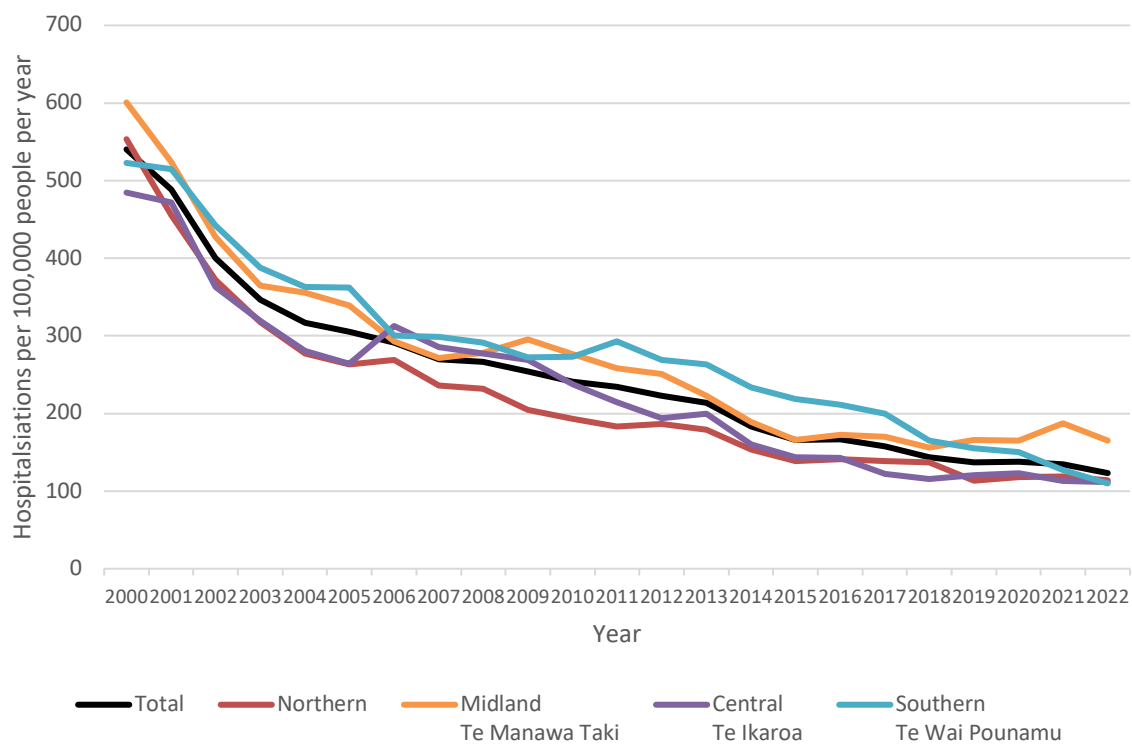
Table A54. I20 angina pectoris hospitalisation rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.31	(1.23 - 1.40)	1.84	(1.74 - 1.95)	2.36	(2.23 - 2.49)	2.36	(2.23 - 2.49)
2001	1.38	(1.29 - 1.47)	1.78	(1.68 - 1.89)	2.31	(2.18 - 2.45)	2.22	(2.09 - 2.35)
2002	1.41	(1.32 - 1.52)	1.83	(1.71 - 1.96)	2.36	(2.22 - 2.52)	2.30	(2.15 - 2.46)
2003	1.38	(1.28 - 1.48)	1.73	(1.61 - 1.85)	2.18	(2.04 - 2.33)	2.19	(2.05 - 2.35)
2004	1.21	(1.12 - 1.30)	1.67	(1.55 - 1.80)	2.29	(2.14 - 2.45)	2.24	(2.09 - 2.40)
2005	1.28	(1.19 - 1.39)	1.70	(1.58 - 1.82)	2.21	(2.06 - 2.37)	2.22	(2.07 - 2.38)
2006	1.15	(1.06 - 1.25)	1.77	(1.65 - 1.91)	2.19	(2.04 - 2.35)	2.13	(1.98 - 2.29)
2007	1.16	(1.07 - 1.26)	1.66	(1.55 - 1.79)	2.04	(1.90 - 2.19)	2.07	(1.93 - 2.23)
2008	1.12	(1.03 - 1.21)	1.60	(1.49 - 1.72)	2.04	(1.90 - 2.19)	2.05	(1.91 - 2.20)
2009	1.24	(1.15 - 1.34)	1.66	(1.54 - 1.79)	2.05	(1.91 - 2.20)	2.17	(2.02 - 2.34)
2010	1.17	(1.08 - 1.27)	1.73	(1.61 - 1.87)	2.06	(1.91 - 2.21)	2.41	(2.24 - 2.59)
2011	1.13	(1.05 - 1.22)	1.52	(1.42 - 1.63)	1.65	(1.54 - 1.77)	2.07	(1.93 - 2.22)
2012	1.16	(1.07 - 1.25)	1.63	(1.52 - 1.76)	1.88	(1.75 - 2.02)	2.03	(1.89 - 2.18)
2013	1.13	(1.04 - 1.22)	1.59	(1.48 - 1.72)	1.95	(1.82 - 2.10)	2.11	(1.96 - 2.27)
2014	1.12	(1.03 - 1.22)	1.43	(1.32 - 1.55)	1.76	(1.64 - 1.90)	1.97	(1.83 - 2.13)
2015	1.10	(1.01 - 1.19)	1.41	(1.30 - 1.53)	1.61	(1.49 - 1.74)	1.79	(1.66 - 1.94)
2016	1.31	(1.20 - 1.42)	1.42	(1.31 - 1.54)	1.57	(1.45 - 1.70)	2.05	(1.89 - 2.21)
2017	1.16	(1.06 - 1.26)	1.32	(1.21 - 1.43)	1.45	(1.34 - 1.57)	1.76	(1.63 - 1.91)
2018	1.14	(1.05 - 1.24)	1.23	(1.13 - 1.33)	1.28	(1.18 - 1.39)	1.67	(1.54 - 1.80)
2019	1.17	(1.07 - 1.27)	1.27	(1.16 - 1.38)	1.39	(1.28 - 1.51)	1.85	(1.71 - 2.01)
2020	1.27	(1.17 - 1.38)	1.29	(1.18 - 1.40)	1.42	(1.31 - 1.54)	1.85	(1.70 - 2.00)
2021	1.18	(1.08 - 1.28)	1.38	(1.28 - 1.50)	1.33	(1.23 - 1.44)	1.76	(1.63 - 1.91)
2022	1.12	(1.03 - 1.22)	1.32	(1.21 - 1.43)	1.37	(1.26 - 1.49)	1.76	(1.62 - 1.90)

Table A55. I20 angina pectoris hospitalisation numbers, rates, and rate ratios by NZDep, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	1005	103.5	94.9	(89.0-101.0)	1.00	Baseline
3 - 4	1159	118.5	106.4	(100.3-112.7)	1.12	(1.03-1.22)
5 - 6	1313	133.6	125.2	(118.5-132.2)	1.32	(1.21-1.43)
7 - 8	1322	131.8	129.8	(122.9-137.0)	1.37	(1.26-1.49)
9 - 10	1461	140.6	166.5	(158.1-175.3)	1.76	(1.62-1.90)

Figure 121. I20 angina pectoris hospitalisation rates by health region, 2000 to 2022.



See Table A105 for data.

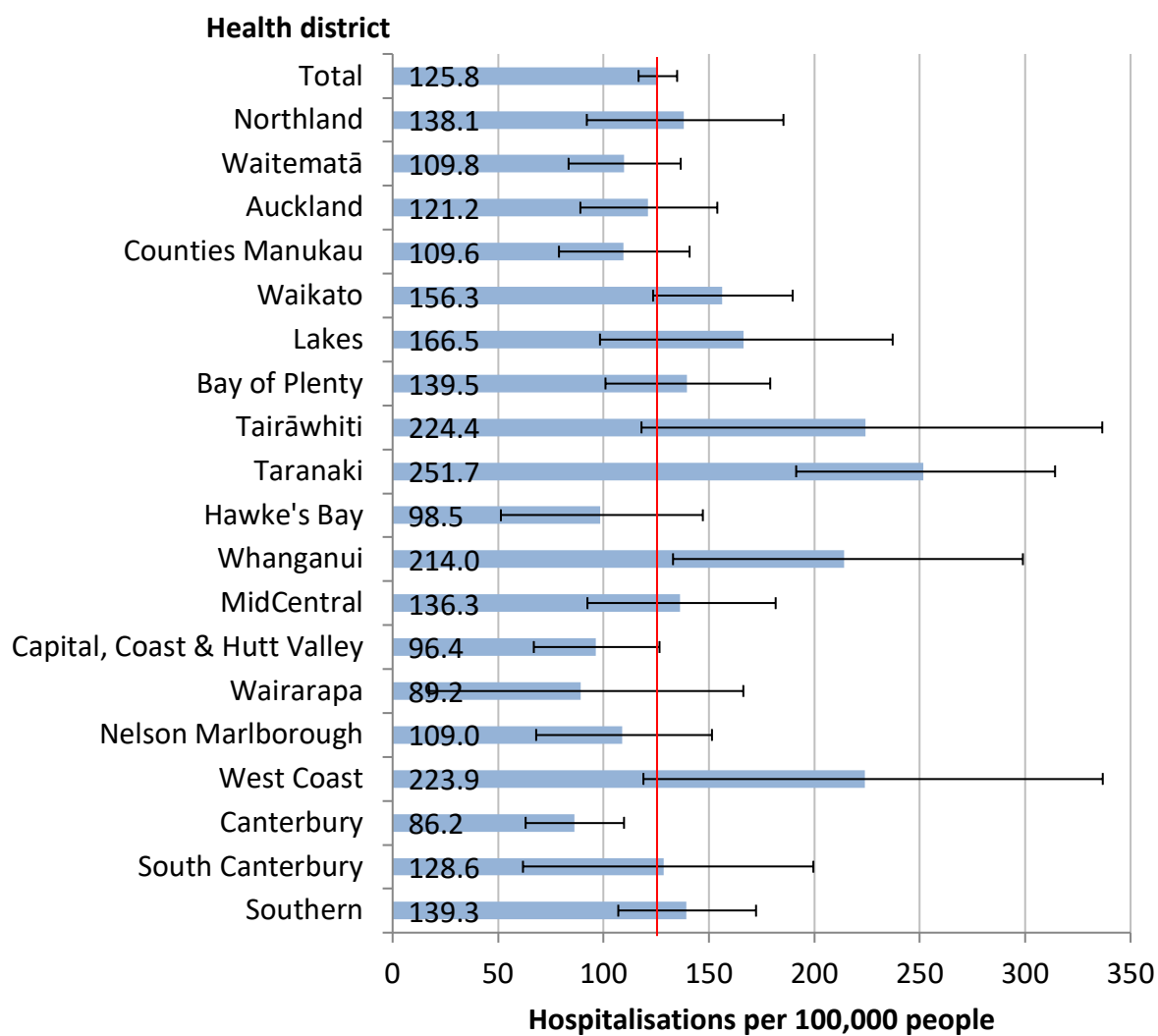
Table A56. I20 angina hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	5203	553.4	3642	600.8	3019	484.6	4158	522.8
2001	4374	455.6	3238	523.9	2950	472.3	4165	514.9
2002	3661	371.9	2710	427.5	2309	362.9	3651	442.6
2003	3235	317.5	2366	365.0	2072	319.4	3272	388.2
2004	2883	277.3	2369	356.0	1853	280.8	3124	362.7
2005	2780	263.5	2322	339.4	1780	263.7	3193	362.5
2006	2918	269.2	2065	293.2	2158	313.1	2718	300.6
2007	2651	236.1	1957	271.3	2023	285.8	2760	299.0
2008	2669	231.6	2046	278.3	2001	277.5	2752	291.4
2009	2410	205.0	2230	295.2	1984	268.8	2633	272.1
2010	2363	193.5	2150	276.8	1787	237.7	2695	272.8
2011	2303	183.5	2054	257.9	1653	214.9	2941	293.1
2012	2412	186.6	2048	250.8	1533	193.8	2743	269.3
2013	2370	178.7	1866	223.0	1612	199.4	2738	263.1
2014	2095	153.7	1627	189.3	1334	159.7	2496	233.7
2015	1941	138.7	1469	165.8	1222	143.2	2392	218.9
2016	2046	141.1	1579	172.7	1246	142.9	2383	211.5
2017	2078	139.0	1617	170.3	1098	122.5	2303	199.4
2018	2094	136.6	1525	156.1	1063	115.7	1957	165.4
2019	1789	113.4	1666	166.0	1128	120.4	1881	155.3
2020	1929	118.4	1715	165.4	1186	123.2	1884	150.5
2021	1980	118.8	1977	187.0	1113	113.1	1632	126.9
2022	1923	114.0	1781	164.7	1113	111.6	1443	109.9

Table A57. I20 angina hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.02	(0.99 - 1.06)	1.11	(1.07 - 1.15)	0.90	(0.86 - 0.93)	0.97	(0.93 - 1.00)
2001	0.93	(0.90 - 0.97)	1.07	(1.03 - 1.11)	0.97	(0.93 - 1.01)	1.05	(1.02 - 1.09)
2002	0.93	(0.90 - 0.97)	1.07	(1.02 - 1.11)	0.91	(0.87 - 0.95)	1.11	(1.07 - 1.15)
2003	0.92	(0.88 - 0.95)	1.05	(1.01 - 1.10)	0.92	(0.88 - 0.97)	1.12	(1.08 - 1.17)
2004	0.87	(0.84 - 0.91)	1.12	(1.07 - 1.18)	0.89	(0.84 - 0.93)	1.14	(1.10 - 1.19)
2005	0.86	(0.83 - 0.90)	1.11	(1.06 - 1.16)	0.86	(0.82 - 0.91)	1.19	(1.14 - 1.23)
2006	0.92	(0.89 - 0.96)	1.01	(0.96 - 1.06)	1.08	(1.03 - 1.13)	1.03	(0.99 - 1.08)
2007	0.87	(0.84 - 0.91)	1.01	(0.96 - 1.06)	1.06	(1.01 - 1.11)	1.11	(1.06 - 1.16)
2008	0.87	(0.83 - 0.91)	1.04	(1.00 - 1.10)	1.04	(0.99 - 1.09)	1.09	(1.05 - 1.14)
2009	0.81	(0.77 - 0.84)	1.16	(1.11 - 1.22)	1.06	(1.01 - 1.11)	1.07	(1.02 - 1.12)
2010	0.80	(0.77 - 0.84)	1.15	(1.10 - 1.21)	0.99	(0.94 - 1.04)	1.13	(1.08 - 1.18)
2011	0.78	(0.75 - 0.82)	1.10	(1.05 - 1.16)	0.92	(0.87 - 0.97)	1.25	(1.20 - 1.31)
2012	0.84	(0.80 - 0.88)	1.13	(1.07 - 1.18)	0.87	(0.82 - 0.92)	1.21	(1.16 - 1.26)
2013	0.84	(0.80 - 0.88)	1.04	(0.99 - 1.10)	0.93	(0.88 - 0.98)	1.23	(1.18 - 1.29)
2014	0.84	(0.80 - 0.88)	1.03	(0.98 - 1.09)	0.87	(0.82 - 0.93)	1.28	(1.22 - 1.34)
2015	0.84	(0.79 - 0.88)	1.00	(0.94 - 1.06)	0.86	(0.81 - 0.92)	1.32	(1.26 - 1.38)
2016	0.85	(0.81 - 0.89)	1.04	(0.98 - 1.10)	0.86	(0.81 - 0.91)	1.27	(1.21 - 1.33)
2017	0.88	(0.84 - 0.92)	1.08	(1.02 - 1.14)	0.78	(0.73 - 0.83)	1.26	(1.20 - 1.32)
2018	0.95	(0.90 - 1.00)	1.08	(1.02 - 1.15)	0.80	(0.75 - 0.86)	1.15	(1.09 - 1.21)
2019	0.83	(0.79 - 0.87)	1.21	(1.15 - 1.28)	0.88	(0.83 - 0.94)	1.14	(1.08 - 1.20)
2020	0.86	(0.82 - 0.91)	1.20	(1.14 - 1.27)	0.90	(0.84 - 0.95)	1.09	(1.04 - 1.15)
2021	0.89	(0.84 - 0.93)	1.39	(1.32 - 1.47)	0.84	(0.79 - 0.90)	0.95	(0.90 - 1.00)
2022	0.93	(0.88 - 0.97)	1.34	(1.27 - 1.41)	0.91	(0.85 - 0.97)	0.89	(0.84 - 0.95)

Figure 122. I20 angina pectoris hospitalisation rates by Health District, 2022.



See Table A58 for data. The red line shows the national average.

Table A58. I20 angina pectoris hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	6260	125.8	125.8	(122.7-129.0)	1.00	Baseline
Northland	326	169.5	138.1	(123.4-154.1)	1.10	(0.98 - 1.23)
Waitematā	632	100.6	109.8	(101.4-118.7)	0.87	(0.80 - 0.95)
Auckland	480	102.0	121.2	(110.6-132.6)	0.96	(0.88 - 1.06)
Counties Manukau	485	83.4	109.6	(99.9-119.8)	0.87	(0.79 - 0.96)
Waikato	693	159.5	156.3	(144.9-168.4)	1.24	(1.15 - 1.34)
Lakes	198	173.4	166.5	(144.1-191.4)	1.32	(1.14 - 1.52)
Bay of Plenty	428	163.9	139.5	(126.5-153.5)	1.11	(1.00 - 1.22)
Tairāwhiti	111	218.5	224.4	(184.5-270.2)	1.78	(1.46 - 2.15)
Taranaki	351	280.3	251.7	(226.0-279.5)	2.00	(1.79 - 2.23)
Hawke's Bay	194	111.2	98.5	(85.1-113.5)	0.78	(0.67 - 0.90)
Whanganui	174	257.0	214.0	(183.2-248.8)	1.70	(1.45 - 1.98)
MidCentral	281	152.5	136.3	(120.8-153.3)	1.08	(0.96 - 1.22)
Capital, Coast & Hutt Valley	406	87.7	96.4	(87.2-106.2)	0.77	(0.69 - 0.85)
Wairarapa	58	118.3	89.2	(67.6-116.1)	0.71	(0.54 - 0.92)
Nelson Marlborough	226	142.2	109.0	(95.2-124.4)	0.87	(0.75 - 0.99)
West Coast	97	292.1	223.9	(181.2-274.7)	1.78	(1.44 - 2.19)
Canterbury	513	87.9	86.2	(78.9-94.0)	0.69	(0.63 - 0.75)
South Canterbury	101	166.1	128.6	(104.6-157.0)	1.02	(0.83 - 1.25)
Southern	506	148.0	139.3	(127.4-152.0)	1.11	(1.01 - 1.21)

Table A59. I20 angina pectoris hospitalisation rates and rate ratios by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	3151	98.5	98.5	(95.1-102.0)	1.00	Baseline
U2	1581	174.6	140.3	(133.4-147.5)	1.42	(1.34-1.51)
R1	988	160.2	121.5	(113.9-129.5)	1.23	(1.15-1.33)
R2	453	155.7	117.8	(107.0-129.4)	1.20	(1.08-1.32)
R3	87	176.1	131.9	(105.0-164.1)	1.34	(1.06-1.67)

I21 AMI HOSPITALISATIONS

Table A60. I21 AMI hospitalisation numbers and rates 2000 to 2022

Year	I 21 - AMI			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	7516	196.8	248.9	(243.3-254.7)
2001	8563	220.7	275.9	(270.0-281.8)
2002	9314	236.3	293.1	(287.1-299.1)
2003	10167	254.0	310.9	(304.8-317.0)
2004	10007	246.3	298.3	(292.4-304.2)
2005	10523	255.2	305.7	(299.9-311.6)
2006	10628	254.0	301.2	(295.4-307.0)
2007	10167	240.8	280.7	(275.2-286.2)
2008	10095	237.1	272.0	(266.7-277.4)
2009	10023	233.4	263.4	(258.2-268.6)
2010	9999	230.8	256.4	(251.4-261.5)
2011	9646	220.8	242.0	(237.2-246.9)
2012	9743	221.2	238.9	(234.1-243.7)
2013	8887	200.1	213.2	(208.8-217.7)
2014	8606	189.8	200.4	(196.2-204.7)
2015	8352	180.6	189.2	(185.2-193.4)
2016	8773	186.0	193.6	(189.6-197.7)
2017	8838	183.8	190.1	(186.2-194.1)
2018	9210	187.9	192.8	(188.9-196.8)
2019	9630	195.8	198.2	(194.3-202.2)
2020	9527	192.9	192.9	(189.1-196.8)
2021	9198	185.6	183.3	(179.5-187.1)
2022	9353	188.0	183.5	(179.8-187.3)

Table A61. I21 AMI hospitalisation rates and rate ratios by gender, 2000 to 2022

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	4565	346.9	2904	177.0	0.51	(0.49-0.54)
2001	5110	377.0	3394	201.2	0.53	(0.51-0.56)
2002	5646	406.3	3609	209.0	0.51	(0.49-0.54)
2003	6208	435.6	3916	220.2	0.51	(0.49-0.53)
2004	6081	413.5	3864	213.4	0.52	(0.50-0.54)
2005	6426	423.8	4008	216.4	0.51	(0.49-0.53)
2006	6374	410.5	4160	218.5	0.53	(0.51-0.55)
2007	6176	384.5	3904	200.7	0.52	(0.50-0.54)
2008	6126	374.5	3912	195.7	0.52	(0.50-0.54)
2009	6054	358.2	3880	189.5	0.53	(0.51-0.55)
2010	6097	350.9	3793	181.8	0.52	(0.50-0.54)
2011	5889	330.8	3607	169.4	0.51	(0.49-0.53)
2012	6035	331.1	3540	162.8	0.49	(0.47-0.51)
2013	5345	285.1	3396	153.3	0.54	(0.51-0.56)
2014	5252	271.0	3185	139.8	0.52	(0.49-0.54)
2015	5199	259.4	2973	127.6	0.49	(0.47-0.51)
2016	5428	263.0	3186	134.1	0.51	(0.49-0.53)
2017	5533	261.5	3103	127.1	0.49	(0.46-0.51)
2018	5724	261.1	3225	128.9	0.49	(0.47-0.52)
2019	5944	267.0	3249	127.6	0.48	(0.46-0.50)
2020	5821	256.9	3212	124.2	0.48	(0.46-0.50)
2021	5746	249.9	3132	119.0	0.48	(0.46-0.50)
2022	5927	253.1	3149	117.8	0.47	(0.45-0.49)

Table A62. I21 AMI hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 - 54 years		55 - 64 years		65 - 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	70	3.6	1357	123.5	1501	443.7	2093	835.0	3242	1598.6
2001	65	3.3	1607	144.7	1773	506.2	2346	932.1	3937	1885.0
2002	60	3.0	1669	148.0	2025	548.2	2682	1057.6	4354	2035.6
2003	57	2.8	2027	176.4	2276	587.3	2920	1140.0	5002	2278.5
2004	80	3.9	1942	166.1	2398	593.7	2865	1101.7	4883	2174.5
2005	78	3.8	2299	194.0	2551	609.9	3066	1150.2	5080	2210.4
2006	68	3.3	2150	178.6	2424	564.2	2947	1068.9	5298	2245.7
2007	58	2.8	2252	184.9	2582	585.5	3058	1072.9	5014	2086.6
2008	70	3.4	2085	170.0	2419	530.0	2792	960.1	5122	2097.2
2009	72	3.5	2072	168.1	2470	525.4	2837	944.3	5032	2029.9
2010	42	2.0	2134	172.7	2654	548.5	2880	924.5	5004	1985.9
2011	52	2.5	2005	162.8	2528	508.4	2827	872.9	4790	1869.6
2012	50	2.4	2066	168.8	2643	523.7	3013	880.5	4871	1867.8
2013	73	3.5	1846	151.5	2444	476.6	2764	768.2	4349	1633.8
2014	52	2.5	1859	152.1	2311	440.4	2775	739.4	4163	1523.4
2015	50	2.3	1843	149.9	2286	424.9	2854	734.5	3937	1397.8
2016	62	2.8	1822	147.0	2468	445.1	3096	774.2	4146	1419.6
2017	59	2.6	1680	134.2	2500	437.6	3085	749.6	4198	1388.7
2018	84	3.6	1874	148.1	2812	478.7	3261	764.1	4079	1323.6
2019	78	3.3	1880	147.3	2847	475.3	3241	737.0	4354	1372.1
2020	95	4.0	1809	139.6	2808	458.6	3256	712.6	4150	1260.8
2021	57	2.4	1652	127.0	2666	433.9	3193	683.8	4067	1191.6
2022	54	2.3	1716	131.6	2747	446.6	3162	672.0	4119	1156.0

Table A63. I21 AMI hospitalisation numbers and rates by ethnic group, 2000 - 2022

Year	NZ European		Māori		Pacific Peoples		Asian Peoples		MELAA*	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2000	6260	120.3	481	141.5	178	128.7	183	102.5	432	3138.3
2001	7109	130.2	608	173.5	220	148.4	184	89.1	454	2992.2
2002	7686	136.4	625	169.8	287	180.9	274	119.3	469	2948.4
2003	8428	145.5	715	186.9	347	213.4	319	130.0	397	2396.2
2004	8301	141.1	779	193.0	303	170.5	277	105.4	379	2124.6
2005	8642	144.5	923	220.3	352	189.7	288	98.5	354	1855.7
2006	8569	137.4	996	225.0	366	190.6	351	111.4	385	1945.6
2007	8168	130.4	906	196.4	403	197.5	355	104.7	369	1661.7
2008	8125	125.5	874	184.2	469	222.1	409	110.9	272	1154.4
2009	8158	123.7	904	181.8	464	209.1	449	109.7	109	405.1
2010	8085	122.4	953	183.0	492	212.6	469	108.9	63	210.3
2011	7712	113.7	1007	186.3	490	204.6	463	100.7	49	154.8
2012	7844	114.6	964	170.6	433	174.0	496	100.7	56	182.9
2013	7153	103.8	818	139.7	507	194.7	438	85.3	46	132.7
2014	6829	98.1	786	126.1	484	176.0	530	93.5	46	117.9
2015	6550	93.4	802	122.0	491	169.6	532	86.3	54	125.9
2016	6894	97.2	898	129.1	454	150.8	557	82.8	38	77.8
2017	6852	94.2	953	130.3	478	151.5	560	77.9	67	131.2
2018	6957	96.2	1077	140.6	535	161.8	654	85.6	50	89.9
2019	7240	99.1	1145	144.0	566	166.6	701	87.3	58	97.0
2020	7141	97.8	1112	135.3	566	160.9	735	86.5	67	112.3
2021	6973	93.5	1045	123.1	493	136.3	671	76.7	67	110.2
2022	6915	93.7	1119	127.8	560	150.6	758	84.0	86	124.8

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A64. I21 AMI hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.18	(1.07-1.30)	1.07	(0.91-1.25)	0.85	(0.73-0.99)	26.10	(23.49-28.89)
2001	1.33	(1.22-1.45)	1.14	(0.99-1.31)	0.68	(0.58-0.80)	22.98	(20.74-25.37)
2002	1.25	(1.14-1.35)	1.33	(1.17-1.50)	0.87	(0.77-0.99)	21.62	(19.56-23.81)
2003	1.28	(1.19-1.39)	1.47	(1.31-1.64)	0.89	(0.79-1.00)	16.47	(14.79-18.27)
2004	1.37	(1.27-1.48)	1.21	(1.07-1.36)	0.75	(0.66-0.84)	15.06	(13.48-16.75)
2005	1.52	(1.42-1.64)	1.31	(1.17-1.46)	0.68	(0.60-0.77)	12.85	(11.46-14.34)
2006	1.64	(1.53-1.75)	1.39	(1.24-1.54)	0.81	(0.72-0.91)	14.16	(12.69-15.74)
2007	1.51	(1.40-1.62)	1.51	(1.36-1.68)	0.80	(0.72-0.90)	12.74	(11.39-14.2)
2008	1.47	(1.36-1.58)	1.77	(1.61-1.95)	0.88	(0.80-0.98)	9.20	(8.08-10.41)
2009	1.47	(1.37-1.58)	1.69	(1.53-1.86)	0.89	(0.80-0.98)	3.27	(2.66-3.98)
2010	1.50	(1.39-1.60)	1.74	(1.58-1.91)	0.89	(0.81-0.98)	1.72	(1.30-2.22)
2011	1.64	(1.53-1.75)	1.80	(1.64-1.97)	0.89	(0.80-0.97)	1.36	(0.99-1.82)
2012	1.49	(1.39-1.59)	1.52	(1.37-1.67)	0.88	(0.80-0.96)	1.60	(1.20-2.08)
2013	1.35	(1.25-1.45)	1.88	(1.71-2.05)	0.82	(0.74-0.91)	1.28	(0.92-1.72)
2014	1.29	(1.19-1.39)	1.79	(1.63-1.97)	0.95	(0.87-1.04)	1.20	(0.87-1.61)
2015	1.31	(1.21-1.41)	1.82	(1.65-1.99)	0.92	(0.84-1.01)	1.35	(1.00-1.77)
2016	1.33	(1.24-1.43)	1.55	(1.41-1.71)	0.85	(0.78-0.93)	0.80	(0.56-1.11)
2017	1.38	(1.29-1.48)	1.61	(1.46-1.77)	0.83	(0.76-0.90)	1.39	(1.07-1.78)
2018	1.46	(1.37-1.56)	1.68	(1.54-1.84)	0.89	(0.82-0.97)	0.93	(0.69-1.24)
2019	1.45	(1.36-1.55)	1.68	(1.54-1.83)	0.88	(0.81-0.95)	0.98	(0.74-1.27)
2020	1.38	(1.30-1.48)	1.65	(1.51-1.80)	0.88	(0.82-0.96)	1.15	(0.88-1.47)
2021	1.32	(1.23-1.41)	1.46	(1.33-1.60)	0.82	(0.75-0.89)	1.18	(0.91-1.50)
2022	1.36	(1.28-1.45)	1.61	(1.47-1.75)	0.90	(0.83-0.97)	1.33	(1.05-1.66)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A65. I21 AMI hospitalisation rates by NZDep quintile 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	958	156.2	1268	205.6	1624	254.8	1839	301.1	1568	295.4
2001	1023	164.0	1366	218.0	1866	285.2	2161	341.7	1836	331.5
2002	1070	172.1	1549	239.3	1961	294.3	2355	359.6	1985	346.3
2003	1234	193.7	1761	267.4	2144	314.2	2508	370.4	2254	377.4
2004	1276	196.5	1541	229.2	2058	296.4	2712	388.8	2356	379.5
2005	1360	205.9	1573	229.0	2038	288.0	2773	384.7	2708	421.2
2006	1326	198.4	1567	224.6	2080	287.3	2921	394.0	2650	397.5
2007	1323	192.5	1560	214.6	2034	274.8	2638	349.3	2527	378.5
2008	1338	186.2	1474	198.9	1988	263.3	2681	347.9	2541	376.6
2009	1358	181.3	1554	203.2	2018	261.9	2629	335.0	2388	352.4
2010	1312	169.3	1580	201.9	1939	246.6	2408	302.7	2685	392.8
2011	1284	162.4	1554	193.5	1858	231.4	2303	285.0	2569	374.3
2012	1285	157.4	1516	184.0	1950	238.8	2332	284.6	2605	377.0
2013	1242	146.0	1412	167.2	1704	204.4	2150	257.6	2286	328.5
2014	1207	141.4	1418	161.4	1683	193.7	2027	234.0	2168	298.4
2015	1188	134.7	1306	143.5	1630	181.1	2037	227.5	2102	278.2
2016	1276	141.5	1680	179.5	1696	182.0	1884	203.3	2155	274.6
2017	1306	144.0	1615	167.3	1727	179.5	1900	197.6	2219	272.9
2018	1356	147.8	1739	174.9	1730	173.8	2069	210.1	2248	265.4
2019	1409	149.0	1773	174.3	1832	181.7	2065	207.2	2497	291.9
2020	1489	150.1	1793	172.5	1825	178.5	2097	208.4	2292	265.3
2021	1389	136.0	1812	170.4	1923	185.4	1879	185.6	2181	250.4
2022	1439	137.6	1706	157.4	1929	184.0	1952	191.5	2311	262.9

Table A66. I21 AMI hospitalisation rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.32	(1.21 - 1.43)	1.63	(1.50 - 1.77)	1.93	(1.78 - 2.09)	1.89	(1.74 - 2.05)
2001	1.33	(1.22 - 1.44)	1.74	(1.61 - 1.88)	2.08	(1.93 - 2.25)	2.02	(1.87 - 2.19)
2002	1.39	(1.28 - 1.51)	1.71	(1.59 - 1.84)	2.09	(1.94 - 2.25)	2.01	(1.87 - 2.17)
2003	1.38	(1.28 - 1.49)	1.62	(1.51 - 1.74)	1.91	(1.78 - 2.05)	1.95	(1.82 - 2.09)
2004	1.17	(1.08 - 1.26)	1.51	(1.40 - 1.62)	1.98	(1.85 - 2.12)	1.93	(1.80 - 2.07)
2005	1.11	(1.03 - 1.20)	1.40	(1.30 - 1.50)	1.87	(1.75 - 2.00)	2.05	(1.91 - 2.19)
2006	1.13	(1.05 - 1.22)	1.45	(1.35 - 1.55)	1.99	(1.86 - 2.12)	2.00	(1.87 - 2.14)
2007	1.11	(1.03 - 1.20)	1.43	(1.33 - 1.53)	1.81	(1.70 - 1.94)	1.97	(1.84 - 2.10)
2008	1.07	(0.99 - 1.15)	1.41	(1.32 - 1.52)	1.87	(1.75 - 2.00)	2.02	(1.89 - 2.16)
2009	1.12	(1.04 - 1.21)	1.44	(1.35 - 1.55)	1.85	(1.73 - 1.97)	1.94	(1.82 - 2.08)
2010	1.19	(1.11 - 1.29)	1.46	(1.36 - 1.56)	1.79	(1.67 - 1.92)	2.32	(2.17 - 2.48)
2011	1.19	(1.10 - 1.28)	1.42	(1.33 - 1.53)	1.75	(1.64 - 1.88)	2.30	(2.15 - 2.47)
2012	1.17	(1.08 - 1.26)	1.52	(1.41 - 1.63)	1.81	(1.69 - 1.94)	2.40	(2.24 - 2.56)
2013	1.14	(1.06 - 1.24)	1.40	(1.30 - 1.51)	1.76	(1.64 - 1.90)	2.25	(2.10 - 2.41)
2014	1.14	(1.06 - 1.23)	1.37	(1.27 - 1.48)	1.65	(1.54 - 1.78)	2.11	(1.96 - 2.27)
2015	1.07	(0.98 - 1.15)	1.34	(1.25 - 1.45)	1.69	(1.57 - 1.82)	2.07	(1.92 - 2.22)
2016	1.27	(1.18 - 1.37)	1.29	(1.19 - 1.39)	1.44	(1.34 - 1.54)	1.94	(1.81 - 2.08)
2017	1.16	(1.08 - 1.25)	1.25	(1.16 - 1.34)	1.37	(1.28 - 1.48)	1.90	(1.77 - 2.03)
2018	1.18	(1.10 - 1.27)	1.18	(1.09 - 1.26)	1.42	(1.32 - 1.52)	1.80	(1.68 - 1.92)
2019	1.17	(1.09 - 1.26)	1.22	(1.14 - 1.31)	1.39	(1.30 - 1.49)	1.96	(1.83 - 2.09)
2020	1.15	(1.07 - 1.23)	1.19	(1.11 - 1.27)	1.39	(1.30 - 1.49)	1.77	(1.65 - 1.89)
2021	1.25	(1.17 - 1.35)	1.36	(1.27 - 1.46)	1.37	(1.27 - 1.46)	1.84	(1.72 - 1.97)
2022	1.14	(1.07 - 1.23)	1.34	(1.25 - 1.43)	1.39	(1.30 - 1.49)	1.91	(1.79 - 2.04)

Table A67. I21 AMI hospitalisation numbers, rates, and rate ratios by NZDep, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	1439	148.2	137.6	(130.5-144.9)	1.00	Baseline
3 - 4	1706	174.4	157.4	(150.0-165.1)	1.14	(1.07-1.23)
5 - 6	1929	196.3	184.0	(175.9-192.5)	1.34	(1.25-1.43)
7 - 8	1952	194.6	191.5	(183.0-200.2)	1.39	(1.30-1.49)
9 - 10	2311	222.4	262.9	(252.3-273.8)	1.91	(1.79-2.04)

Table A68. I21 AMI hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	1925	205.3	1629	269.5	1743	282.6	2166	272.8
2001	2158	224.6	2048	332.0	1985	316.4	2301	282.7
2002	2616	265.4	2224	353.0	2086	327.3	2316	278.8
2003	2803	275.6	2369	364.1	2345	361.1	2580	302.8
2004	2768	266.1	2386	358.3	2268	341.4	2529	290.6
2005	2995	278.9	2499	366.2	2515	369.7	2458	276.9
2006	3137	285.6	2435	343.2	2474	356.1	2512	273.0
2007	3156	280.0	1966	270.2	2376	333.8	2597	276.9
2008	3363	291.3	1910	258.4	2370	324.0	2396	249.0
2009	3209	270.3	1967	258.9	2337	312.9	2433	247.0
2010	3286	267.6	1879	240.3	2211	289.1	2560	255.0
2011	3207	254.7	2058	257.2	1936	246.0	2370	233.0
2012	3286	249.7	2062	250.3	1873	234.0	2472	239.4
2013	2983	221.4	1743	207.3	1779	217.9	2289	216.1
2014	2971	213.0	1751	202.7	1684	200.3	2104	195.0
2015	2720	189.6	1820	204.8	1572	182.6	2167	196.3
2016	2829	192.7	1968	215.3	1699	192.9	2196	193.0
2017	2713	179.8	2166	228.7	1807	200.5	2086	179.1
2018	2883	185.0	2165	222.0	1795	194.6	2300	193.9
2019	2963	184.7	2483	248.6	1791	190.7	2339	192.3
2020	2956	179.1	2480	240.6	1782	184.6	2280	182.2
2021	2585	154.2	2423	229.4	1759	178.9	2418	188.2
2022	2771	162.6	2540	236.6	1664	167.0	2357	180.1

Table A69. I21 AMI hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.81	(0.77 - 0.85)	1.06	(1.01 - 1.12)	1.12	(1.06 - 1.18)	1.08	(1.03 - 1.13)
2001	0.80	(0.76 - 0.84)	1.18	(1.12 - 1.24)	1.12	(1.07 - 1.18)	1.00	(0.96 - 1.05)
2002	0.88	(0.85 - 0.92)	1.18	(1.12 - 1.23)	1.09	(1.04 - 1.14)	0.93	(0.89 - 0.97)
2003	0.86	(0.83 - 0.90)	1.14	(1.09 - 1.19)	1.13	(1.08 - 1.18)	0.95	(0.91 - 0.99)
2004	0.86	(0.83 - 0.90)	1.16	(1.11 - 1.22)	1.11	(1.06 - 1.16)	0.94	(0.90 - 0.99)
2005	0.88	(0.85 - 0.92)	1.16	(1.11 - 1.21)	1.17	(1.12 - 1.22)	0.88	(0.84 - 0.92)
2006	0.92	(0.89 - 0.96)	1.11	(1.06 - 1.16)	1.15	(1.10 - 1.20)	0.88	(0.85 - 0.92)
2007	0.97	(0.93 - 1.01)	0.94	(0.89 - 0.98)	1.16	(1.11 - 1.21)	0.96	(0.92 - 1.00)
2008	1.04	(1.00 - 1.08)	0.92	(0.88 - 0.97)	1.16	(1.11 - 1.21)	0.89	(0.85 - 0.93)
2009	1.00	(0.96 - 1.04)	0.96	(0.91 - 1.01)	1.16	(1.11 - 1.21)	0.91	(0.87 - 0.96)
2010	1.02	(0.98 - 1.06)	0.91	(0.87 - 0.96)	1.10	(1.05 - 1.15)	0.97	(0.93 - 1.01)
2011	1.03	(0.99 - 1.07)	1.04	(0.99 - 1.09)	0.99	(0.95 - 1.04)	0.94	(0.90 - 0.98)
2012	1.02	(0.98 - 1.06)	1.02	(0.98 - 1.07)	0.96	(0.91 - 1.01)	0.98	(0.94 - 1.02)
2013	1.02	(0.98 - 1.07)	0.96	(0.91 - 1.01)	1.01	(0.96 - 1.06)	1.00	(0.95 - 1.05)
2014	1.04	(1.00 - 1.09)	0.99	(0.94 - 1.05)	0.98	(0.93 - 1.04)	0.96	(0.91 - 1.00)
2015	0.98	(0.94 - 1.02)	1.06	(1.01 - 1.11)	0.94	(0.89 - 1.00)	1.02	(0.97 - 1.06)
2016	0.98	(0.93 - 1.02)	1.09	(1.04 - 1.14)	0.98	(0.93 - 1.03)	0.98	(0.93 - 1.02)
2017	0.93	(0.89 - 0.97)	1.18	(1.12 - 1.24)	1.03	(0.98 - 1.09)	0.92	(0.88 - 0.97)
2018	0.94	(0.90 - 0.98)	1.13	(1.07 - 1.18)	0.99	(0.94 - 1.04)	0.98	(0.94 - 1.03)
2019	0.92	(0.88 - 0.96)	1.23	(1.18 - 1.29)	0.95	(0.90 - 1.00)	0.95	(0.91 - 1.00)
2020	0.92	(0.88 - 0.96)	1.24	(1.19 - 1.30)	0.95	(0.90 - 1.00)	0.94	(0.90 - 0.98)
2021	0.84	(0.80 - 0.88)	1.25	(1.19 - 1.31)	0.97	(0.92 - 1.02)	1.02	(0.98 - 1.07)
2022	0.89	(0.85 - 0.92)	1.29	(1.23 - 1.35)	0.91	(0.86 - 0.96)	0.98	(0.94 - 1.03)

Table A70. I21 AMI hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	9332	187.6	187.6	(183.8-191.4)	1.00	Baseline
Northland	439	228.2	187.4	(170.1-206.0)	1.00	(0.90 - 1.10)
Waitematā	1017	161.9	174.9	(164.3-186.0)	0.93	(0.87 - 1.00)
Auckland	551	117.1	137.3	(126.0-149.3)	0.73	(0.67 - 0.80)
Counties Manukau	764	131.4	166.1	(154.4-178.4)	0.89	(0.82 - 0.95)
Waikato	1004	231.0	227.7	(213.9-242.3)	1.21	(1.14 - 1.30)
Lakes	435	381.0	370.9	(336.9-407.6)	1.98	(1.79 - 2.18)
Bay of Plenty	598	229.1	196.9	(181.3-213.5)	1.05	(0.96 - 1.14)
Tairāwhiti	125	246.0	247.7	(206.2-295.3)	1.32	(1.10 - 1.58)
Taranaki	378	301.9	270.2	(243.6-299.0)	1.44	(1.30 - 1.60)
Hawke's Bay	407	233.3	209.0	(189.1-230.4)	1.11	(1.01 - 1.23)
Whanganui	200	295.4	241.8	(209.4-278.2)	1.29	(1.11 - 1.49)
MidCentral	352	191.1	171.9	(154.4-191.0)	0.92	(0.82 - 1.02)
Capital, Coast & Hutt Valley	601	129.8	140.4	(129.4-152.1)	0.75	(0.69 - 0.81)
Wairarapa	104	212.1	164.4	(134.1-200.0)	0.88	(0.71 - 1.07)
Nelson Marlborough	338	212.6	165.0	(147.7-183.8)	0.88	(0.79 - 0.98)
West Coast	110	331.2	263.5	(215.8-319.5)	1.40	(1.15 - 1.71)
Canterbury	1174	201.3	197.0	(185.9-208.6)	1.05	(0.99 - 1.12)
South Canterbury	129	212.2	161.9	(135.0-193.1)	0.86	(0.72 - 1.03)
Southern	606	177.3	167.8	(154.7-181.7)	0.89	(0.82 - 0.97)

Table A71. I21 AMI hospitalisation rates and rate ratios by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	4868	152.2	152.2	(148.0-156.6)	1.00	Baseline
U2	2167	239.3	195.3	(187.1-203.8)	1.28	(1.22-1.35)
R1	1465	237.5	181.0	(171.7-190.7)	1.19	(1.12-1.26)
R2	719	247.2	187.5	(173.8-202.0)	1.23	(1.14-1.33)
R3	112	226.7	170.9	(140.0-207.0)	1.12	(0.92-1.36)

I48 AFF HOSPITALISATIONS

Table A72. I48 AFF hospitalisation numbers and rates, 2000 to 2022

Year	I48 – Atrial fibrillation and flutter			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	6345	166.1	209.0	(203.9-214.3)
2001	7045	181.6	226.4	(221.1-231.8)
2002	6956	176.5	217.7	(212.6-222.9)
2003	6619	165.4	201.4	(196.6-206.4)
2004	6655	163.8	196.9	(192.1-201.7)
2005	6679	162.0	192.4	(187.8-197.1)
2006	7325	175.0	206.9	(202.2-211.8)
2007	7312	173.2	201.6	(197.0-206.3)
2008	7872	184.9	211.2	(206.6-216.0)
2009	8634	201.0	226.1	(221.3-230.9)
2010	8939	206.4	229.1	(224.4-233.9)
2011	9233	211.3	231.5	(226.8-236.3)
2012	9585	217.6	235.3	(230.6-240.0)
2013	10075	226.8	242.3	(237.6-247.1)
2014	10322	227.7	240.9	(236.3-245.6)
2015	10756	232.5	243.9	(239.3-248.6)
2016	10914	231.4	240.9	(236.4-245.5)
2017	11534	239.8	248.0	(243.5-252.6)
2018	11824	241.3	247.8	(243.3-252.3)
2019	11863	241.2	244.4	(240.0-248.8)
2020	12273	248.5	248.5	(244.2-253.0)
2021	13112	264.5	261.2	(256.7-265.7)
2022	12251	246.2	240.2	(236.0-244.5)

Table A73. I48 AFF hospitalisation rates and rate ratios by gender, 2000 - 2022

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	3403	246.6	2931	182.2	0.74	(0.70-0.78)
2001	3846	271.6	3181	193.9	0.71	(0.68-0.75)
2002	3678	252.4	3258	193.0	0.76	(0.73-0.80)
2003	3458	230.1	3135	181.3	0.79	(0.75-0.83)
2004	3564	231.1	3069	172.7	0.75	(0.71-0.78)
2005	3555	222.7	3086	169.8	0.76	(0.73-0.80)
2006	3826	234.7	3468	187.6	0.80	(0.76-0.84)
2007	3866	231.6	3416	180.3	0.78	(0.74-0.82)
2008	4112	239.7	3731	191.9	0.80	(0.77-0.84)
2009	4627	262.3	3968	199.8	0.76	(0.73-0.80)
2010	4661	258.6	4242	209.0	0.81	(0.77-0.84)
2011	4827	262.0	4339	209.0	0.80	(0.77-0.83)
2012	4980	262.9	4548	214.9	0.82	(0.78-0.85)
2013	5379	279.4	4636	214.9	0.77	(0.74-0.80)
2014	5527	280.3	4736	213.1	0.76	(0.73-0.79)
2015	5869	288.9	4835	211.1	0.73	(0.70-0.76)
2016	5833	278.9	5036	214.3	0.77	(0.74-0.80)
2017	6169	286.2	5308	219.9	0.77	(0.74-0.80)
2018	6335	286.5	5390	218.1	0.76	(0.73-0.79)
2019	6366	282.3	5364	213.1	0.76	(0.73-0.78)
2020	6680	291.1	5437	211.9	0.73	(0.70-0.75)
2021	6991	300.3	5888	225.6	0.75	(0.73-0.78)
2022	6564	277.5	5529	208.2	0.75	(0.72-0.78)

Table A74. I48 AFF hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 - 54 years		55 - 64 years		65 - 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	193	9.8	1015	92.4	1173	346.8	1970	786.0	2126	1048.3
2001	192	9.8	1094	98.5	1353	386.3	2163	859.4	2398	1148.1
2002	160	8.1	1078	95.6	1361	368.4	2063	813.5	2472	1155.7
2003	171	8.5	1072	93.3	1306	337.0	1878	733.2	2350	1070.5
2004	155	7.6	1117	95.5	1312	324.8	1787	687.2	2424	1079.4
2005	174	8.6	1160	97.9	1410	337.1	1730	649.0	2376	1033.9
2006	176	8.6	1128	93.7	1580	367.7	1905	691.0	2720	1152.9
2007	187	9.2	1133	93.0	1517	344.0	1939	680.3	2737	1139.0
2008	157	7.7	1279	104.3	1669	365.7	1993	685.3	3005	1230.4
2009	175	8.5	1459	118.4	1931	410.7	2219	738.6	3097	1249.3
2010	180	8.7	1499	121.3	1852	382.7	2412	774.3	3233	1283.0
2011	180	8.7	1482	120.4	2024	407.1	2381	735.2	3498	1365.3
2012	172	8.3	1476	120.6	2096	415.3	2653	775.3	3495	1340.2
2013	168	8.1	1500	123.1	2157	420.7	2829	786.3	3675	1380.6
2014	169	8.0	1598	130.8	2148	409.3	2865	763.4	3817	1396.8
2015	169	7.8	1666	135.5	2243	416.9	2976	765.9	4046	1436.5
2016	220	9.9	1606	129.5	2315	417.5	2991	748.0	4146	1419.6
2017	203	8.9	1641	131.1	2540	444.6	3194	776.1	4266	1411.2
2018	173	7.5	1715	135.6	2485	423.1	3462	811.2	4299	1395.0
2019	192	8.2	1631	127.8	2505	418.2	3546	806.3	4358	1373.4
2020	245	10.3	1707	131.7	2610	426.3	3475	760.5	4505	1368.7
2021	270	11.4	1643	126.3	2848	463.5	3880	830.9	4756	1393.5
2022	217	9.3	1625	124.6	2632	427.9	3557	756.0	4420	1240.5

Table A75. 148 AFF age-standardised hospitalisation numbers and rates by ethnic group, 2000 - 2022

Year	NZ European		Māori		Pacific Peoples		Asian Peoples		MELAA*	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2000	5202	107.2	595	174.9	158	106.1	50	29.1	342	2547.1
2001	5822	117.5	644	182.1	170	109.8	81	42.6	334	2327.8
2002	5685	111.0	707	188.3	178	111.5	83	36.4	314	2028.1
2003	5459	105.0	641	164.1	188	108.9	72	29.7	268	1643.0
2004	5506	103.4	647	159.2	187	100.6	113	41.2	212	1210.3
2005	5508	103.1	655	153.7	238	122.0	110	37.0	184	948.3
2006	6092	110.6	697	159.9	234	119.4	118	37.6	192	973.2
2007	6088	108.2	681	149.4	255	121.3	123	37.1	186	834.0
2008	6501	113.1	810	168.2	265	118.9	141	37.5	175	743.2
2009	7206	125.4	888	176.9	324	143.7	176	44.6	77	301.4
2010	7470	126.4	958	182.6	339	141.1	170	39.5	29	89.4
2011	7702	127.7	977	179.5	344	140.9	199	43.7	39	130.9
2012	8005	130.7	962	170.1	377	148.1	238	49.6	38	119.6
2013	8359	133.1	1003	172.5	426	162.7	281	56.0	38	106.6
2014	8607	133.8	993	159.2	433	157.1	271	48.0	47	108.4
2015	8930	136.6	1130	171.2	404	138.2	285	46.7	45	101.0
2016	8990	134.9	1155	165.9	460	149.6	295	44.8	52	108.1
2017	9406	138.6	1245	170.4	524	162.1	354	50.0	58	109.6
2018	9452	136.2	1450	188.8	549	164.4	367	47.7	57	111.0
2019	9372	135.4	1473	185.3	595	172.6	410	51.1	84	153.0
2020	9594	138.5	1583	192.5	661	186.4	439	52.3	54	91.8
2021	10319	147.5	1644	193.3	660	181.4	463	52.2	82	125.0
2022	9439	132.9	1668	190.1	725	194.3	421	47.4	69	102.1

Table A76. 148 AFF hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.63	(1.49-1.78)	0.99	(0.83-1.17)	0.27	(0.20-0.36)	23.76	(21.13-26.61)
2001	1.55	(1.42-1.69)	0.93	(0.79-1.09)	0.36	(0.29-0.45)	19.81	(17.60-22.20)
2002	1.70	(1.56-1.84)	1.01	(0.86-1.17)	0.33	(0.26-0.41)	18.28	(16.18-20.55)
2003	1.56	(1.43-1.70)	1.04	(0.89-1.20)	0.28	(0.22-0.36)	15.65	(13.72-17.76)
2004	1.54	(1.41-1.68)	0.97	(0.83-1.13)	0.40	(0.33-0.48)	11.71	(10.1-13.48)
2005	1.49	(1.37-1.62)	1.18	(1.03-1.35)	0.36	(0.29-0.44)	9.20	(7.84-10.72)
2006	1.45	(1.33-1.57)	1.08	(0.94-1.23)	0.34	(0.28-0.41)	8.80	(7.53-10.21)
2007	1.38	(1.27-1.50)	1.12	(0.98-1.27)	0.34	(0.28-0.41)	7.71	(6.58-8.97)
2008	1.49	(1.38-1.60)	1.05	(0.92-1.19)	0.33	(0.28-0.39)	6.57	(5.59-7.67)
2009	1.41	(1.31-1.52)	1.15	(1.02-1.28)	0.36	(0.30-0.41)	2.40	(1.88-3.02)
2010	1.44	(1.35-1.55)	1.12	(1.00-1.25)	0.31	(0.27-0.36)	0.71	(0.46-1.04)
2011	1.41	(1.31-1.50)	1.10	(0.99-1.23)	0.34	(0.30-0.39)	1.02	(0.72-1.41)
2012	1.30	(1.21-1.39)	1.13	(1.02-1.26)	0.38	(0.33-0.43)	0.92	(0.64-1.27)
2013	1.30	(1.21-1.39)	1.22	(1.10-1.35)	0.42	(0.37-0.47)	0.80	(0.56-1.11)
2014	1.19	(1.11-1.27)	1.17	(1.06-1.29)	0.36	(0.32-0.41)	0.81	(0.58-1.09)
2015	1.25	(1.18-1.33)	1.01	(0.91-1.12)	0.34	(0.30-0.39)	0.74	(0.53-1.00)
2016	1.23	(1.15-1.31)	1.11	(1.01-1.22)	0.33	(0.29-0.37)	0.80	(0.59-1.06)
2017	1.23	(1.16-1.31)	1.17	(1.07-1.28)	0.36	(0.32-0.40)	0.79	(0.59-1.03)
2018	1.39	(1.31-1.47)	1.21	(1.10-1.32)	0.35	(0.31-0.39)	0.81	(0.61-1.06)
2019	1.37	(1.29-1.45)	1.27	(1.17-1.39)	0.38	(0.34-0.42)	1.13	(0.90-1.40)
2020	1.39	(1.32-1.47)	1.35	(1.24-1.46)	0.38	(0.34-0.42)	0.66	(0.49-0.87)
2021	1.31	(1.24-1.38)	1.23	(1.13-1.33)	0.35	(0.32-0.39)	0.85	(0.67-1.06)
2022	1.43	(1.36-1.51)	1.46	(1.35-1.58)	0.36	(0.32-0.39)	0.77	(0.59-0.98)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A77. 148 AFF hospitalisation rates by NZDep quintile, 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	885	142.9	994	158.4	1344	211.1	1537	252.3	1340	249.0
2001	909	143.6	1173	183.0	1498	229.3	1763	280.6	1426	257.2
2002	969	152.4	1181	180.9	1466	220.6	1640	251.5	1398	241.4
2003	940	144.2	1152	173.3	1403	205.3	1517	225.8	1414	234.5
2004	996	150.9	1068	155.6	1435	205.5	1619	233.7	1502	239.7
2005	1032	154.3	1000	142.0	1401	196.7	1692	235.6	1521	235.1
2006	1114	165.0	1205	169.6	1498	206.4	1769	240.6	1696	253.8
2007	1036	147.2	1225	167.6	1503	202.5	1806	242.1	1703	253.7
2008	1115	151.4	1283	170.1	1604	211.2	1995	261.2	1823	268.8
2009	1423	184.9	1482	191.0	1792	229.9	2059	266.3	1837	270.2
2010	1246	156.7	1526	191.5	1801	228.6	2168	275.3	2149	314.2
2011	1461	177.2	1562	192.6	1848	229.8	2047	256.2	2267	329.2
2012	1585	186.2	1652	196.6	1830	223.8	2149	265.2	2318	335.4
2013	1609	182.9	1807	210.5	2064	248.7	2190	265.9	2332	335.6
2014	1662	187.3	1789	200.9	2160	249.8	2319	271.0	2324	320.0
2015	1852	210.5	1793	196.4	2218	247.6	2403	269.5	2397	315.8
2016	1833	202.0	2373	254.2	2247	241.9	2099	229.3	2287	290.0
2017	1984	215.3	2424	251.1	2226	231.6	2334	245.9	2506	306.6
2018	2026	216.8	2480	250.1	2310	232.9	2385	243.7	2564	302.2
2019	2084	215.4	2393	235.7	2281	227.1	2373	239.3	2686	313.6
2020	2208	221.0	2472	238.3	2396	234.6	2468	246.8	2706	311.6
2021	2285	221.9	2590	244.8	2767	267.7	2601	256.8	2851	326.2
2022	2174	204.8	2407	222.5	2598	248.3	2309	226.1	2743	311.0

Table A78. I48 AFF hospitalisation rate ratios to NZDep 1-2 by NZDep quintile, 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.11	(1.01 - 1.22)	1.48	(1.35 - 1.61)	1.77	(1.62 - 1.92)	1.74	(1.60 - 1.90)
2001	1.27	(1.17 - 1.39)	1.60	(1.47 - 1.74)	1.95	(1.80 - 2.12)	1.79	(1.65 - 1.95)
2002	1.19	(1.09 - 1.29)	1.45	(1.33 - 1.57)	1.65	(1.52 - 1.79)	1.58	(1.46 - 1.72)
2003	1.20	(1.10 - 1.31)	1.42	(1.31 - 1.55)	1.57	(1.44 - 1.70)	1.63	(1.49 - 1.77)
2004	1.03	(0.94 - 1.13)	1.36	(1.25 - 1.48)	1.55	(1.43 - 1.68)	1.59	(1.46 - 1.72)
2005	0.92	(0.84 - 1.01)	1.27	(1.17 - 1.38)	1.53	(1.41 - 1.65)	1.52	(1.41 - 1.65)
2006	1.03	(0.95 - 1.12)	1.25	(1.16 - 1.35)	1.46	(1.35 - 1.57)	1.54	(1.42 - 1.66)
2007	1.14	(1.05 - 1.24)	1.38	(1.27 - 1.49)	1.64	(1.52 - 1.78)	1.72	(1.59 - 1.87)
2008	1.12	(1.04 - 1.22)	1.40	(1.29 - 1.51)	1.73	(1.60 - 1.86)	1.78	(1.65 - 1.92)
2009	1.03	(0.96 - 1.11)	1.24	(1.16 - 1.33)	1.44	(1.34 - 1.54)	1.46	(1.36 - 1.57)
2010	1.22	(1.13 - 1.32)	1.46	(1.36 - 1.57)	1.76	(1.64 - 1.89)	2.01	(1.87 - 2.15)
2011	1.09	(1.01 - 1.17)	1.30	(1.21 - 1.39)	1.45	(1.35 - 1.55)	1.86	(1.74 - 1.99)
2012	1.06	(0.98 - 1.13)	1.20	(1.12 - 1.29)	1.42	(1.33 - 1.52)	1.80	(1.69 - 1.92)
2013	1.15	(1.07 - 1.23)	1.36	(1.27 - 1.45)	1.45	(1.36 - 1.55)	1.83	(1.72 - 1.96)
2014	1.07	(1.00 - 1.15)	1.33	(1.25 - 1.42)	1.45	(1.36 - 1.54)	1.71	(1.60 - 1.82)
2015	0.93	(0.87 - 1.00)	1.18	(1.10 - 1.25)	1.28	(1.20 - 1.36)	1.50	(1.41 - 1.60)
2016	1.26	(1.18 - 1.34)	1.20	(1.12 - 1.28)	1.14	(1.06 - 1.21)	1.44	(1.35 - 1.53)
2017	1.17	(1.10 - 1.24)	1.08	(1.01 - 1.14)	1.14	(1.07 - 1.21)	1.42	(1.34 - 1.51)
2018	1.15	(1.09 - 1.22)	1.07	(1.01 - 1.14)	1.12	(1.06 - 1.19)	1.39	(1.31 - 1.48)
2019	1.09	(1.03 - 1.16)	1.05	(0.99 - 1.12)	1.11	(1.05 - 1.18)	1.46	(1.37 - 1.54)
2020	1.08	(1.02 - 1.14)	1.06	(1.00 - 1.13)	1.12	(1.05 - 1.18)	1.41	(1.33 - 1.49)
2021	1.10	(1.04 - 1.17)	1.21	(1.14 - 1.28)	1.16	(1.09 - 1.22)	1.47	(1.39 - 1.55)
2022	1.09	(1.02 - 1.15)	1.21	(1.14 - 1.28)	1.10	(1.04 - 1.17)	1.52	(1.43 - 1.61)

Table A79. I48 AFF hospitalisation numbers, rates, and rate ratios by NZDep, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	2174	223.8	204.8	(196.2-213.7)	1.00	Baseline
3 - 4	2407	246.1	222.5	(213.7-231.6)	1.09	(1.02-1.15)
5 - 6	2598	264.3	248.3	(238.8-258.1)	1.21	(1.14-1.28)
7 - 8	2309	230.2	226.1	(217.0-235.6)	1.10	(1.04-1.17)
9 - 10	2743	264.0	311.0	(299.5-322.9)	1.52	(1.43-1.61)

Table A80. 148 AFF hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	2044	215.4	1459	240.9	1188	192.2	1610	202.1
2001	2289	237.0	1591	256.7	1332	212.3	1781	218.7
2002	2230	225.5	1569	247.8	1383	215.7	1726	207.9
2003	2164	212.3	1400	215.1	1354	207.9	1660	195.8
2004	2239	213.1	1449	217.1	1246	187.5	1689	194.0
2005	2372	218.0	1449	211.3	1253	183.1	1574	176.5
2006	2604	236.4	1543	218.1	1453	207.9	1690	186.5
2007	2537	223.6	1507	209.8	1485	208.6	1749	187.1
2008	2762	236.8	1695	228.5	1530	210.9	1845	193.8
2009	2974	247.6	2000	263.0	1703	228.7	1917	197.8
2010	3095	252.2	2073	265.5	1757	232.0	1973	199.4
2011	3273	256.6	2016	252.3	1832	234.8	2070	206.6
2012	3349	255.0	2152	263.1	1925	241.7	2114	207.0
2013	3563	264.4	2363	283.2	1884	231.6	2198	210.7
2014	3473	248.7	2353	273.4	2264	270.3	2170	202.9
2015	3539	247.5	2594	293.7	2281	265.0	2268	206.8
2016	3583	244.2	2559	280.5	2309	260.7	2394	212.7
2017	3888	256.0	2666	282.1	2370	263.3	2557	220.6
2018	3805	244.4	2817	288.4	2682	292.1	2462	208.7
2019	3990	250.5	2874	287.6	2463	262.7	2492	206.2
2020	4205	255.5	2944	285.6	2548	265.0	2555	204.4
2021	4380	261.2	3203	302.8	2824	287.6	2689	210.3
2022	4224	248.1	3138	292.1	2509	252.2	2360	180.6

Table A81. 148 AFF hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.02	(0.96 - 1.07)	1.14	(1.07 - 1.20)	0.91	(0.85 - 0.96)	0.95	(0.90 - 1.01)
2001	1.03	(0.98 - 1.08)	1.11	(1.05 - 1.18)	0.92	(0.87 - 0.98)	0.95	(0.90 - 1.00)
2002	1.01	(0.96 - 1.06)	1.11	(1.05 - 1.17)	0.97	(0.91 - 1.02)	0.93	(0.88 - 0.98)
2003	1.02	(0.97 - 1.08)	1.04	(0.98 - 1.10)	1.00	(0.94 - 1.06)	0.94	(0.89 - 1.00)
2004	1.05	(1.00 - 1.10)	1.07	(1.01 - 1.13)	0.92	(0.87 - 0.98)	0.95	(0.90 - 1.01)
2005	1.10	(1.05 - 1.15)	1.07	(1.01 - 1.13)	0.92	(0.87 - 0.98)	0.89	(0.84 - 0.94)
2006	1.11	(1.06 - 1.16)	1.02	(0.97 - 1.08)	0.97	(0.92 - 1.03)	0.87	(0.83 - 0.92)
2007	1.08	(1.03 - 1.13)	1.01	(0.95 - 1.07)	1.00	(0.95 - 1.06)	0.90	(0.85 - 0.95)
2008	1.09	(1.04 - 1.13)	1.05	(0.99 - 1.10)	0.97	(0.91 - 1.02)	0.89	(0.84 - 0.94)
2009	1.06	(1.02 - 1.11)	1.13	(1.07 - 1.18)	0.98	(0.93 - 1.03)	0.85	(0.81 - 0.89)
2010	1.07	(1.02 - 1.11)	1.12	(1.07 - 1.18)	0.98	(0.93 - 1.03)	0.84	(0.80 - 0.89)
2011	1.08	(1.04 - 1.12)	1.06	(1.01 - 1.11)	0.99	(0.94 - 1.04)	0.87	(0.83 - 0.91)
2012	1.06	(1.01 - 1.10)	1.09	(1.04 - 1.14)	1.00	(0.95 - 1.05)	0.86	(0.82 - 0.90)
2013	1.07	(1.03 - 1.11)	1.14	(1.09 - 1.20)	0.93	(0.89 - 0.98)	0.85	(0.81 - 0.89)
2014	1.01	(0.97 - 1.05)	1.11	(1.06 - 1.16)	1.10	(1.05 - 1.15)	0.82	(0.79 - 0.86)
2015	0.99	(0.95 - 1.03)	1.17	(1.12 - 1.23)	1.06	(1.01 - 1.11)	0.83	(0.79 - 0.87)
2016	0.99	(0.95 - 1.03)	1.14	(1.09 - 1.19)	1.06	(1.01 - 1.10)	0.86	(0.82 - 0.90)
2017	1.01	(0.97 - 1.05)	1.11	(1.06 - 1.16)	1.04	(0.99 - 1.08)	0.87	(0.83 - 0.91)
2018	0.96	(0.93 - 1.00)	1.14	(1.09 - 1.18)	1.15	(1.10 - 1.20)	0.82	(0.79 - 0.86)
2019	1.01	(0.97 - 1.04)	1.15	(1.11 - 1.20)	1.05	(1.01 - 1.10)	0.83	(0.79 - 0.86)
2020	1.02	(0.98 - 1.06)	1.14	(1.09 - 1.19)	1.06	(1.01 - 1.10)	0.82	(0.78 - 0.85)
2021	1.00	(0.96 - 1.03)	1.16	(1.11 - 1.20)	1.10	(1.05 - 1.14)	0.80	(0.77 - 0.84)
2022	1.03	(1.00 - 1.07)	1.21	(1.17 - 1.26)	1.05	(1.00 - 1.09)	0.75	(0.72 - 0.78)

Table A82. I48 AFF hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	12231	245.8	245.8	(241.5-250.2)	1.00	Baseline
Northland	618	321.3	265.0	(244.3-287.1)	1.08	(0.99 - 1.17)
Waitematā	1396	222.3	240.7	(228.2-253.7)	0.98	(0.93 - 1.03)
Auckland	1019	216.5	255.0	(239.5-271.2)	1.04	(0.97 - 1.11)
Counties Manukau	1191	204.8	261.0	(246.2-276.3)	1.06	(1.00 - 1.13)
Waikato	1220	280.7	276.4	(261.1-292.4)	1.12	(1.06 - 1.19)
Lakes	390	341.6	329.6	(297.6-364.0)	1.34	(1.21 - 1.48)
Bay of Plenty	1025	392.6	338.8	(318.2-360.4)	1.38	(1.29 - 1.47)
Tairāwhiti	170	334.6	342.1	(292.5-397.6)	1.39	(1.19 - 1.62)
Taranaki	333	266.0	237.7	(212.8-264.8)	0.97	(0.86 - 1.08)
Hawke's Bay	622	356.6	320.1	(295.3-346.4)	1.30	(1.20 - 1.41)
Whanganui	248	366.3	307.1	(269.8-348.3)	1.25	(1.10 - 1.42)
MidCentral	420	228.0	206.7	(187.4-227.6)	0.84	(0.76 - 0.93)
Capital, Coast & Hutt Valley	1072	231.5	251.1	(236.2-266.6)	1.02	(0.96 - 1.09)
Wairarapa	147	299.8	232.9	(196.4-274.8)	0.95	(0.80 - 1.12)
Nelson Marlborough	416	261.7	201.7	(182.7-222.4)	0.82	(0.74 - 0.91)
West Coast	92	277.0	208.9	(167.9-257.8)	0.85	(0.68 - 1.05)
Canterbury	1044	179.0	175.8	(165.3-186.8)	0.72	(0.67 - 0.76)
South Canterbury	136	223.7	178.1	(149.0-211.5)	0.72	(0.61 - 0.86)
Southern	672	196.6	185.7	(172.0-200.4)	0.76	(0.70 - 0.82)

Table A83. I48 AFF hospitalisation rates and rate ratios by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	6765	211.5	211.5	(206.5-216.6)	1	Baseline
U2	2737	302.2	246.3	(237.0-255.8)	1.16	(1.11-1.22)
R1	1794	290.8	222.6	(212.3-233.4)	1.05	(1.00-1.11)
R2	781	268.5	204.3	(190.0-219.6)	0.97	(0.89-1.04)
R3	154	311.7	222.8	(188.3-262.5)	1.05	(0.89-1.24)

I50 HEART FAILURE HOSPITALISATIONS

Table A84. I50 heart failure hospitalisation numbers and rates 2000 to 2022

Year	I50 – Heart failure			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	6877	180.0	231.9	(226.4-237.5)
2001	6637	171.0	217.8	(212.6-223.1)
2002	6760	171.5	215.5	(210.4-220.7)
2003	6736	168.3	209.1	(204.2-214.2)
2004	7041	173.3	212.7	(207.7-217.7)
2005	6948	168.5	204.8	(200.0-209.7)
2006	7241	173.0	209.6	(204.8-214.5)
2007	7203	170.6	202.6	(197.9-207.3)
2008	7181	168.6	197.0	(192.5-201.6)
2009	7895	183.8	210.6	(206.0-215.3)
2010	8034	185.5	209.5	(205.0-214.2)
2011	8215	188.0	209.1	(204.6-213.7)
2012	8491	192.7	211.4	(206.9-215.9)
2013	8608	193.8	209.9	(205.5-214.4)
2014	9119	201.1	215.6	(211.2-220.1)
2015	9339	201.9	214.3	(209.9-218.7)
2016	9526	201.9	212.3	(208.1-216.7)
2017	10476	217.8	227.1	(222.8-231.5)
2018	10729	218.9	226.5	(222.3-230.9)
2019	11396	231.7	235.5	(231.2-239.9)
2020	11444	231.8	231.8	(227.5-236.0)
2021	11101	224.0	220.5	(216.4-224.6)
2022	11024	221.6	214.9	(210.9-219.0)

Table A85. 150 heart failure hospitalisation rates and rate ratios by gender, 2000 - 2022

Year	Male		Female		Rate ratio female to male	
	N	Rate	N	Rate	RR	95% CI
2000	3544	296.4	3318	198.0	0.67	(0.64-0.70)
2001	3327	267.5	3294	192.1	0.72	(0.68-0.75)
2002	3474	270.1	3262	185.3	0.69	(0.65-0.72)
2003	3517	266.1	3196	176.3	0.66	(0.63-0.70)
2004	3642	266.3	3375	182.3	0.68	(0.65-0.72)
2005	3622	257.3	3301	174.8	0.68	(0.65-0.71)
2006	3748	262.3	3471	180.5	0.69	(0.66-0.72)
2007	3873	261.7	3317	168.2	0.64	(0.61-0.67)
2008	3709	244.4	3456	171.3	0.70	(0.67-0.73)
2009	4107	262.6	3749	180.3	0.69	(0.66-0.72)
2010	4146	257.9	3859	182.6	0.71	(0.68-0.74)
2011	4381	264.4	3800	176.1	0.67	(0.64-0.70)
2012	4540	267.6	3911	177.4	0.66	(0.63-0.69)
2013	4658	268.2	3925	175.2	0.65	(0.63-0.68)
2014	5010	278.3	4060	176.2	0.63	(0.61-0.66)
2015	4989	266.2	4307	181.5	0.68	(0.65-0.71)
2016	5360	277.2	4128	170.6	0.62	(0.59-0.64)
2017	5801	289.9	4614	186.1	0.64	(0.62-0.67)
2018	6039	292.0	4572	180.3	0.62	(0.59-0.64)
2019	6469	305.3	4784	184.4	0.60	(0.58-0.63)
2020	6319	291.2	4934	186.8	0.64	(0.62-0.67)
2021	6147	277.4	4791	178.2	0.64	(0.62-0.67)
2022	6092	268.8	4799	175.3	0.65	(0.63-0.68)

Table A86. I50 heart failure hospitalisation rates by age group, 2000 – 2022

Year	< 35 years		35 - 54 years		55 - 64 years		65 - 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	74	3.8	519	47.2	774	228.8	1648	657.5	4250	2095.7
2001	88	4.5	494	44.5	788	225.0	1610	639.7	4070	1948.7
2002	92	4.6	553	49.0	800	216.6	1593	628.2	4183	1955.7
2003	101	5.0	537	46.7	668	172.4	1513	590.7	4352	1982.4
2004	98	4.8	573	49.0	818	202.5	1460	561.4	4536	2020.0
2005	115	5.7	543	45.8	805	192.5	1416	531.2	4533	1972.4
2006	74	3.6	523	43.4	845	196.7	1524	552.8	4757	2016.4
2007	87	4.3	572	47.0	857	194.3	1538	539.6	4618	1921.8
2008	97	4.8	516	42.1	762	167.0	1521	523.0	4862	1990.7
2009	98	4.8	635	51.5	843	179.3	1507	501.6	5432	2191.2
2010	90	4.4	606	49.0	841	173.8	1576	505.9	5650	2242.2
2011	94	4.5	643	52.2	871	175.2	1561	482.0	5841	2279.9
2012	91	4.4	583	47.6	982	194.6	1610	470.5	5943	2278.8
2013	101	4.8	529	43.4	915	178.4	1699	472.2	5941	2231.9
2014	90	4.2	600	49.1	935	178.2	1832	488.1	6113	2237.0
2015	114	5.2	678	55.1	986	183.3	1870	481.3	6311	2240.6
2016	125	5.6	740	59.7	1083	195.3	1927	481.9	6190	2119.4
2017	168	7.4	928	74.1	1164	203.8	2168	526.8	6517	2155.8
2018	183	7.9	928	73.4	1227	208.9	2265	530.8	6657	2160.2
2019	190	8.1	986	77.3	1339	223.5	2359	536.4	7088	2233.7
2020	145	6.1	1054	81.3	1333	217.7	2355	515.4	7036	2137.6
2021	151	6.4	1005	77.2	1309	213.0	2266	485.3	6880	2015.8
2022	158	6.8	967	74.2	1363	221.6	2240	476.1	6612	1855.7

Table A87. 150 heart failure hospitalisation numbers and rates by ethnic group, 2000 - 2022

Year	NZ European		Māori		Pacific Peoples		Asian Peoples		MELAA*	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
2000	5285	79.6	1028	326.0	275	200.5	102	66.8	193	1429.3
2001	5078	75.6	945	282.9	336	233.7	120	68.2	171	1194.1
2002	5023	71.7	1091	307.9	351	224.4	122	60.1	191	1237.4
2003	5099	69.8	1027	276.8	348	209.2	135	61.9	147	894.9
2004	5222	70.2	1195	310.2	390	225.0	115	48.2	136	814.1
2005	5176	67.7	1138	281.8	367	202.0	160	61.4	125	705.7
2006	5345	67.7	1188	283.9	427	231.3	170	61.9	131	678.8
2007	5269	66.2	1212	272.1	463	234.1	170	55.6	128	605.1
2008	5366	64.3	1156	250.7	423	201.9	158	47.2	109	475.2
2009	5920	68.9	1256	259.1	489	224.5	214	56.6	51	208.9
2010	5873	65.6	1337	263.2	536	238.7	295	73.2	36	148.2
2011	6070	67.4	1410	267.5	503	211.6	247	58.4	20	76.7
2012	6273	67.9	1369	251.6	574	236.5	298	64.8	34	128.6
2013	6408	67.1	1383	242.8	550	216.9	272	56.3	33	107.5
2014	6692	68.4	1500	247.8	602	222.1	344	63.3	26	77.9
2015	6713	69.0	1641	254.1	689	240.5	324	54.0	44	116.6
2016	6623	67.5	1770	258.9	766	251.7	382	58.0	49	107.8
2017	7232	72.6	2045	282.3	855	265.1	363	50.7	37	66.7
2018	7377	73.4	2098	275.5	863	255.4	398	51.3	55	111.9
2019	7724	75.5	2242	282.9	970	279.5	496	60.1	48	89.5
2020	7723	73.1	2281	277.4	1011	282.1	483	55.3	49	84.8
2021	7409	70.7	2270	266.6	986	267.8	464	51.0	54	89.6
2022	7255	67.5	2282	259.0	1007	264.8	483	50.1	68	108.7

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A88. 150 heart failure hospitalisation rate ratios to NZ European rates by ethnic group, 2000 – 2022

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	4.09	(3.81-4.39)	2.52	(2.21-2.85)	0.84	(0.68-1.02)	17.95	(15.34-20.84)
2001	3.74	(3.48-4.02)	3.09	(2.75-3.46)	0.90	(0.74-1.08)	15.80	(13.38-18.49)
2002	4.29	(4.01-4.60)	3.13	(2.79-3.50)	0.84	(0.69-1.01)	17.25	(14.75-20.02)
2003	3.96	(3.69-4.25)	3.00	(2.67-3.35)	0.89	(0.74-1.05)	12.82	(10.73-15.17)
2004	4.42	(4.13-4.72)	3.20	(2.87-3.56)	0.69	(0.56-0.83)	11.60	(9.66-13.78)
2005	4.16	(3.89-4.45)	2.98	(2.67-3.32)	0.91	(0.77-1.06)	10.42	(8.61-12.47)
2006	4.20	(3.93-4.48)	3.42	(3.08-3.78)	0.92	(0.78-1.07)	10.03	(8.32-11.96)
2007	4.11	(3.85-4.39)	3.54	(3.20-3.90)	0.84	(0.72-0.98)	9.14	(7.57-10.92)
2008	3.90	(3.65-4.17)	3.14	(2.83-3.47)	0.74	(0.62-0.86)	7.39	(6.03-8.95)
2009	3.76	(3.53-4.01)	3.26	(2.96-3.58)	0.82	(0.71-0.94)	3.03	(2.24-3.99)
2010	4.01	(3.77-4.27)	3.64	(3.32-3.98)	1.12	(0.99-1.26)	2.26	(1.57-3.12)
2011	3.97	(3.73-4.22)	3.14	(2.86-3.45)	0.87	(0.76-0.99)	1.14	(0.69-1.74)
2012	3.70	(3.48-3.94)	3.48	(3.18-3.80)	0.95	(0.84-1.07)	1.89	(1.31-2.63)
2013	3.62	(3.41-3.84)	3.23	(2.95-3.53)	0.84	(0.74-0.95)	1.60	(1.09-2.25)
2014	3.62	(3.42-3.84)	3.25	(2.98-3.53)	0.92	(0.83-1.03)	1.14	(0.74-1.66)
2015	3.68	(3.48-3.90)	3.49	(3.21-3.78)	0.78	(0.70-0.88)	1.69	(1.22-2.27)
2016	3.83	(3.63-4.05)	3.73	(3.45-4.02)	0.86	(0.77-0.95)	1.60	(1.17-2.12)
2017	3.89	(3.69-4.10)	3.65	(3.39-3.93)	0.70	(0.63-0.78)	0.92	(0.63-1.28)
2018	3.75	(3.57-3.95)	3.48	(3.23-3.74)	0.70	(0.63-0.77)	1.52	(1.14-1.98)
2019	3.75	(3.57-3.94)	3.70	(3.45-3.97)	0.80	(0.73-0.87)	1.19	(0.87-1.57)
2020	3.80	(3.61-3.99)	3.86	(3.60-4.13)	0.76	(0.69-0.83)	1.16	(0.85-1.54)
2021	3.77	(3.58-3.96)	3.79	(3.53-4.05)	0.72	(0.65-0.79)	1.27	(0.95-1.66)
2022	3.84	(3.65-4.03)	3.92	(3.66-4.20)	0.74	(0.67-0.82)	1.61	(1.24-2.05)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A89. 150 heart failure hospitalisation rates by NZDep quintile, 2000 – 2022

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	667	115.1	1002	167.9	1365	214.2	1717	280.5	1900	362.4
2001	672	114.8	922	150.7	1291	198.6	1707	269.7	1780	326.3
2002	624	105.6	1030	163.9	1334	201.6	1730	262.9	1824	319.4
2003	578	96.1	1023	159.6	1335	197.5	1679	245.7	1963	331.5
2004	718	117.8	926	142.4	1315	189.7	1920	273.3	2138	346.5
2005	663	107.9	898	135.0	1390	197.3	1844	254.2	2117	331.2
2006	691	111.5	969	143.3	1430	200.8	1901	256.2	2226	338.9
2007	801	123.9	928	133.4	1340	183.3	1851	243.8	2251	340.0
2008	757	113.7	951	133.6	1360	182.5	1948	249.5	2140	321.0
2009	864	126.7	1136	156.4	1441	188.8	2115	265.0	2315	344.4
2010	854	121.5	1176	157.6	1483	191.2	1965	241.9	2535	375.0
2011	877	121.6	1119	146.3	1484	187.8	2110	255.4	2593	380.9
2012	862	116.0	1177	150.7	1539	190.5	2084	247.0	2802	410.3
2013	943	125.2	1190	148.8	1577	192.2	2180	254.0	2682	390.0
2014	1038	137.3	1246	149.6	1678	194.5	2304	256.7	2803	390.5
2015	988	129.7	1305	149.2	1697	187.4	2370	254.8	2914	389.7
2016	1084	140.3	1523	167.7	1766	187.9	2215	230.1	2900	372.3
2017	1167	147.9	1744	184.5	1951	198.6	2450	245.6	3124	384.9
2018	1251	159.2	1803	184.2	1997	195.6	2486	241.7	3164	375.8
2019	1470	175.0	1818	180.1	2238	215.7	2511	241.8	3325	390.2
2020	1408	158.6	1868	179.7	2169	205.3	2635	251.7	3348	390.0
2021	1327	143.2	1834	171.4	2296	214.7	2330	221.4	3306	381.7
2022	1395	142.6	1802	164.1	2143	197.1	2401	226.9	3270	373.5

Table A90. I50 heart failure hospitalisation rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2022

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8			NZDep 9 - 10
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.46	(1.32 - 1.61)	1.86	(1.69 - 2.04)	2.44	(2.23 - 2.67)	3.15	(2.88 - 3.44)
2001	1.31	(1.19 - 1.45)	1.73	(1.57 - 1.90)	2.35	(2.15 - 2.57)	2.84	(2.60 - 3.11)
2002	1.55	(1.40 - 1.72)	1.91	(1.73 - 2.10)	2.49	(2.27 - 2.73)	3.02	(2.76 - 3.32)
2003	1.66	(1.50 - 1.84)	2.05	(1.86 - 2.27)	2.56	(2.32 - 2.82)	3.45	(3.14 - 3.79)
2004	1.21	(1.09 - 1.33)	1.61	(1.47 - 1.77)	2.32	(2.13 - 2.53)	2.94	(2.70 - 3.21)
2005	1.25	(1.13 - 1.39)	1.83	(1.67 - 2.01)	2.35	(2.15 - 2.58)	3.07	(2.81 - 3.35)
2006	1.28	(1.16 - 1.42)	1.80	(1.64 - 1.98)	2.30	(2.10 - 2.51)	3.04	(2.79 - 3.32)
2007	1.08	(0.98 - 1.19)	1.48	(1.35 - 1.62)	1.97	(1.81 - 2.14)	2.74	(2.53 - 2.98)
2008	1.17	(1.07 - 1.29)	1.60	(1.47 - 1.76)	2.19	(2.02 - 2.39)	2.82	(2.60 - 3.07)
2009	1.23	(1.13 - 1.35)	1.49	(1.37 - 1.62)	2.09	(1.93 - 2.27)	2.72	(2.51 - 2.94)
2010	1.30	(1.19 - 1.42)	1.57	(1.45 - 1.71)	1.99	(1.84 - 2.16)	3.09	(2.85 - 3.34)
2011	1.20	(1.1 - 1.32)	1.54	(1.42 - 1.68)	2.10	(1.94 - 2.28)	3.13	(2.90 - 3.39)
2012	1.30	(1.19 - 1.42)	1.64	(1.51 - 1.79)	2.13	(1.96 - 2.31)	3.54	(3.27 - 3.82)
2013	1.19	(1.09 - 1.30)	1.54	(1.42 - 1.67)	2.03	(1.88 - 2.19)	3.12	(2.89 - 3.36)
2014	1.09	(1.00 - 1.18)	1.42	(1.31 - 1.53)	1.87	(1.74 - 2.02)	2.85	(2.65 - 3.06)
2015	1.15	(1.06 - 1.25)	1.44	(1.33 - 1.57)	1.97	(1.82 - 2.12)	3.01	(2.79 - 3.24)
2016	1.20	(1.10 - 1.29)	1.34	(1.24 - 1.45)	1.64	(1.52 - 1.77)	2.65	(2.47 - 2.85)
2017	1.25	(1.16 - 1.35)	1.34	(1.25 - 1.45)	1.66	(1.55 - 1.78)	2.60	(2.43 - 2.79)
2018	1.16	(1.08 - 1.25)	1.23	(1.14 - 1.32)	1.52	(1.42 - 1.63)	2.36	(2.21 - 2.52)
2019	1.03	(0.96 - 1.10)	1.23	(1.15 - 1.32)	1.38	(1.29 - 1.48)	2.23	(2.09 - 2.37)
2020	1.13	(1.06 - 1.22)	1.29	(1.21 - 1.39)	1.59	(1.49 - 1.70)	2.46	(2.31 - 2.62)
2021	1.20	(1.11 - 1.29)	1.50	(1.40 - 1.61)	1.55	(1.44 - 1.66)	2.67	(2.50 - 2.84)
2022	1.15	(1.07 - 1.24)	1.38	(1.29 - 1.48)	1.59	(1.49 - 1.70)	2.62	(2.46 - 2.79)

Table A91. I50 heart failure hospitalisation numbers, rates, and rate ratios by NZDep, 2022

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	1395	143.6	142.6	(135.1-150.3)	1.00	Baseline
3 - 4	1802	184.3	164.1	(156.6-171.9)	1.15	(1.07-1.24)
5 - 6	2143	218.1	197.1	(188.8-205.7)	1.38	(1.29-1.48)
7 - 8	2401	239.4	226.9	(217.9-236.2)	1.59	(1.49-1.70)
9 - 10	3270	314.7	373.5	(360.8-386.5)	2.62	(2.46-2.79)

Table A92. 150 heart failure hospitalisation rates by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	1947	216.6	1638	280.0	1684	278.9	1585	201.4
2001	2031	220.3	1543	255.6	1469	239.7	1546	191.7
2002	2166	226.0	1621	262.4	1410	223.9	1550	187.8
2003	2152	220.5	1661	260.7	1358	212.8	1544	183.3
2004	2226	222.2	1702	259.9	1559	239.0	1531	177.8
2005	2228	217.6	1610	239.3	1495	222.9	1593	179.7
2006	2448	235.6	1758	253.7	1486	216.3	1531	169.2
2007	2489	230.2	1707	239.1	1450	206.1	1532	165.1
2008	2286	207.7	1634	224.5	1537	213.7	1705	178.6
2009	2557	225.4	1810	242.2	1807	245.3	1703	174.3
2010	2738	235.0	1774	231.2	1810	239.7	1694	169.1
2011	2568	212.8	1846	233.7	1865	240.8	1905	187.0
2012	2792	224.6	1911	234.8	1836	231.4	1932	187.0
2013	2725	213.4	1856	222.7	2024	250.3	1970	187.7
2014	2995	226.3	1979	230.4	2078	250.4	2020	186.5
2015	3056	223.7	2017	228.2	2101	246.2	2119	191.6
2016	3141	222.0	2209	241.6	2045	233.4	2091	183.6
2017	3460	236.6	2581	272.5	2163	242.0	2235	191.9
2018	3621	241.5	2480	254.5	2193	239.4	2410	203.1
2019	3763	244.2	2530	253.0	2551	271.9	2521	207.4
2020	3783	237.3	2603	251.3	2431	252.2	2606	207.6
2021	3725	228.0	2659	249.6	2266	229.2	2442	188.5
2022	3850	230.7	2479	227.9	2196	218.7	2482	186.8

Table A93. 150 heart failure hospitalisation rate ratios to national average by health region 2000 – 2022

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.91	(0.86 - 0.95)	1.17	(1.11 - 1.24)	1.17	(1.11 - 1.23)	0.84	(0.80 - 0.89)
2001	0.98	(0.93 - 1.03)	1.14	(1.08 - 1.21)	1.07	(1.01 - 1.13)	0.86	(0.81 - 0.90)
2002	1.01	(0.96 - 1.06)	1.18	(1.11 - 1.24)	1.00	(0.95 - 1.06)	0.84	(0.80 - 0.89)
2003	1.01	(0.97 - 1.07)	1.20	(1.14 - 1.27)	0.98	(0.92 - 1.04)	0.84	(0.80 - 0.89)
2004	1.00	(0.95 - 1.05)	1.17	(1.11 - 1.24)	1.08	(1.02 - 1.14)	0.80	(0.76 - 0.85)
2005	1.02	(0.97 - 1.07)	1.12	(1.06 - 1.19)	1.05	(0.99 - 1.11)	0.84	(0.80 - 0.89)
2006	1.08	(1.03 - 1.14)	1.17	(1.11 - 1.23)	1.00	(0.94 - 1.05)	0.78	(0.74 - 0.82)
2007	1.10	(1.05 - 1.15)	1.14	(1.08 - 1.20)	0.98	(0.93 - 1.04)	0.79	(0.74 - 0.83)
2008	1.01	(0.97 - 1.06)	1.10	(1.04 - 1.16)	1.04	(0.99 - 1.10)	0.87	(0.83 - 0.92)
2009	1.03	(0.98 - 1.08)	1.10	(1.05 - 1.16)	1.12	(1.06 - 1.18)	0.79	(0.75 - 0.84)
2010	1.08	(1.03 - 1.13)	1.06	(1.01 - 1.12)	1.10	(1.05 - 1.16)	0.78	(0.74 - 0.82)
2011	0.98	(0.94 - 1.03)	1.08	(1.03 - 1.14)	1.11	(1.06 - 1.17)	0.87	(0.82 - 0.91)
2012	1.03	(0.99 - 1.07)	1.08	(1.02 - 1.13)	1.06	(1.01 - 1.12)	0.86	(0.81 - 0.90)
2013	0.99	(0.94 - 1.03)	1.03	(0.98 - 1.08)	1.16	(1.10 - 1.21)	0.87	(0.82 - 0.91)
2014	1.02	(0.98 - 1.06)	1.04	(0.99 - 1.09)	1.13	(1.07 - 1.18)	0.84	(0.80 - 0.88)
2015	1.01	(0.97 - 1.05)	1.03	(0.98 - 1.08)	1.11	(1.06 - 1.17)	0.87	(0.83 - 0.91)
2016	1.01	(0.97 - 1.06)	1.10	(1.05 - 1.16)	1.07	(1.02 - 1.12)	0.84	(0.80 - 0.88)
2017	1.01	(0.97 - 1.05)	1.16	(1.11 - 1.22)	1.03	(0.99 - 1.08)	0.82	(0.78 - 0.86)
2018	1.03	(0.99 - 1.07)	1.09	(1.04 - 1.14)	1.02	(0.98 - 1.07)	0.87	(0.83 - 0.91)
2019	1.01	(0.97 - 1.05)	1.04	(1.00 - 1.09)	1.12	(1.07 - 1.17)	0.86	(0.82 - 0.89)
2020	1.01	(0.97 - 1.04)	1.07	(1.02 - 1.11)	1.07	(1.02 - 1.12)	0.88	(0.84 - 0.92)
2021	1.02	(0.99 - 1.06)	1.12	(1.07 - 1.17)	1.03	(0.98 - 1.08)	0.85	(0.81 - 0.88)
2022	1.07	(1.03 - 1.11)	1.05	(1.01 - 1.10)	1.01	(0.96 - 1.06)	0.86	(0.83 - 0.90)

Table A94. I50 heart failure hospitalisation numbers, rates, and rate ratios to total rate, by health district, 2022

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	11007	221.2	221.2	(217.1-225.4)	1.00	Baseline
Northland	558	290.1	245.2	(225.1-266.8)	1.11	(1.02 - 1.21)
Waitematā	1228	195.5	213.6	(201.8-225.8)	0.97	(0.91 - 1.02)
Auckland	881	187.2	224.7	(210.0-240.0)	1.02	(0.95 - 1.09)
Counties Manukau	1183	203.4	267.5	(252.3-283.4)	1.21	(1.14 - 1.28)
Waikato	1112	255.9	251.6	(237.0-266.8)	1.14	(1.07 - 1.21)
Lakes	282	247.0	243.4	(215.7-273.5)	1.10	(0.97 - 1.24)
Bay of Plenty	583	223.3	185.1	(170.3-200.9)	0.84	(0.77 - 0.91)
Tairāwhiti	176	346.4	354.4	(303.9-410.8)	1.60	(1.37 - 1.86)
Taranaki	326	260.4	224.6	(200.9-250.6)	1.02	(0.91 - 1.13)
Hawke's Bay	454	260.3	229.5	(208.8-251.8)	1.04	(0.94 - 1.14)
Whanganui	268	395.8	320.2	(282.9-361.3)	1.45	(1.28 - 1.64)
MidCentral	530	287.7	254.8	(233.5-277.6)	1.15	(1.05 - 1.26)
Capital, Coast & Hutt Valley	837	180.7	197.4	(184.2-211.2)	0.89	(0.83 - 0.96)
Wairarapa	107	218.2	167.5	(137.1-203.2)	0.76	(0.62 - 0.92)
Nelson Marlborough	301	189.4	143.6	(127.7-161.0)	0.65	(0.58 - 0.73)
West Coast	108	325.2	265.5	(217.3-322.0)	1.20	(0.98 - 1.46)
Canterbury	1076	184.5	179.2	(168.6-190.2)	0.81	(0.76 - 0.86)
South Canterbury	206	338.8	249.9	(216.8-287.2)	1.13	(0.98 - 1.30)
Southern	791	231.4	215.6	(200.8-231.2)	0.97	(0.91 - 1.05)

Table A95. I50 heart failure hospitalisation rates and rate ratios by GCH, 2022

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	6145	192.2	192.2	(187.4-197.0)	1	Baseline
U2	2440	269.4	210.5	(202.2-219.2)	1.1	(1.04-1.15)
R1	1540	249.7	180.1	(171.1-189.5)	0.94	(0.89-0.99)
R2	743	255.4	188.1	(174.5-202.4)	0.98	(0.90-1.06)
R3	139	281.4	198.7	(166.1-236.4)	1.03	(0.86-1.23)

MORTALITY

Table A96. Median age at death by condition and demography, 2016 – 2020.

	Total	IHD	I21	I25	I42	I48	I50
Total	83	82	82	83	69	87	89
Sex							
Male	80	79	78	79	68	85	87
Female	87	87	86	88	73	88	90
Ethnic group							
European/Other	85	84	84	85	75	88	90
Māori	69	69	68	69	61	77	82
Pacific Peoples	69	69	70	68	55	78	83
Asian Peoples	77	76	76	75	72	85	89
NZDep quintile							
NZDep 1 - 2	84	83	82	84	74	87	89.5
NZDep 3 - 4	85	84	83	84	75	88	90
NZDep 5 - 6	85	84	83	85	72	88	90
NZDep 7 - 8	84	83	82	83	68	87	89
NZDep 9 - 10	80	79	78	79	65	85	87

TOTAL HEART DISEASE MORTALITY

Table A97. Total heart disease mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	7541	195.5	258.0	(252.2-264.0)
2001	7856	202.4	260.8	(255.0-266.7)
2002	7865	199.2	254.9	(249.2-260.7)
2003	7722	191.7	244.0	(238.5-249.5)
2004	7817	191.2	241.1	(235.8-246.6)
2005	7290	176.3	218.1	(213.1-223.2)
2006	7445	177.9	217.1	(212.1-222.1)
2007	7023	166.3	198.4	(193.8-203.2)
2008	7087	166.4	194.9	(190.3-199.5)
2009	7063	164.2	190.5	(186.0-195.0)
2010	7002	160.9	182.5	(178.2-186.8)
2011	7076	161.4	178.9	(174.7-183.1)
2012	6989	158.6	171.9	(167.9-176.0)
2013	6654	149.8	159.7	(155.9-163.6)
2014	6882	152.4	159.9	(156.2-163.8)
2015	6856	148.7	155.3	(151.6-159.0)
2016	6652	141.1	145.9	(142.4-149.4)
2017	7063	146.7	150.5	(147.0-154.1)
2018	6889	140.6	143.6	(140.2-147.0)
2019	7087	142.6	144.1	(140.8-147.5)
2020	6651	131.1	131.1	(128.0-134.3)

Table A98. Total heart disease mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	3942	330.5	3599	200.3	0.61	(0.58-0.63)
2001	3988	327.1	3868	209.8	0.64	(0.61-0.67)
2002	4028	318.1	3837	202.0	0.63	(0.61-0.66)
2003	3897	299.3	3825	196.0	0.65	(0.63-0.69)
2004	4008	299.9	3809	190.3	0.63	(0.61-0.66)
2005	3697	267.7	3593	175.8	0.66	(0.63-0.69)
2006	3800	272.2	3645	173.3	0.64	(0.61-0.67)
2007	3622	244.8	3401	158.8	0.65	(0.62-0.68)
2008	3624	239.3	3463	157.4	0.66	(0.63-0.69)
2009	3694	237.1	3369	149.5	0.63	(0.60-0.66)
2010	3580	222.3	3422	149.2	0.67	(0.64-0.70)
2011	3608	217.9	3468	147.5	0.68	(0.65-0.71)
2012	3675	215.0	3314	137.9	0.64	(0.61-0.67)
2013	3556	201.7	3098	127.0	0.63	(0.60-0.66)
2014	3679	202.5	3203	128.0	0.63	(0.60-0.66)
2015	3582	190.6	3274	127.7	0.67	(0.64-0.70)
2016	3603	185.0	3049	115.8	0.63	(0.60-0.66)
2017	3876	192.8	3187	118.7	0.62	(0.59-0.65)
2018	3804	183.2	3085	112.3	0.61	(0.58-0.64)
2019	3902	183.5	3185	113.8	0.62	(0.59-0.65)
2020	3671	169.1	2980	105.0	0.62	(0.59-0.65)

Table A99. Total heart disease mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	56	2.8	478	43.5	670	198.1	1439	574.1	5235	2581.4
2001	48	2.4	444	40.0	646	184.5	1396	554.6	5632	2696.5
2002	54	2.7	448	39.7	664	179.8	1363	537.5	5684	2657.4
2003	46	2.3	453	39.4	609	157.1	1222	477.1	5730	2610.1
2004	44	2.2	457	39.1	624	154.5	1205	463.4	5834	2598.0
2005	57	2.8	426	35.9	602	143.9	1095	410.8	5480	2384.5
2006	45	2.2	387	32.1	591	137.5	1085	393.5	5776	2448.3
2007	43	2.1	454	37.3	590	133.8	1101	386.3	5285	2199.4
2008	51	2.5	409	33.3	571	125.1	1020	350.7	5541	2268.8
2009	46	2.2	398	32.3	540	114.9	1071	356.5	5531	2231.1
2010	49	2.4	392	31.7	582	120.3	982	315.2	5500	2182.7
2011	48	2.3	368	29.9	595	119.7	993	306.6	5679	2216.6
2012	48	2.3	399	32.6	562	111.4	1052	307.4	5518	2115.9
2013	38	1.8	394	32.3	540	105.3	1016	282.4	5263	1977.2
2014	34	1.6	414	33.9	551	105.0	1002	267.0	5557	2033.5
2015	34	1.6	336	27.3	532	98.9	1069	275.1	5559	1973.7
2016	41	1.8	358	28.9	593	106.9	1042	260.6	5253	1798.6
2017	52	2.3	378	30.2	625	109.4	1111	270.0	5595	1850.8
2018	45	1.9	385	30.4	632	107.6	1095	256.6	5426	1760.7
2019	40	1.7	384	30.1	635	106.0	1094	248.8	5629	1773.9
2020	48	2.0	334	25.8	613	100.1	1111	243.1	5221	1586.2

Table A100. Total heart disease mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	6531	91.5	677	221.1	213	155.9	103	67.3	20	138.9
2001	6824	91.0	682	211.0	236	165.5	113	63.8	11	72.0
2002	6818	89.2	693	204.5	227	153.0	122	62.1	15	84.8
2003	6750	85.1	631	178.4	222	141.0	109	50.5	23	140.3
2004	6805	83.7	637	171.6	239	143.6	123	51.3	24	127.2
2005	6249	74.5	685	177.5	228	127.9	112	42.1	23	120.1
2006	6407	72.2	677	170.5	233	126.7	104	38.6	33	143.4
2007	5884	66.1	714	165.6	249	127.8	130	42.6	51	237.8
2008	6052	65.1	655	145.9	233	113.0	135	39.2	19	80.2
2009	6030	63.6	661	143.1	230	107.1	131	36.0	18	72.0
2010	5995	62.5	621	127.1	221	98.3	162	41.0	18	66.1
2011	6032	60.8	635	125.5	260	110.8	154	36.4	11	36.6
2012	5887	57.6	657	123.7	268	108.1	180	39.8	14	52.0
2013	5530	53.4	709	127.2	245	95.8	168	35.0	19	68.6
2014	5648	52.2	751	126.1	299	111.7	186	34.4	20	60.8
2015	5688	51.4	710	112.8	268	93.9	181	30.6	20	53.2
2016	5404	47.9	765	113.6	274	91.0	190	28.7	29	68.4
2017	5718	50.4	787	109.9	312	97.7	226	31.6	30	63.4
2018	5500	47.6	816	108.5	328	98.1	229	29.6	26	51.4
2019	5691	48.4	842	106.1	304	86.6	235	28.3	26	46.8
2020	5254	43.3	836	99.6	293	79.2	250	27.6	25	41.5

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A101. Total heart disease mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.42	(2.22-2.62)	1.70	(1.47-1.96)	0.74	(0.60-0.90)	1.52	(0.89-2.39)
2001	2.32	(2.13-2.52)	1.82	(1.58-2.08)	0.70	(0.57-0.85)	0.79	(0.37-1.43)
2002	2.29	(2.11-2.49)	1.72	(1.49-1.96)	0.70	(0.57-0.83)	0.95	(0.51-1.59)
2003	2.10	(1.92-2.28)	1.66	(1.44-1.90)	0.59	(0.48-0.72)	1.65	(1.03-2.47)
2004	2.05	(1.88-2.23)	1.72	(1.50-1.96)	0.61	(0.51-0.73)	1.52	(0.95-2.27)
2005	2.38	(2.19-2.59)	1.72	(1.49-1.96)	0.57	(0.46-0.68)	1.61	(1.01-2.42)
2006	2.36	(2.17-2.56)	1.75	(1.53-2.00)	0.53	(0.43-0.65)	1.98	(1.34-2.81)
2007	2.50	(2.31-2.71)	1.93	(1.69-2.20)	0.64	(0.54-0.77)	3.59	(2.65-4.74)
2008	2.24	(2.06-2.44)	1.74	(1.51-1.98)	0.60	(0.50-0.72)	1.23	(0.73-1.92)
2009	2.25	(2.07-2.44)	1.68	(1.47-1.92)	0.57	(0.47-0.67)	1.13	(0.66-1.79)
2010	2.03	(1.87-2.22)	1.57	(1.37-1.80)	0.66	(0.56-0.77)	1.06	(0.61-1.68)
2011	2.06	(1.89-2.25)	1.82	(1.60-2.07)	0.60	(0.51-0.70)	0.60	(0.29-1.08)
2012	2.15	(1.97-2.33)	1.88	(1.65-2.13)	0.69	(0.59-0.80)	0.90	(0.49-1.50)
2013	2.38	(2.19-2.58)	1.79	(1.57-2.04)	0.66	(0.56-0.77)	1.28	(0.77-1.98)
2014	2.42	(2.23-2.61)	2.14	(1.89-2.41)	0.66	(0.57-0.77)	1.16	(0.70-1.79)
2015	2.20	(2.02-2.38)	1.83	(1.61-2.07)	0.60	(0.51-0.69)	1.04	(0.63-1.59)
2016	2.37	(2.19-2.56)	1.90	(1.67-2.15)	0.60	(0.51-0.69)	1.43	(0.95-2.05)
2017	2.18	(2.02-2.36)	1.94	(1.72-2.18)	0.63	(0.55-0.72)	1.26	(0.84-1.80)
2018	2.28	(2.11-2.46)	2.06	(1.83-2.31)	0.62	(0.54-0.71)	1.08	(0.70-1.58)
2019	2.19	(2.03-2.36)	1.79	(1.59-2.01)	0.58	(0.51-0.67)	0.97	(0.63-1.42)
2020	2.30	(2.13-2.48)	1.83	(1.62-2.06)	0.64	(0.56-0.73)	0.96	(0.62-1.41)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A102. Total heart disease mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	937	164.3	1187	200.4	1664	261.5	1906	313.5	1586	307.9
2001	976	168.2	1198	198.5	1682	259.3	2075	329.2	1659	310.0
2002	1007	170.9	1245	201.5	1664	252.3	1978	302.9	1693	302.5
2003	966	161.8	1364	215.8	1672	248.0	1993	293.5	1689	291.0
2004	1056	174.1	1214	188.4	1674	244.5	2109	299.8	1726	285.1
2005	957	156.2	1146	173.9	1591	227.3	1958	269.5	1603	254.8
2006	976	157.7	1193	177.9	1578	221.8	2040	273.0	1630	252.2
2007	903	141.2	1094	158.7	1562	214.7	1879	244.1	1551	236.6
2008	900	137.4	1148	163.0	1511	202.8	1913	241.6	1569	237.1
2009	946	140.6	1162	161.2	1443	189.8	1916	237.2	1558	234.6
2010	903	131.3	1102	149.0	1441	185.4	1833	221.8	1686	251.3
2011	947	133.8	1118	148.5	1423	179.6	1842	217.7	1698	251.1
2012	915	127.1	1122	145.4	1372	169.5	1830	211.5	1708	250.5
2013	881	117.6	1041	132.1	1403	169.9	1690	191.9	1599	232.9
2014	866	116.7	1104	133.0	1394	160.1	1809	195.1	1685	235.8
2015	942	127.3	1104	127.7	1495	163.7	1706	176.1	1581	212.7
2016	830	111.6	1211	133.9	1439	149.9	1529	152.6	1600	207.3
2017	860	115.2	1274	135.3	1496	149.5	1631	156.0	1760	219.3
2018	907	121.2	1241	126.9	1471	140.7	1585	146.7	1637	197.0
2019	934	117.4	1308	129.7	1475	138.8	1672	154.4	1655	197.3
2020	868	103.3	1206	116.2	1427	132.2	1599	146.9	1533	180.6

Table A103. Total heart disease mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.22	(1.12 - 1.33)	1.59	(1.47 - 1.73)	1.91	(1.76 - 2.07)	1.87	(1.73 - 2.04)
2001	1.18	(1.08 - 1.29)	1.54	(1.42 - 1.67)	1.96	(1.81 - 2.11)	1.84	(1.70 - 2.00)
2002	1.18	(1.08 - 1.28)	1.48	(1.36 - 1.60)	1.77	(1.64 - 1.91)	1.77	(1.64 - 1.92)
2003	1.33	(1.23 - 1.45)	1.53	(1.42 - 1.66)	1.81	(1.68 - 1.96)	1.80	(1.66 - 1.95)
2004	1.08	(1.00 - 1.18)	1.40	(1.30 - 1.52)	1.72	(1.60 - 1.86)	1.64	(1.52 - 1.77)
2005	1.11	(1.02 - 1.21)	1.46	(1.34 - 1.58)	1.73	(1.60 - 1.87)	1.63	(1.50 - 1.77)
2006	1.13	(1.04 - 1.23)	1.41	(1.30 - 1.53)	1.73	(1.60 - 1.87)	1.60	(1.48 - 1.73)
2007	1.12	(1.03 - 1.23)	1.52	(1.40 - 1.65)	1.73	(1.60 - 1.87)	1.68	(1.54 - 1.82)
2008	1.19	(1.09 - 1.30)	1.48	(1.36 - 1.61)	1.76	(1.62 - 1.91)	1.73	(1.59 - 1.88)
2009	1.15	(1.05 - 1.25)	1.35	(1.24 - 1.47)	1.69	(1.56 - 1.83)	1.67	(1.54 - 1.81)
2010	1.14	(1.04 - 1.24)	1.41	(1.30 - 1.54)	1.69	(1.56 - 1.83)	1.91	(1.76 - 2.08)
2011	1.11	(1.02 - 1.21)	1.34	(1.24 - 1.46)	1.63	(1.50 - 1.76)	1.88	(1.73 - 2.03)
2012	1.14	(1.05 - 1.25)	1.33	(1.23 - 1.45)	1.66	(1.54 - 1.80)	1.97	(1.82 - 2.14)
2013	1.12	(1.03 - 1.23)	1.44	(1.33 - 1.57)	1.63	(1.50 - 1.77)	1.98	(1.82 - 2.15)
2014	1.14	(1.04 - 1.25)	1.37	(1.26 - 1.50)	1.67	(1.54 - 1.82)	2.02	(1.86 - 2.20)
2015	1.00	(0.92 - 1.10)	1.29	(1.18 - 1.40)	1.38	(1.28 - 1.50)	1.67	(1.54 - 1.81)
2016	1.20	(1.10 - 1.31)	1.34	(1.23 - 1.47)	1.37	(1.26 - 1.49)	1.86	(1.71 - 2.02)
2017	1.17	(1.08 - 1.28)	1.30	(1.19 - 1.41)	1.35	(1.25 - 1.47)	1.90	(1.75 - 2.07)
2018	1.05	(0.96 - 1.14)	1.16	(1.07 - 1.26)	1.21	(1.11 - 1.32)	1.63	(1.50 - 1.77)
2019	1.10	(1.01 - 1.20)	1.18	(1.09 - 1.29)	1.31	(1.21 - 1.43)	1.68	(1.55 - 1.82)
2020	1.12	(1.03 - 1.23)	1.28	(1.17 - 1.39)	1.42	(1.31 - 1.55)	1.75	(1.61 - 1.90)

Table A104. Total heart disease mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	868	91.1	103.3	(96.5-110.5)	1.00	Baseline
3 - 4	1206	124.9	116.2	(109.7-122.9)	1.12	(1.03-1.23)
5 - 6	1427	146.1	132.2	(125.4-139.2)	1.28	(1.17-1.39)
7 - 8	1599	159.7	146.9	(139.8-154.3)	1.42	(1.31-1.55)
9 - 10	1533	147.3	180.6	(171.6-189.8)	1.75	(1.61-1.90)

Table A105. Total heart disease mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	2150	235.6	1551	262.7	1709	277.6	2071	256.9
2001	2250	238.9	1721	282.4	1715	271.4	2112	254.3
2002	2238	232.9	1704	273.9	1648	254.4	2223	259.5
2003	2237	225.1	1662	260.0	1658	250.7	2128	243.2
2004	2200	217.2	1699	256.3	1664	246.3	2214	248.3
2005	2079	198.0	1593	232.1	1613	233.4	1970	214.5
2006	2088	194.7	1696	240.3	1621	229.5	2012	212.3
2007	2010	181.7	1581	216.1	1476	202.7	1921	197.0
2008	2054	181.4	1603	211.5	1483	199.0	1903	188.8
2009	1891	163.4	1480	192.7	1486	194.5	1881	184.3
2010	1850	153.9	1479	186.0	1425	181.5	1897	179.6
2011	1952	156.4	1426	173.5	1395	171.4	1947	181.6
2012	1834	141.7	1470	172.9	1468	176.4	1868	170.7
2013	1792	134.8	1391	160.4	1346	157.4	1748	156.4
2014	1842	133.5	1453	161.5	1438	163.7	1778	154.4
2015	1698	120.6	1445	155.6	1459	161.5	1706	144.5
2016	1687	115.9	1407	146.3	1337	144.2	1574	128.8
2017	1713	113.9	1475	147.7	1451	152.9	1738	139.6
2018	1787	115.5	1504	146.7	1287	133.2	1608	127.2
2019	1743	109.8	1538	145.9	1424	144.0	1655	128.0
2020	1655	101.0	1439	132.0	1301	128.3	1611	120.5

Table A106. Total heart disease mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.92	(0.88 - 0.97)	1.03	(0.97 - 1.08)	1.08	(1.03 - 1.14)	1.00	(0.95 - 1.05)
2001	0.92	(0.88 - 0.97)	1.09	(1.03 - 1.15)	1.05	(0.99 - 1.10)	0.98	(0.94 - 1.03)
2002	0.92	(0.88 - 0.96)	1.08	(1.02 - 1.14)	1.00	(0.95 - 1.06)	1.02	(0.98 - 1.07)
2003	0.93	(0.88 - 0.97)	1.07	(1.01 - 1.13)	1.03	(0.98 - 1.09)	1.00	(0.95 - 1.05)
2004	0.91	(0.86 - 0.95)	1.07	(1.01 - 1.13)	1.03	(0.97 - 1.08)	1.03	(0.99 - 1.09)
2005	0.91	(0.87 - 0.96)	1.07	(1.01 - 1.13)	1.08	(1.02 - 1.14)	0.99	(0.94 - 1.04)
2006	0.90	(0.86 - 0.95)	1.11	(1.05 - 1.17)	1.06	(1.00 - 1.12)	0.98	(0.93 - 1.03)
2007	0.92	(0.87 - 0.97)	1.09	(1.04 - 1.16)	1.03	(0.97 - 1.09)	1.00	(0.95 - 1.05)
2008	0.94	(0.89 - 0.98)	1.09	(1.03 - 1.15)	1.03	(0.97 - 1.09)	0.97	(0.93 - 1.03)
2009	0.90	(0.85 - 0.95)	1.06	(1.00 - 1.12)	1.07	(1.01 - 1.13)	1.01	(0.96 - 1.07)
2010	0.89	(0.84 - 0.93)	1.07	(1.01 - 1.13)	1.05	(0.99 - 1.11)	1.04	(0.98 - 1.09)
2011	0.92	(0.87 - 0.97)	1.02	(0.96 - 1.08)	1.01	(0.95 - 1.07)	1.07	(1.01 - 1.12)
2012	0.87	(0.82 - 0.91)	1.06	(1.00 - 1.12)	1.08	(1.02 - 1.14)	1.04	(0.99 - 1.10)
2013	0.89	(0.85 - 0.94)	1.06	(1.00 - 1.13)	1.04	(0.98 - 1.11)	1.04	(0.98 - 1.10)
2014	0.88	(0.84 - 0.93)	1.07	(1.01 - 1.13)	1.08	(1.02 - 1.15)	1.02	(0.97 - 1.08)
2015	0.84	(0.80 - 0.89)	1.09	(1.03 - 1.15)	1.13	(1.07 - 1.20)	1.01	(0.96 - 1.07)
2016	0.88	(0.83 - 0.93)	1.11	(1.05 - 1.18)	1.10	(1.03 - 1.16)	0.98	(0.92 - 1.03)
2017	0.84	(0.79 - 0.88)	1.09	(1.03 - 1.15)	1.13	(1.06 - 1.19)	1.03	(0.97 - 1.08)
2018	0.90	(0.85 - 0.94)	1.14	(1.07 - 1.20)	1.03	(0.97 - 1.10)	0.99	(0.93 - 1.04)
2019	0.85	(0.80 - 0.90)	1.13	(1.07 - 1.19)	1.11	(1.05 - 1.18)	0.99	(0.94 - 1.04)
2020	0.85	(0.81 - 0.90)	1.11	(1.05 - 1.18)	1.08	(1.02 - 1.15)	1.02	(0.96 - 1.08)

Table A107. Total heart disease mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	6006	121.6	125.4	(122.3-128.6)	1.00	Baseline
Northland	295	156.0	135.2	(120.1-151.6)	1.08	(0.96 - 1.21)
Waitematā	470	75.6	85.2	(77.7-93.3)	0.68	(0.62 - 0.75)
Auckland	417	86.5	109.8	(99.5-120.9)	0.88	(0.79 - 0.97)
Counties Manukau	473	82.4	118.1	(107.5-129.3)	0.94	(0.85 - 1.03)
Waikato	575	134.4	135.4	(124.6-147.0)	1.08	(0.99 - 1.18)
Lakes	186	163.4	167.6	(144.4-193.5)	1.34	(1.15 - 1.55)
Bay of Plenty	365	142.8	116.7	(105.0-129.4)	0.93	(0.83 - 1.04)
Tairāwhiti	83	165.5	175.0	(139.3-216.9)	1.40	(1.11 - 1.73)
Taranaki	230	186.6	164.1	(143.6-186.9)	1.31	(1.14 - 1.49)
Hawke's Bay	255	147.1	131.6	(115.9-148.9)	1.05	(0.92 - 1.19)
Whanganui	131	195.1	163.2	(136.3-194.1)	1.30	(1.08 - 1.55)
MidCentral	318	173.8	156.8	(140.0-175.1)	1.25	(1.11 - 1.40)
Capital, Coast & Hutt Valley	512	109.7	124.0	(113.5-135.3)	0.99	(0.90 - 1.08)
Wairarapa	85	177.4	135.8	(108.4-168.7)	1.08	(0.86 - 1.35)
Nelson Marlborough	294	187.0	146.0	(129.8-163.9)	1.16	(1.03 - 1.31)
West Coast	47	143.0	126.0	(92.3-168.4)	1.00	(0.74 - 1.34)
Canterbury	639	111.7	110.4	(102.0-119.3)	0.88	(0.81 - 0.96)
South Canterbury	117	192.3	141.8	(117.1-170.7)	1.13	(0.93 - 1.36)
Southern	514	151.4	142.2	(130.1-155.0)	1.13	(1.03 - 1.24)

Table A108. Total heart disease mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	3511	109.8	109.8	(106.2-113.5)	1.00	Baseline
U2	1580	174.5	133.0	(126.5-139.8)	1.21	(1.14-1.29)
R1	973	157.7	110.9	(104.0-118.2)	1.01	(0.94-1.09)
R2	473	162.6	113.6	(103.5-124.6)	1.04	(0.94-1.14)
R3	93	188.3	131.5	(105.5-162.6)	1.20	(0.96-1.49)

IHD MORTALITY

Table A109. Total IHD mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	5993	155.3	204.1	(198.9-209.3)
2001	6335	163.3	209.5	(204.3-214.8)
2002	6297	159.5	203.7	(198.7-208.9)
2003	6162	153.0	194.3	(189.5-199.3)
2004	6326	154.8	194.8	(190.0-199.7)
2005	5840	141.3	174.5	(170.0-179.0)
2006	5940	141.9	173.1	(168.7-177.6)
2007	5586	132.3	157.9	(153.8-162.1)
2008	5504	129.2	151.4	(147.4-155.5)
2009	5532	128.6	149.1	(145.2-153.1)
2010	5401	124.1	140.9	(137.1-144.7)
2011	5557	126.8	140.8	(137.1-144.6)
2012	5329	120.9	131.2	(127.7-134.8)
2013	4997	112.5	120.0	(116.7-123.4)
2014	5094	112.8	118.4	(115.2-121.7)
2015	4998	108.4	113.2	(110.1-116.4)
2016	4701	99.7	103.2	(100.3-106.2)
2017	4861	101.0	103.7	(100.8-106.7)
2018	4666	95.2	97.4	(94.6-100.2)
2019	4702	94.6	95.7	(92.9-98.4)
2020	4299	84.8	84.8	(82.2-87.3)

Table A110. Total IHD mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	3296	284.9	2697	156.6	0.55	(0.52-0.58)
2001	3343	281.3	2992	169.3	0.60	(0.57-0.63)
2002	3349	273.3	2948	161.8	0.59	(0.56-0.62)
2003	3213	254.9	2949	157.3	0.62	(0.59-0.65)
2004	3372	260.3	2954	153.6	0.59	(0.56-0.62)
2005	3090	232.1	2750	140.3	0.60	(0.57-0.64)
2006	3140	232.2	2800	138.6	0.60	(0.57-0.63)
2007	2987	208.4	2599	126.4	0.61	(0.57-0.64)
2008	2940	201.4	2564	121.5	0.60	(0.57-0.64)
2009	3030	201.1	2502	115.8	0.57	(0.54-0.61)
2010	2895	186.1	2506	113.9	0.61	(0.58-0.64)
2011	2965	185.5	2592	114.6	0.62	(0.58-0.65)
2012	2938	178.0	2391	103.8	0.58	(0.55-0.61)
2013	2799	165.1	2198	94.1	0.57	(0.54-0.60)
2014	2841	162.1	2253	93.8	0.58	(0.54-0.61)
2015	2770	152.8	2228	90.8	0.59	(0.56-0.63)
2016	2696	143.1	2005	79.8	0.55	(0.52-0.59)
2017	2874	147.7	1987	77.6	0.52	(0.49-0.55)
2018	2795	139.1	1871	71.5	0.51	(0.48-0.54)
2019	2765	134.1	1937	72.5	0.54	(0.51-0.57)
2020	2587	123.3	1712	63.3	0.51	(0.48-0.54)

Table A111. Total IHD mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	13	0.7	344	31.3	539	159.3	1174	468.4	3923	1934.4
2001	7	0.4	337	30.4	517	147.6	1182	469.6	4292	2055.0
2002	15	0.8	313	27.7	525	142.1	1115	439.7	4329	2023.9
2003	12	0.6	341	29.7	462	119.2	993	387.7	4354	1983.3
2004	12	0.6	335	28.7	505	125.0	971	373.4	4503	2005.3
2005	17	0.8	305	25.7	481	115.0	871	326.7	4166	1812.7
2006	10	0.5	283	23.5	472	109.9	845	306.5	4330	1835.4
2007	11	0.5	340	27.9	460	104.3	862	302.4	3913	1628.4
2008	12	0.6	284	23.2	439	96.2	760	261.3	4009	1641.5
2009	17	0.8	278	22.6	420	89.3	815	271.3	4002	1614.4
2010	9	0.4	266	21.5	434	89.7	746	239.5	3946	1566.0
2011	8	0.4	244	19.8	470	94.5	749	231.3	4086	1594.8
2012	13	0.6	260	21.2	416	82.4	781	228.2	3859	1479.7
2013	6	0.3	227	18.6	412	80.3	711	197.6	3641	1367.8
2014	5	0.2	264	21.6	384	73.2	717	191.0	3724	1362.8
2015	10	0.5	203	16.5	387	71.9	741	190.7	3657	1298.4
2016	6	0.3	232	18.7	422	76.1	726	181.5	3315	1135.0
2017	12	0.5	234	18.7	429	75.1	743	180.5	3443	1138.9
2018	5	0.2	238	18.8	460	78.3	727	170.4	3236	1050.1
2019	9	0.4	226	17.7	447	74.6	733	166.7	3287	1035.9
2020	8	0.3	201	15.5	393	64.2	736	161.1	2961	899.6

Table A112. Total IHD mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	5239	74.8	499	166.7	148	108.4	92	59.9	18	125.3
2001	5571	76.0	501	157.9	171	121.8	92	52.4	9	54.5
2002	5523	73.2	504	151.1	163	112.8	104	53.0	12	69.7
2003	5416	68.9	470	133.9	171	109.9	96	45.2	19	114.5
2004	5564	69.2	469	128.4	185	112.4	101	41.8	16	89.4
2005	5055	60.8	506	132.8	167	96.3	101	38.3	17	88.7
2006	5139	58.6	527	134.9	168	92.5	88	32.8	26	116.5
2007	4710	53.7	536	125.6	191	99.1	113	36.9	41	191.4
2008	4727	51.3	487	109.8	170	83.8	112	33.2	13	57.3
2009	4762	51.1	472	102.9	172	80.4	118	32.5	15	58.3
2010	4665	48.8	443	90.8	156	70.7	135	33.9	12	47.4
2011	4778	48.5	469	94.2	190	82.8	124	29.2	9	32.7
2012	4561	45.4	459	87.0	182	75.4	131	28.6	11	40.3
2013	4203	40.9	484	88.0	172	68.7	140	29.4	12	43.0
2014	4235	39.7	500	84.4	210	79.4	151	28.0	14	42.9
2015	4165	38.4	493	78.5	190	67.8	144	24.2	16	43.1
2016	3823	35.0	527	78.3	187	63.0	151	22.9	20	47.8
2017	3980	36.0	490	68.4	214	67.9	169	23.6	16	34.6
2018	3758	34.1	503	66.9	219	66.1	174	22.7	19	38.1
2019	3774	33.3	545	68.7	191	55.2	186	22.5	16	29.8
2020	3423	29.1	500	59.6	179	49.0	178	19.6	22	36.4

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A113. Total IHD mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.23	(2.02-2.45)	1.45	(1.22-1.71)	0.80	(0.64-0.99)	1.67	(0.95-2.69)
2001	2.08	(1.89-2.28)	1.60	(1.36-1.87)	0.69	(0.55-0.85)	0.72	(0.31-1.38)
2002	2.06	(1.87-2.27)	1.54	(1.31-1.80)	0.72	(0.59-0.88)	0.95	(0.47-1.68)
2003	1.94	(1.76-2.14)	1.59	(1.36-1.86)	0.66	(0.53-0.80)	1.66	(0.98-2.59)
2004	1.86	(1.68-2.04)	1.62	(1.39-1.88)	0.60	(0.49-0.74)	1.29	(0.72-2.09)
2005	2.18	(1.98-2.40)	1.58	(1.34-1.85)	0.63	(0.51-0.77)	1.46	(0.84-2.33)
2006	2.30	(2.09-2.52)	1.58	(1.34-1.84)	0.56	(0.45-0.69)	1.99	(1.27-2.93)
2007	2.34	(2.13-2.56)	1.84	(1.58-2.13)	0.69	(0.56-0.83)	3.56	(2.53-4.84)
2008	2.14	(1.94-2.36)	1.63	(1.39-1.91)	0.65	(0.53-0.78)	1.12	(0.58-1.90)
2009	2.02	(1.82-2.22)	1.57	(1.34-1.84)	0.64	(0.52-0.76)	1.14	(0.63-1.88)
2010	1.86	(1.68-2.06)	1.45	(1.22-1.70)	0.69	(0.58-0.83)	0.97	(0.50-1.68)
2011	1.94	(1.76-2.14)	1.71	(1.47-1.98)	0.60	(0.50-0.72)	0.67	(0.30-1.26)
2012	1.91	(1.73-2.11)	1.66	(1.42-1.93)	0.63	(0.52-0.75)	0.89	(0.44-1.56)
2013	2.15	(1.95-2.37)	1.68	(1.43-1.96)	0.72	(0.60-0.85)	1.05	(0.54-1.80)
2014	2.12	(1.93-2.33)	2.00	(1.73-2.30)	0.71	(0.59-0.83)	1.08	(0.58-1.80)
2015	2.05	(1.86-2.25)	1.77	(1.52-2.05)	0.63	(0.53-0.75)	1.12	(0.64-1.81)
2016	2.24	(2.03-2.46)	1.80	(1.54-2.09)	0.65	(0.55-0.77)	1.37	(0.83-2.10)
2017	1.90	(1.72-2.09)	1.89	(1.63-2.17)	0.66	(0.56-0.77)	0.96	(0.54-1.56)
2018	1.96	(1.78-2.16)	1.94	(1.68-2.22)	0.67	(0.57-0.78)	1.12	(0.67-1.74)
2019	2.07	(1.88-2.27)	1.66	(1.42-1.92)	0.68	(0.58-0.79)	0.90	(0.51-1.45)
2020	2.05	(1.86-2.26)	1.68	(1.44-1.96)	0.67	(0.58-0.79)	1.25	(0.78-1.90)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A114. Total IHD mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	744	130.1	966	163.0	1330	208.7	1519	249.8	1234	240.4
2001	787	135.6	967	160.2	1352	208.1	1680	266.3	1335	250.1
2002	809	137.3	1009	163.1	1326	201.1	1586	243.1	1340	240.4
2003	768	128.5	1078	170.7	1319	196.0	1629	239.7	1338	231.1
2004	852	140.4	992	154.2	1349	197.1	1707	242.9	1392	230.8
2005	759	123.8	923	140.1	1273	182.2	1588	218.7	1264	201.6
2006	778	125.6	977	145.5	1259	176.9	1615	216.7	1291	200.5
2007	709	110.8	874	126.8	1230	169.0	1534	199.4	1211	185.3
2008	696	106.4	891	126.5	1173	157.7	1489	188.2	1218	185.2
2009	732	108.5	918	127.2	1130	148.9	1500	186.1	1218	183.9
2010	719	104.2	860	116.2	1118	143.9	1415	172.0	1261	188.9
2011	760	107.0	898	119.2	1127	142.4	1405	166.6	1328	197.4
2012	700	96.7	881	114.1	1058	130.8	1372	159.4	1285	189.3
2013	673	89.8	797	101.1	1071	130.0	1261	143.4	1165	170.5
2014	650	87.1	812	97.7	1037	119.2	1352	146.2	1223	171.8
2015	701	94.0	806	93.2	1068	117.1	1254	129.9	1149	154.9
2016	595	78.9	856	94.6	1012	105.7	1086	109.1	1117	144.8
2017	579	76.6	892	94.7	1010	101.3	1118	107.7	1237	154.8
2018	645	85.0	825	84.2	993	95.4	1055	98.5	1113	134.3
2019	612	75.8	873	86.5	970	91.9	1133	105.4	1082	129.2
2020	558	65.4	763	73.4	939	87.3	1040	96.1	980	115.8

Table A115. Total IHD mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8			NZDep 9 - 10
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.25	(1.14 - 1.38)	1.60	(1.47 - 1.76)	1.92	(1.76 - 2.1)	1.85	(1.68 - 2.03)
2001	1.18	(1.07 - 1.3)	1.53	(1.4 - 1.68)	1.96	(1.8 - 2.14)	1.84	(1.69 - 2.02)
2002	1.19	(1.08 - 1.31)	1.46	(1.34 - 1.6)	1.77	(1.63 - 1.93)	1.75	(1.6 - 1.91)
2003	1.33	(1.21 - 1.46)	1.53	(1.39 - 1.67)	1.87	(1.71 - 2.04)	1.80	(1.64 - 1.97)
2004	1.10	(1 - 1.21)	1.40	(1.29 - 1.53)	1.73	(1.59 - 1.88)	1.64	(1.51 - 1.79)
2005	1.13	(1.03 - 1.25)	1.47	(1.34 - 1.61)	1.77	(1.62 - 1.93)	1.63	(1.49 - 1.78)
2006	1.16	(1.05 - 1.28)	1.41	(1.29 - 1.54)	1.73	(1.58 - 1.88)	1.60	(1.46 - 1.75)
2007	1.14	(1.04 - 1.27)	1.53	(1.39 - 1.68)	1.80	(1.65 - 1.97)	1.67	(1.52 - 1.84)
2008	1.19	(1.08 - 1.31)	1.48	(1.35 - 1.63)	1.77	(1.62 - 1.94)	1.74	(1.58 - 1.91)
2009	1.17	(1.06 - 1.29)	1.37	(1.25 - 1.51)	1.72	(1.57 - 1.88)	1.69	(1.54 - 1.86)
2010	1.12	(1.01 - 1.23)	1.38	(1.26 - 1.52)	1.65	(1.51 - 1.81)	1.81	(1.65 - 1.99)
2011	1.11	(1.01 - 1.23)	1.33	(1.21 - 1.46)	1.56	(1.42 - 1.7)	1.85	(1.69 - 2.02)
2012	1.18	(1.07 - 1.31)	1.35	(1.23 - 1.49)	1.65	(1.5 - 1.81)	1.96	(1.78 - 2.15)
2013	1.13	(1.01 - 1.25)	1.45	(1.31 - 1.6)	1.60	(1.45 - 1.76)	1.90	(1.72 - 2.09)
2014	1.12	(1.01 - 1.25)	1.37	(1.24 - 1.51)	1.68	(1.53 - 1.85)	1.97	(1.79 - 2.17)
2015	0.99	(0.89 - 1.1)	1.25	(1.13 - 1.37)	1.38	(1.26 - 1.52)	1.65	(1.5 - 1.81)
2016	1.20	(1.08 - 1.33)	1.34	(1.21 - 1.49)	1.38	(1.25 - 1.53)	1.83	(1.66 - 2.03)
2017	1.24	(1.11 - 1.38)	1.32	(1.19 - 1.47)	1.41	(1.27 - 1.56)	2.02	(1.83 - 2.24)
2018	0.99	(0.89 - 1.1)	1.12	(1.01 - 1.24)	1.16	(1.05 - 1.28)	1.58	(1.43 - 1.75)
2019	1.14	(1.03 - 1.27)	1.21	(1.09 - 1.34)	1.39	(1.26 - 1.54)	1.70	(1.54 - 1.89)
2020	1.12	(1 - 1.26)	1.34	(1.2 - 1.49)	1.47	(1.32 - 1.63)	1.77	(1.59 - 1.97)

Table A116. Total IHD mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	558	58.5	65.4	(60.0-71.1)	1.00	Baseline
3 - 4	763	79.1	73.4	(68.3-78.8)	1.12	(1.00-1.26)
5 - 6	939	96.2	87.3	(81.8-93.1)	1.34	(1.20-1.49)
7 - 8	1040	103.9	96.1	(90.3-102.2)	1.47	(1.32-1.63)
9 - 10	980	94.2	115.8	(108.6-123.3)	1.77	(1.59-1.97)

Table A117. Total IHD mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	1698	185.5	1204	202.3	1363	220.8	1679	206.8
2001	1807	192.6	1366	222.4	1405	221.1	1708	204.4
2002	1804	187.9	1340	214.2	1285	198.4	1825	212.2
2003	1787	180.5	1320	204.9	1322	199.5	1704	194.0
2004	1767	174.2	1357	203.7	1338	198.2	1828	204.4
2005	1667	159.3	1260	183.1	1275	184.1	1605	174.2
2006	1672	156.2	1301	184.0	1329	188.3	1618	170.5
2007	1613	146.3	1255	171.3	1165	160.2	1524	156.1
2008	1615	143.3	1202	158.3	1187	159.7	1462	144.7
2009	1479	128.1	1125	146.2	1153	150.5	1511	147.8
2010	1411	117.7	1102	138.1	1115	142.3	1500	142.1
2011	1552	125.0	1097	133.6	1091	134.1	1535	143.4
2012	1384	107.4	1086	127.2	1128	136.0	1461	133.6
2013	1368	103.5	1000	115.0	1011	118.2	1338	119.9
2014	1349	98.3	1054	117.0	1075	122.5	1341	116.5
2015	1253	89.2	1036	111.4	1055	117.0	1260	106.8
2016	1189	81.8	967	100.6	940	101.6	1141	93.5
2017	1204	80.3	989	99.1	998	105.4	1211	97.6
2018	1207	78.2	1004	97.9	864	89.6	1118	88.6
2019	1168	73.6	992	94.1	920	93.1	1125	87.2
2020	1070	65.3	868	79.5	848	83.7	1066	79.8

Table A118. Total IHD mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.92	(0.87 - 0.97)	1.00	(0.94 - 1.06)	1.09	(1.03 - 1.16)	1.02	(0.97 - 1.08)
2001	0.93	(0.88 - 0.98)	1.07	(1.01 - 1.13)	1.06	(1.00 - 1.13)	0.98	(0.93 - 1.04)
2002	0.93	(0.88 - 0.98)	1.06	(1.00 - 1.12)	0.98	(0.92 - 1.04)	1.05	(0.99 - 1.11)
2003	0.93	(0.88 - 0.98)	1.06	(1.00 - 1.12)	1.03	(0.97 - 1.10)	1.00	(0.95 - 1.06)
2004	0.90	(0.85 - 0.95)	1.05	(0.99 - 1.12)	1.02	(0.96 - 1.09)	1.06	(1.00 - 1.11)
2005	0.92	(0.87 - 0.97)	1.06	(0.99 - 1.12)	1.06	(1.00 - 1.13)	1.00	(0.95 - 1.06)
2006	0.90	(0.86 - 0.96)	1.07	(1.00 - 1.13)	1.09	(1.03 - 1.16)	0.99	(0.93 - 1.04)
2007	0.93	(0.88 - 0.98)	1.09	(1.02 - 1.16)	1.02	(0.96 - 1.09)	0.99	(0.94 - 1.05)
2008	0.95	(0.90 - 1.01)	1.05	(0.99 - 1.12)	1.06	(1.00 - 1.13)	0.96	(0.91 - 1.02)
2009	0.90	(0.85 - 0.96)	1.03	(0.96 - 1.10)	1.06	(0.99 - 1.13)	1.04	(0.98 - 1.10)
2010	0.88	(0.83 - 0.93)	1.03	(0.97 - 1.10)	1.06	(0.99 - 1.13)	1.06	(1.00 - 1.13)
2011	0.93	(0.88 - 0.99)	1.00	(0.94 - 1.07)	1.00	(0.94 - 1.07)	1.07	(1.01 - 1.14)
2012	0.86	(0.81 - 0.91)	1.02	(0.96 - 1.09)	1.09	(1.02 - 1.16)	1.07	(1.01 - 1.14)
2013	0.91	(0.86 - 0.97)	1.01	(0.95 - 1.09)	1.04	(0.97 - 1.12)	1.06	(0.99 - 1.13)
2014	0.88	(0.83 - 0.93)	1.04	(0.98 - 1.12)	1.09	(1.02 - 1.17)	1.04	(0.98 - 1.10)
2015	0.86	(0.80 - 0.91)	1.07	(1.00 - 1.14)	1.12	(1.05 - 1.20)	1.02	(0.96 - 1.09)
2016	0.88	(0.82 - 0.94)	1.08	(1.01 - 1.16)	1.09	(1.02 - 1.17)	1.01	(0.94 - 1.07)
2017	0.85	(0.80 - 0.91)	1.05	(0.98 - 1.13)	1.12	(1.05 - 1.20)	1.04	(0.97 - 1.11)
2018	0.89	(0.84 - 0.95)	1.12	(1.04 - 1.20)	1.02	(0.95 - 1.10)	1.01	(0.95 - 1.08)
2019	0.86	(0.81 - 0.92)	1.10	(1.03 - 1.18)	1.09	(1.01 - 1.17)	1.02	(0.95 - 1.09)
2020	0.86	(0.80 - 0.92)	1.05	(0.97 - 1.13)	1.10	(1.02 - 1.19)	1.05	(0.98 - 1.13)

Table A119. Total IHD mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	3852	78.0	80.5	(77.9-83.0)	1.00	Baseline
Northland	167	88.3	75.9	(64.8-88.4)	0.94	(0.80 - 1.1)
Waitematā	326	52.4	59.3	(53.0-66.1)	0.74	(0.66 - 0.83)
Auckland	273	56.7	71.8	(63.5-80.9)	0.89	(0.79 - 1.01)
Counties Manukau	304	52.9	76.4	(68.0-85.5)	0.95	(0.84 - 1.07)
Waikato	330	77.1	77.5	(69.4-86.4)	0.96	(0.86 - 1.08)
Lakes	110	96.6	98.7	(81.1-119.0)	1.23	(1.01 - 1.48)
Bay of Plenty	215	84.1	69.0	(60.1-79.0)	0.86	(0.74 - 0.99)
Tairāwhiti	54	107.7	112.8	(84.7-147.2)	1.40	(1.05 - 1.83)
Taranaki	159	129.0	114.0	(97.0-133.3)	1.42	(1.20 - 1.66)
Hawke's Bay	181	104.4	93.2	(80.1-107.9)	1.16	(0.99 - 1.35)
Whanganui	85	126.6	105.8	(84.4-131.2)	1.31	(1.05 - 1.64)
MidCentral	216	118.1	106.6	(92.9-121.9)	1.33	(1.15 - 1.52)
Capital, Coast & Hutt Valley	309	66.2	74.8	(66.6-83.6)	0.93	(0.82 - 1.04)
Wairarapa	57	118.9	89.9	(68.1-117.1)	1.12	(0.84 - 1.46)
Nelson Marlborough	191	121.5	94.6	(81.7-109.2)	1.18	(1.01 - 1.36)
West Coast	37	112.6	98.7	(69.3-137.0)	1.23	(0.86 - 1.71)
Canterbury	430	75.2	74.4	(67.5-81.8)	0.92	(0.83 - 1.02)
South Canterbury	79	129.8	94.9	(75.0-118.9)	1.18	(0.93 - 1.48)
Southern	329	96.9	91.0	(81.4-101.4)	1.13	(1.01 - 1.27)

Table A120. Total IHD mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	2263	70.8	70.8	(67.9-73.7)	1.00	Baseline
U2	1034	114.2	86.8	(81.6-92.3)	1.23	(1.14-1.32)
R1	634	102.8	72.4	(66.8-78.4)	1.02	(0.94-1.12)
R2	290	99.7	70.2	(62.3-79.0)	0.99	(0.87-1.12)
R3	58	117.4	81.5	(61.4-106.8)	1.15	(0.87-1.51)

I21 AMI MORTALITY

Table A121. I21 AMI mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	3016	78.2	102.1	(98.4-105.8)
2001	3179	81.9	104.8	(101.1-108.5)
2002	3252	82.4	104.7	(101.1-108.4)
2003	3154	78.3	98.9	(95.5-102.5)
2004	3217	78.7	98.9	(95.5-102.4)
2005	3007	72.7	89.7	(86.5-93.0)
2006	2907	69.5	84.4	(81.4-87.6)
2007	2742	64.9	77.5	(74.6-80.5)
2008	2666	62.6	73.1	(70.3-75.9)
2009	2634	61.2	70.7	(68.0-73.5)
2010	2514	57.8	65.6	(63.0-68.2)
2011	2562	58.4	64.9	(62.4-67.5)
2012	2394	54.3	58.9	(56.5-61.3)
2013	2265	51.0	54.4	(52.2-56.7)
2014	2236	49.5	52.0	(49.9-54.2)
2015	2141	46.4	48.6	(46.5-50.7)
2016	2130	45.2	46.8	(44.9-48.9)
2017	2195	45.6	46.9	(45.0-49.0)
2018	2010	41.0	42.0	(40.2-43.9)
2019	1990	40.0	40.5	(38.7-42.3)
2020	1825	36.0	36.0	(34.3-37.7)

Table A122. I21 AMI mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	1660	145.6	1356	80.7	0.55	(0.51-0.59)
2001	1701	144.8	1478	85.5	0.59	(0.55-0.63)
2002	1710	142.2	1542	86.3	0.61	(0.56-0.65)
2003	1637	131.9	1517	82.4	0.62	(0.58-0.67)
2004	1730	135.1	1487	79.0	0.58	(0.54-0.63)
2005	1586	120.8	1421	74.3	0.61	(0.57-0.66)
2006	1561	116.9	1346	68.2	0.58	(0.54-0.63)
2007	1454	102.5	1288	64.3	0.63	(0.58-0.68)
2008	1435	100.2	1231	59.5	0.59	(0.55-0.64)
2009	1439	96.6	1195	56.7	0.58	(0.54-0.63)
2010	1380	89.9	1134	53.1	0.59	(0.54-0.64)
2011	1404	88.9	1158	52.7	0.59	(0.54-0.64)
2012	1315	80.8	1079	48.2	0.59	(0.55-0.64)
2013	1283	76.9	982	43.3	0.56	(0.51-0.61)
2014	1229	71.3	1007	43.1	0.60	(0.55-0.65)
2015	1216	68.1	925	39.1	0.57	(0.52-0.62)
2016	1200	65.0	930	38.2	0.58	(0.53-0.64)
2017	1297	67.7	898	36.0	0.53	(0.48-0.57)
2018	1172	59.4	838	33.0	0.55	(0.50-0.60)
2019	1176	57.9	814	31.4	0.54	(0.49-0.59)
2020	1098	53.2	727	27.7	0.51	(0.47-0.57)

Table A123. I21 AMI mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	9	0.5	153	13.9	282	83.4	633	252.5	1939	956.1
2001	3	0.2	166	15.0	281	80.2	624	247.9	2105	1007.9
2002	4	0.2	148	13.1	239	64.7	603	237.8	2258	1055.7
2003	4	0.2	143	12.4	222	57.3	516	201.4	2269	1033.6
2004	2	0.1	146	12.5	280	69.3	524	201.5	2265	1008.6
2005	7	0.3	144	12.2	274	65.5	492	184.6	2090	909.4
2006	4	0.2	130	10.8	220	51.2	447	162.1	2106	892.7
2007	7	0.3	144	11.8	225	51.0	445	156.1	1921	799.5
2008	6	0.3	122	9.9	193	42.3	363	124.8	1982	811.5
2009	6	0.3	124	10.1	205	43.6	409	136.1	1890	762.4
2010	2	0.1	117	9.5	208	43.0	380	122.0	1807	717.1
2011	4	0.2	111	9.0	218	43.8	382	118.0	1847	720.9
2012	8	0.4	117	9.6	188	37.3	373	109.0	1708	654.9
2013	5	0.2	103	8.5	181	35.3	335	93.1	1641	616.5
2014	3	0.1	108	8.8	179	34.1	336	89.5	1610	589.2
2015	8	0.4	85	6.9	186	34.6	337	86.7	1525	541.4
2016	2	0.1	97	7.8	188	33.9	347	86.8	1496	512.2
2017	7	0.3	84	6.7	197	34.5	355	86.3	1552	513.4
2018	4	0.2	101	8.0	173	29.5	330	77.3	1402	454.9
2019	2	0.1	96	7.5	195	32.6	333	75.7	1364	429.9
2020	2	0.1	80	6.2	167	27.3	345	75.5	1231	374.0

Table A124. I21 AMI mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	2640	38.4	247	82.4	64	48.0	55	36.5	10	69.4
2001	2791	38.8	268	85.0	72	50.0	48	27.8	6	34.0
2002	2886	38.3	253	76.2	68	48.2	43	22.1	7	41.8
2003	2798	35.4	230	66.0	73	46.8	47	22.8	9	54.9
2004	2825	35.5	253	69.2	82	51.6	50	21.6	11	61.1
2005	2592	32.1	264	70.0	89	52.9	54	20.5	9	44.1
2006	2527	29.1	247	62.2	77	43.3	48	18.3	10	44.0
2007	2307	26.4	268	63.3	90	46.3	60	19.8	20	91.2
2008	2301	24.8	220	49.4	73	36.4	68	20.7	7	29.9
2009	2262	24.7	230	50.7	73	34.8	62	17.0	8	30.4
2010	2165	23.2	200	41.3	79	35.7	66	16.7	7	27.1
2011	2187	22.7	217	43.1	88	38.4	73	17.3	4	13.3
2012	2039	20.8	208	39.4	77	31.6	69	14.8	7	26.6
2013	1901	18.9	224	40.8	79	31.4	65	13.8	3	11.1
2014	1858	17.7	220	37.2	88	33.2	71	13.1	6	19.3
2015	1766	16.9	212	33.9	96	34.2	64	10.7	8	21.2
2016	1720	15.7	238	35.4	98	33.1	71	10.7	9	22.1
2017	1806	16.5	202	28.3	96	30.6	85	11.9	9	19.7
2018	1625	14.7	197	26.2	93	27.7	90	11.6	10	19.4
2019	1586	14.2	227	28.6	81	23.7	95	11.5	7	13.0
2020	1465	12.9	187	22.3	80	21.8	82	9.1	14	23.6

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A125. I21 AMI mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.14	(1.87-2.45)	1.25	(0.95-1.61)	0.95	(0.71-1.24)	1.81	(0.80-3.38)
2001	2.19	(1.92-2.49)	1.29	(1.00-1.63)	0.72	(0.52-0.96)	0.88	(0.29-1.95)
2002	1.99	(1.73-2.27)	1.26	(0.97-1.60)	0.58	(0.42-0.78)	1.09	(0.42-2.25)
2003	1.87	(1.62-2.14)	1.32	(1.03-1.67)	0.64	(0.47-0.86)	1.55	(0.69-2.92)
2004	1.95	(1.70-2.22)	1.45	(1.15-1.81)	0.61	(0.45-0.80)	1.72	(0.84-3.06)
2005	2.18	(1.90-2.48)	1.65	(1.31-2.04)	0.64	(0.47-0.84)	1.37	(0.61-2.59)
2006	2.14	(1.86-2.44)	1.49	(1.16-1.86)	0.63	(0.46-0.83)	1.51	(0.70-2.79)
2007	2.40	(2.09-2.73)	1.75	(1.40-2.17)	0.75	(0.57-0.97)	3.45	(2.07-5.33)
2008	1.99	(1.72-2.30)	1.47	(1.14-1.86)	0.83	(0.64-1.06)	1.21	(0.46-2.47)
2009	2.05	(1.77-2.36)	1.41	(1.10-1.78)	0.69	(0.52-0.89)	1.23	(0.51-2.42)
2010	1.78	(1.52-2.06)	1.54	(1.21-1.93)	0.72	(0.55-0.92)	1.17	(0.46-2.36)
2011	1.90	(1.64-2.20)	1.70	(1.35-2.10)	0.77	(0.60-0.97)	0.59	(0.15-1.48)
2012	1.90	(1.63-2.19)	1.52	(1.19-1.91)	0.71	(0.55-0.91)	1.28	(0.51-2.56)
2013	2.15	(1.86-2.48)	1.66	(1.3-2.08)	0.73	(0.56-0.94)	0.59	(0.12-1.61)
2014	2.10	(1.81-2.42)	1.87	(1.49-2.32)	0.74	(0.57-0.94)	1.09	(0.4-2.29)
2015	2.01	(1.73-2.33)	2.02	(1.62-2.49)	0.63	(0.49-0.82)	1.26	(0.53-2.44)
2016	2.25	(1.95-2.59)	2.11	(1.69-2.59)	0.68	(0.52-0.86)	1.40	(0.64-2.62)
2017	1.72	(1.47-1.99)	1.86	(1.49-2.28)	0.72	(0.57-0.90)	1.19	(0.54-2.24)
2018	1.78	(1.52-2.07)	1.88	(1.5-2.32)	0.79	(0.63-0.98)	1.32	(0.62-2.42)
2019	2.02	(1.74-2.33)	1.67	(1.31-2.09)	0.81	(0.65-1.00)	0.92	(0.36-1.87)
2020	1.72	(1.46-2.01)	1.68	(1.32-2.11)	0.70	(0.55-0.88)	1.82	(0.99-3.05)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A126. I21 AMI mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	347	61.0	456	76.8	701	109.8	801	131.4	604	117.2
2001	374	64.1	493	81.8	682	105.0	849	134.8	676	126.8
2002	418	71.1	545	88.2	693	104.8	818	125.2	661	118.2
2003	401	67.3	566	89.8	653	96.6	811	119.3	703	121.3
2004	421	69.5	523	81.4	684	100.1	869	123.9	700	116.6
2005	375	60.9	498	75.7	644	92.1	822	113.7	649	103.6
2006	360	58.2	476	70.8	649	91.3	781	105.0	629	97.5
2007	343	53.8	456	66.4	593	81.7	770	100.2	567	86.9
2008	356	54.4	433	61.6	567	76.3	719	90.7	574	87.4
2009	337	49.7	440	60.8	540	71.3	702	87.3	596	90.4
2010	344	50.1	392	53.0	535	68.9	634	77.4	596	89.2
2011	361	50.6	424	56.0	502	63.5	632	75.4	623	92.6
2012	324	44.7	421	54.2	464	57.4	594	69.2	572	84.3
2013	307	40.5	340	43.0	466	56.7	588	67.1	552	80.7
2014	265	35.6	374	44.9	485	55.9	564	60.9	537	75.6
2015	318	42.0	357	41.2	451	49.5	520	54.3	488	65.8
2016	261	34.2	385	42.6	460	48.1	496	50.1	510	66.3
2017	262	34.7	413	43.9	461	46.5	498	48.4	547	68.6
2018	267	35.2	344	35.1	435	42.0	456	42.8	495	59.9
2019	282	34.4	389	38.5	372	35.2	480	44.8	454	54.3
2020	250	29.0	333	32.0	393	36.8	431	40.0	407	48.2

Table A127. I21 AMI mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.26	(1.09 - 1.45)	1.80	(1.58 - 2.06)	2.15	(1.9 - 2.45)	1.92	(1.68 - 2.20)
2001	1.28	(1.11 - 1.46)	1.64	(1.44 - 1.86)	2.10	(1.86 - 2.38)	1.98	(1.74 - 2.25)
2002	1.24	(1.09 - 1.41)	1.48	(1.30 - 1.67)	1.76	(1.56 - 1.99)	1.66	(1.47 - 1.88)
2003	1.33	(1.17 - 1.52)	1.44	(1.27 - 1.63)	1.77	(1.57 - 2.00)	1.80	(1.59 - 2.04)
2004	1.17	(1.03 - 1.34)	1.44	(1.27 - 1.63)	1.78	(1.59 - 2.01)	1.68	(1.48 - 1.90)
2005	1.24	(1.08 - 1.42)	1.51	(1.33 - 1.72)	1.87	(1.65 - 2.11)	1.70	(1.49 - 1.94)
2006	1.22	(1.06 - 1.40)	1.57	(1.38 - 1.79)	1.81	(1.59 - 2.05)	1.68	(1.47 - 1.91)
2007	1.23	(1.07 - 1.42)	1.52	(1.33 - 1.74)	1.86	(1.64 - 2.12)	1.62	(1.41 - 1.85)
2008	1.13	(0.98 - 1.31)	1.40	(1.23 - 1.61)	1.67	(1.47 - 1.90)	1.61	(1.41 - 1.84)
2009	1.22	(1.06 - 1.41)	1.43	(1.25 - 1.65)	1.75	(1.54 - 2.01)	1.82	(1.59 - 2.08)
2010	1.06	(0.91 - 1.23)	1.38	(1.20 - 1.58)	1.55	(1.35 - 1.77)	1.78	(1.56 - 2.04)
2011	1.11	(0.96 - 1.28)	1.25	(1.09 - 1.44)	1.49	(1.31 - 1.70)	1.83	(1.60 - 2.09)
2012	1.21	(1.05 - 1.41)	1.29	(1.11 - 1.49)	1.55	(1.35 - 1.78)	1.89	(1.64 - 2.17)
2013	1.06	(0.91 - 1.24)	1.40	(1.21 - 1.62)	1.66	(1.44 - 1.91)	1.99	(1.73 - 2.30)
2014	1.26	(1.08 - 1.49)	1.57	(1.35 - 1.83)	1.71	(1.48 - 1.99)	2.12	(1.83 - 2.47)
2015	0.98	(0.84 - 1.14)	1.18	(1.02 - 1.36)	1.29	(1.12 - 1.49)	1.57	(1.36 - 1.81)
2016	1.25	(1.06 - 1.47)	1.41	(1.21 - 1.65)	1.47	(1.26 - 1.71)	1.94	(1.67 - 2.26)
2017	1.27	(1.08 - 1.49)	1.34	(1.15 - 1.57)	1.39	(1.20 - 1.63)	1.98	(1.70 - 2.30)
2018	1.00	(0.85 - 1.18)	1.19	(1.02 - 1.40)	1.22	(1.04 - 1.43)	1.70	(1.46 - 1.99)
2019	1.12	(0.96 - 1.31)	1.02	(0.87 - 1.20)	1.30	(1.12 - 1.52)	1.58	(1.35 - 1.84)
2020	1.10	(0.93 - 1.31)	1.27	(1.08 - 1.49)	1.38	(1.18 - 1.62)	1.66	(1.41 - 1.96)

Table A128. I21 AMI mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	250	26.2	29.0	(25.5-32.9)	1.00	Baseline
3 - 4	333	34.5	32.0	(28.7-35.7)	1.10	(0.93-1.31)
5 - 6	393	40.2	36.8	(33.2-40.6)	1.27	(1.08-1.49)
7 - 8	431	43.1	40.0	(36.3-44.0)	1.38	(1.18-1.62)
9 - 10	407	39.1	48.2	(43.6-53.1)	1.66	(1.41-1.96)

Table A129. I21 AMI mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	771	84.4	624	103.7	683	109.8	917	112.3
2001	840	89.3	710	114.8	726	114.0	878	104.9
2002	831	87.4	683	107.6	709	108.9	1008	116.3
2003	828	84.5	693	106.3	686	103.0	927	104.3
2004	868	85.8	685	103.5	668	98.7	976	108.3
2005	846	81.2	625	90.6	679	97.5	838	90.9
2006	852	79.7	603	84.3	666	94.3	774	81.0
2007	799	72.4	605	82.6	565	78.1	759	77.9
2008	785	70.1	581	75.9	578	77.3	702	69.3
2009	701	60.8	573	74.1	536	70.0	692	67.1
2010	650	54.3	511	64.1	545	69.4	678	64.3
2011	724	58.4	530	64.3	491	60.3	680	63.4
2012	625	48.4	498	57.9	493	59.5	640	58.5
2013	592	44.7	473	54.2	439	51.5	632	56.7
2014	574	41.8	472	52.4	445	50.6	619	53.7
2015	525	37.5	466	50.0	409	45.6	552	46.9
2016	554	38.1	437	45.4	415	44.8	525	43.3
2017	526	35.3	516	51.7	400	42.2	528	42.7
2018	510	33.2	461	44.9	360	37.4	488	38.7
2019	500	31.7	459	43.6	359	36.4	472	36.7
2020	444	27.2	361	33.0	347	34.2	485	36.4

Table A130. I21 AMI mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.83	(0.77 - 0.90)	1.02	(0.94 - 1.12)	1.08	(0.99 - 1.18)	1.11	(1.03 - 1.19)
2001	0.86	(0.79 - 0.93)	1.10	(1.02 - 1.20)	1.10	(1.01 - 1.19)	1.01	(0.93 - 1.09)
2002	0.84	(0.78 - 0.91)	1.03	(0.95 - 1.12)	1.05	(0.96 - 1.14)	1.12	(1.04 - 1.20)
2003	0.86	(0.79 - 0.93)	1.08	(0.99 - 1.18)	1.05	(0.96 - 1.14)	1.06	(0.98 - 1.14)
2004	0.87	(0.81 - 0.94)	1.05	(0.97 - 1.14)	1.00	(0.92 - 1.09)	1.10	(1.02 - 1.18)
2005	0.91	(0.84 - 0.98)	1.02	(0.93 - 1.11)	1.09	(1.00 - 1.19)	1.02	(0.94 - 1.10)
2006	0.95	(0.88 - 1.02)	1.00	(0.92 - 1.10)	1.12	(1.03 - 1.22)	0.96	(0.89 - 1.04)
2007	0.94	(0.87 - 1.02)	1.07	(0.98 - 1.17)	1.01	(0.92 - 1.11)	1.01	(0.93 - 1.10)
2008	0.97	(0.89 - 1.05)	1.05	(0.95 - 1.15)	1.07	(0.97 - 1.17)	0.95	(0.88 - 1.04)
2009	0.90	(0.83 - 0.98)	1.10	(1.01 - 1.21)	1.04	(0.95 - 1.15)	1.00	(0.92 - 1.09)
2010	0.87	(0.80 - 0.95)	1.03	(0.93 - 1.13)	1.12	(1.01 - 1.23)	1.03	(0.95 - 1.13)
2011	0.95	(0.87 - 1.03)	1.05	(0.95 - 1.15)	0.98	(0.89 - 1.08)	1.03	(0.95 - 1.12)
2012	0.87	(0.80 - 0.95)	1.04	(0.94 - 1.15)	1.07	(0.97 - 1.18)	1.05	(0.96 - 1.15)
2013	0.87	(0.79 - 0.96)	1.06	(0.95 - 1.17)	1.00	(0.90 - 1.11)	1.11	(1.01 - 1.21)
2014	0.85	(0.78 - 0.94)	1.07	(0.96 - 1.18)	1.03	(0.93 - 1.14)	1.10	(1.00 - 1.20)
2015	0.85	(0.77 - 0.93)	1.13	(1.02 - 1.25)	1.03	(0.92 - 1.15)	1.06	(0.96 - 1.17)
2016	0.90	(0.82 - 0.99)	1.07	(0.96 - 1.19)	1.06	(0.95 - 1.18)	1.02	(0.92 - 1.12)
2017	0.84	(0.76 - 0.92)	1.23	(1.11 - 1.35)	1.00	(0.90 - 1.12)	1.01	(0.92 - 1.12)
2018	0.87	(0.79 - 0.96)	1.18	(1.06 - 1.31)	0.98	(0.88 - 1.10)	1.02	(0.92 - 1.13)
2019	0.87	(0.79 - 0.96)	1.20	(1.08 - 1.33)	1.00	(0.89 - 1.12)	1.01	(0.91 - 1.11)
2020	0.84	(0.76 - 0.94)	1.02	(0.91 - 1.15)	1.06	(0.94 - 1.19)	1.13	(1.02 - 1.25)

Table A131. I21 AMI mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	1637	33.2	34.2	(32.6-35.9)	1.00	Baseline
Northland	71	37.5	31.8	(24.8-40.2)	0.93	(0.72 - 1.18)
Waitematā	153	24.6	27.9	(23.6-32.7)	0.82	(0.69 - 0.96)
Auckland	91	18.9	24.3	(19.5-29.8)	0.71	(0.57 - 0.88)
Counties Manukau	129	22.5	32.8	(27.4-39.0)	0.96	(0.79 - 1.15)
Waikato	128	29.9	30.1	(25.1-35.7)	0.88	(0.73 - 1.05)
Lakes	51	44.8	45.5	(33.9-59.8)	1.33	(0.99 - 1.76)
Bay of Plenty	87	34.0	28.3	(22.6-35.0)	0.83	(0.66 - 1.03)
Tairāwhiti	21	41.9	44.2	(27.3-67.5)	1.29	(0.80 - 1.98)
Taranaki	74	60.0	53.5	(42.0-67.3)	1.56	(1.22 - 1.98)
Hawke's Bay	74	42.7	37.9	(29.8-47.7)	1.11	(0.87 - 1.40)
Whanganui	32	47.6	39.6	(27.0-56.2)	1.16	(0.79 - 1.65)
MidCentral	85	46.5	41.8	(33.4-51.8)	1.22	(0.97 - 1.52)
Capital, Coast & Hutt Valley	129	27.7	31.3	(26.1-37.2)	0.92	(0.76 - 1.10)
Wairarapa	27	56.3	42.5	(28.0-62.6)	1.24	(0.82 - 1.84)
Nelson Marlborough	78	49.6	38.6	(30.5-48.4)	1.13	(0.89 - 1.42)
West Coast	17	51.7	43.8	(25.4-71.2)	1.28	(0.74 - 2.09)
Canterbury	238	41.6	41.4	(36.3-47.0)	1.21	(1.05 - 1.39)
South Canterbury	25	41.1	30.6	(19.8-45.8)	0.89	(0.58 - 1.34)
Southern	127	37.4	35.3	(29.4-42.0)	1.03	(0.85 - 1.24)

Table A132. I21 AMI mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	991	31.0	31.0	(29.1-33.0)	1	Baseline
U2	431	47.6	36.4	(33.0-40.0)	1.17	(1.05-1.32)
R1	255	41.3	29.2	(25.7-33.1)	0.94	(0.82-1.08)
R2	121	41.6	29.0	(24.0-34.8)	0.94	(0.77-1.14)
R3	15	30.4	20.4	(11.3-35.0)	0.66	(0.36-1.14)

I25 SMI MORTALITY

Table A133. I25 SMI mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	2872	74.4	98.5	(94.8-102.2)
2001	3045	78.5	101.2	(97.6-104.9)
2002	2963	75.0	96.4	(92.9-100.0)
2003	2943	73.1	93.4	(90.0-96.8)
2004	3037	74.3	93.6	(90.3-97.1)
2005	2758	66.7	82.5	(79.4-85.6)
2006	2972	71.0	86.9	(83.8-90.1)
2007	2774	65.7	78.4	(75.5-81.4)
2008	2770	65.0	76.5	(73.6-79.4)
2009	2842	66.1	76.9	(74.1-79.8)
2010	2814	64.7	73.5	(70.8-76.3)
2011	2932	66.9	74.4	(71.7-77.1)
2012	2865	65.0	70.7	(68.1-73.3)
2013	2676	60.2	64.3	(61.9-66.8)
2014	2804	62.1	65.2	(62.8-67.7)
2015	2799	60.7	63.3	(61.0-65.7)
2016	2541	53.9	55.7	(53.6-57.9)
2017	2632	54.7	56.1	(53.9-58.2)
2018	2627	53.6	54.8	(52.7-56.9)
2019	2671	53.7	54.3	(52.3-56.4)
2020	2445	48.2	48.2	(46.3-50.2)

Table A134. I25 SMI mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	1569	137.9	1303	76.2	0.55	(0.51-0.59)
2001	1595	136.6	1450	82.8	0.60	(0.56-0.65)
2002	1599	131.9	1364	75.7	0.57	(0.53-0.62)
2003	1536	123.6	1407	75.9	0.61	(0.57-0.66)
2004	1601	125.7	1436	75.3	0.60	(0.56-0.64)
2005	1469	112.1	1289	66.1	0.59	(0.54-0.63)
2006	1544	116.2	1428	71.3	0.61	(0.57-0.66)
2007	1500	106.9	1274	62.4	0.58	(0.54-0.63)
2008	1470	101.9	1300	62.4	0.61	(0.57-0.66)
2009	1561	105.7	1281	59.8	0.56	(0.52-0.61)
2010	1469	96.3	1345	61.4	0.64	(0.59-0.69)
2011	1527	97.4	1405	62.5	0.64	(0.60-0.69)
2012	1583	97.6	1282	56.1	0.57	(0.53-0.62)
2013	1486	89.0	1190	51.4	0.57	(0.53-0.62)
2014	1589	91.9	1215	51.0	0.55	(0.51-0.59)
2015	1516	85.1	1283	52.5	0.61	(0.57-0.66)
2016	1480	79.5	1061	42.4	0.53	(0.49-0.57)
2017	1568	81.7	1064	42.0	0.51	(0.47-0.55)
2018	1613	81.3	1014	39.2	0.48	(0.44-0.52)
2019	1568	77.2	1103	41.7	0.53	(0.49-0.58)
2020	1479	71.6	966	36.1	0.50	(0.46-0.54)

Table A135. I25 SMI mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	4	0.2	185	16.8	244	72.1	520	207.5	1919	946.3
2001	4	0.2	165	14.9	229	65.4	539	214.1	2108	1009.3
2002	11	0.6	160	14.2	283	76.6	496	195.6	2013	941.1
2003	8	0.4	193	16.8	236	60.9	464	181.1	2042	930.2
2004	10	0.5	186	15.9	223	55.2	434	166.9	2184	972.6
2005	10	0.5	158	13.3	205	49.0	366	137.3	2019	878.5
2006	6	0.3	150	12.5	250	58.2	388	140.7	2178	923.2
2007	4	0.2	192	15.8	227	51.5	405	142.1	1946	809.9
2008	6	0.3	158	12.9	240	52.6	388	133.4	1978	809.9
2009	11	0.5	148	12.0	211	44.9	396	131.8	2076	837.4
2010	6	0.3	136	11.0	215	44.4	357	114.6	2100	833.4
2011	4	0.2	125	10.2	247	49.7	362	111.8	2194	856.4
2012	5	0.2	135	11.0	219	43.4	400	116.9	2106	807.5
2013	1	0.0	121	9.9	227	44.3	365	101.4	1962	737.1
2014	2	0.1	154	12.6	201	38.3	377	100.5	2070	757.5
2015	2	0.1	113	9.2	195	36.2	392	100.9	2097	744.5
2016	4	0.2	133	10.7	232	41.8	377	94.3	1795	614.6
2017	5	0.2	149	11.9	228	39.9	386	93.8	1864	616.6
2018	1	0.0	137	10.8	286	48.7	395	92.6	1808	586.7
2019	7	0.3	129	10.1	250	41.7	395	89.8	1890	595.6
2020	6	0.3	119	9.2	223	36.4	387	84.7	1710	519.5

Table A136. I25 SMI mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	2497	34.7	250	83.5	83	59.9	37	23.4	8	55.9
2001	2680	35.8	225	70.3	96	69.9	44	24.5	3	20.6
2002	2563	34.0	245	73.2	95	64.6	59	29.7	5	27.8
2003	2561	32.7	235	66.7	97	62.4	47	21.3	10	59.6
2004	2675	32.9	213	58.3	102	60.2	47	18.7	5	28.3
2005	2395	27.9	237	61.3	77	42.8	46	17.6	8	44.6
2006	2557	28.8	275	71.4	91	49.2	39	14.2	16	72.4
2007	2347	26.6	260	60.4	97	50.6	51	16.5	21	100.2
2008	2367	25.9	261	59.1	96	46.9	43	12.3	5	22.5
2009	2453	25.8	239	51.7	95	43.9	54	14.9	7	27.9
2010	2441	24.7	234	47.8	76	34.5	66	16.4	4	16.7
2011	2538	25.3	250	50.8	97	42.2	48	11.2	5	19.3
2012	2468	24.0	242	46.0	100	41.8	59	13.1	4	13.7
2013	2257	21.5	255	46.3	89	35.6	74	15.4	8	28.0
2014	2328	21.6	278	46.9	121	45.8	78	14.6	8	23.6
2015	2350	20.9	275	43.6	94	33.6	77	13.0	8	21.9
2016	2076	19.0	287	42.6	89	29.9	79	12.0	11	25.7
2017	2147	19.3	283	39.4	118	37.3	82	11.4	7	14.9
2018	2112	19.3	304	40.5	124	37.8	81	10.7	8	16.5
2019	2154	18.8	312	39.3	110	31.5	90	10.9	9	16.8
2020	1938	16.0	307	36.6	97	26.7	96	10.5	7	11.0

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A137. I25 SMI mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.40	(2.09-2.75)	1.73	(1.36-2.15)	0.67	(0.47-0.93)	1.61	(0.64-3.20)
2001	1.96	(1.7-2.26)	1.95	(1.57-2.39)	0.68	(0.49-0.92)	0.57	(0.11-1.61)
2002	2.15	(1.87-2.47)	1.90	(1.52-2.34)	0.87	(0.66-1.14)	0.82	(0.24-1.93)
2003	2.04	(1.77-2.34)	1.91	(1.54-2.34)	0.65	(0.47-0.87)	1.82	(0.85-3.32)
2004	1.77	(1.53-2.05)	1.83	(1.48-2.24)	0.57	(0.41-0.76)	0.86	(0.27-1.96)
2005	2.20	(1.90-2.52)	1.53	(1.20-1.93)	0.63	(0.46-0.85)	1.60	(0.68-3.08)
2006	2.48	(2.17-2.82)	1.71	(1.36-2.11)	0.49	(0.35-0.67)	2.51	(1.40-4.11)
2007	2.27	(1.98-2.59)	1.90	(1.53-2.33)	0.62	(0.46-0.82)	3.76	(2.30-5.73)
2008	2.29	(1.99-2.61)	1.81	(1.45-2.23)	0.48	(0.34-0.64)	0.87	(0.28-1.96)
2009	2.00	(1.74-2.30)	1.70	(1.36-2.09)	0.58	(0.43-0.75)	1.08	(0.42-2.02)
2010	1.94	(1.68-2.22)	1.40	(1.09-1.76)	0.66	(0.51-0.85)	0.68	(0.18-1.65)
2011	2.01	(1.75-2.29)	1.67	(1.34-2.04)	0.44	(0.32-0.59)	0.76	(0.25-1.71)
2012	1.91	(1.66-2.19)	1.74	(1.41-2.13)	0.54	(0.41-0.71)	0.57	(0.15-1.43)
2013	2.15	(1.87-2.45)	1.66	(1.32-2.05)	0.71	(0.56-0.90)	1.30	(0.56-2.50)
2014	2.17	(1.90-2.47)	2.12	(1.75-2.55)	0.68	(0.53-0.85)	1.10	(0.46-2.14)
2015	2.09	(1.83-2.37)	1.61	(1.29-1.98)	0.62	(0.49-0.78)	1.05	(0.45-2.02)
2016	2.24	(1.97-2.55)	1.57	(1.25-1.95)	0.63	(0.50-0.80)	1.35	(0.66-2.41)
2017	2.04	(1.79-2.32)	1.93	(1.59-2.33)	0.59	(0.47-0.74)	0.77	(0.30-1.59)
2018	2.10	(1.85-2.38)	1.96	(1.62-2.36)	0.56	(0.44-0.70)	0.86	(0.37-1.66)
2019	2.09	(1.84-2.36)	1.67	(1.36-2.03)	0.58	(0.46-0.72)	0.89	(0.41-1.68)
2020	2.29	(2.02-2.6)	1.67	(1.34-2.06)	0.66	(0.53-0.82)	0.69	(0.27-1.42)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A138. I25 SMI mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	386	67.3	487	82.4	604	94.9	699	115.3	605	118.4
2001	404	70.0	455	75.2	646	99.4	788	124.8	644	120.7
2002	378	64.1	447	72.1	619	94.1	748	114.9	664	119.5
2003	362	60.3	499	78.8	655	97.9	797	117.3	620	107.2
2004	422	69.4	459	71.2	644	93.9	815	115.7	683	112.7
2005	374	61.2	410	62.1	609	87.3	754	103.3	597	95.0
2006	405	65.3	484	72.1	602	84.5	820	109.8	653	101.7
2007	361	56.2	409	59.1	620	85.0	743	96.4	626	95.6
2008	333	50.9	446	63.2	591	79.4	752	95.2	628	95.4
2009	388	57.7	468	65.1	582	76.5	786	97.4	603	90.7
2010	361	52.2	459	62.0	573	73.8	760	92.0	648	97.4
2011	385	54.3	461	61.5	609	76.9	762	89.9	697	103.6
2012	368	51.0	442	57.6	579	71.5	761	88.1	702	103.4
2013	360	48.6	446	56.8	598	72.5	657	74.6	597	87.4
2014	376	50.3	429	51.7	540	61.9	778	84.2	672	94.3
2015	377	51.2	438	50.8	604	66.2	718	73.9	649	87.5
2016	331	44.3	463	51.1	543	56.6	587	58.7	600	77.6
2017	316	41.8	473	50.1	540	54.0	612	58.5	680	84.9
2018	373	49.0	476	48.6	551	52.8	594	55.2	611	73.6
2019	327	41.0	473	46.9	591	56.0	641	59.6	620	74.0
2020	304	35.9	425	40.9	536	49.6	607	55.9	565	66.6

Table A139. I25 SMI mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.22	(1.07 - 1.40)	1.41	(1.24 - 1.61)	1.71	(1.51 - 1.95)	1.76	(1.55 - 2.01)
2001	1.07	(0.94 - 1.23)	1.42	(1.25 - 1.61)	1.78	(1.58 - 2.02)	1.72	(1.52 - 1.96)
2002	1.13	(0.98 - 1.29)	1.47	(1.29 - 1.67)	1.79	(1.58 - 2.03)	1.86	(1.64 - 2.12)
2003	1.31	(1.14 - 1.50)	1.62	(1.43 - 1.85)	1.94	(1.72 - 2.21)	1.78	(1.56 - 2.03)
2004	1.03	(0.90 - 1.17)	1.35	(1.19 - 1.53)	1.67	(1.48 - 1.88)	1.62	(1.44 - 1.84)
2005	1.01	(0.88 - 1.17)	1.43	(1.25 - 1.63)	1.69	(1.49 - 1.92)	1.55	(1.36 - 1.77)
2006	1.11	(0.97 - 1.26)	1.30	(1.14 - 1.47)	1.68	(1.49 - 1.90)	1.56	(1.37 - 1.77)
2007	1.05	(0.91 - 1.22)	1.51	(1.33 - 1.73)	1.71	(1.51 - 1.95)	1.70	(1.49 - 1.94)
2008	1.24	(1.08 - 1.44)	1.56	(1.36 - 1.79)	1.87	(1.64 - 2.13)	1.87	(1.64 - 2.15)
2009	1.13	(0.98 - 1.29)	1.33	(1.16 - 1.51)	1.69	(1.49 - 1.91)	1.57	(1.38 - 1.79)
2010	1.19	(1.03 - 1.37)	1.41	(1.24 - 1.62)	1.76	(1.55 - 2.00)	1.86	(1.64 - 2.13)
2011	1.13	(0.99 - 1.30)	1.42	(1.24 - 1.61)	1.66	(1.46 - 1.88)	1.91	(1.68 - 2.17)
2012	1.13	(0.98 - 1.30)	1.40	(1.23 - 1.60)	1.73	(1.52 - 1.96)	2.03	(1.78 - 2.31)
2013	1.17	(1.01 - 1.35)	1.49	(1.31 - 1.70)	1.53	(1.35 - 1.75)	1.80	(1.58 - 2.06)
2014	1.03	(0.89 - 1.19)	1.23	(1.08 - 1.41)	1.68	(1.48 - 1.90)	1.88	(1.65 - 2.13)
2015	0.99	(0.86 - 1.14)	1.29	(1.14 - 1.48)	1.44	(1.27 - 1.64)	1.71	(1.50 - 1.95)
2016	1.15	(1.00 - 1.33)	1.28	(1.11 - 1.47)	1.32	(1.15 - 1.52)	1.75	(1.53 - 2.01)
2017	1.20	(1.04 - 1.39)	1.29	(1.12 - 1.49)	1.40	(1.22 - 1.61)	2.03	(1.77 - 2.33)
2018	0.99	(0.86 - 1.14)	1.08	(0.94 - 1.23)	1.13	(0.99 - 1.29)	1.50	(1.32 - 1.72)
2019	1.14	(0.99 - 1.32)	1.37	(1.19 - 1.57)	1.45	(1.27 - 1.67)	1.80	(1.57 - 2.07)
2020	1.14	(0.98 - 1.33)	1.38	(1.20 - 1.60)	1.56	(1.35 - 1.80)	1.86	(1.61 - 2.14)

Table A140. I25 SMI mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	304	31.9	35.9	(31.9-40.2)	1.00	Baseline
3 - 4	425	44.0	40.9	(37.1-45.0)	1.14	(0.98-1.33)
5 - 6	536	54.9	49.6	(45.5-54.0)	1.38	(1.20-1.60)
7 - 8	607	60.6	55.9	(51.5-60.6)	1.56	(1.35-1.80)
9 - 10	565	54.3	66.6	(61.3-72.4)	1.86	(1.61-2.14)

Table A141. I25 SMI mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	909	99.2	559	95.2	655	106.9	722	89.8
2001	942	100.5	634	104.1	645	102.0	801	96.3
2002	952	98.4	644	104.4	556	86.6	791	92.8
2003	944	94.4	616	96.8	615	93.6	759	87.7
2004	882	86.8	650	96.9	653	96.9	836	94.4
2005	798	75.8	625	91.0	575	83.8	746	80.9
2006	810	75.4	690	98.4	634	89.9	830	88.0
2007	797	72.3	633	86.3	580	79.4	749	76.6
2008	817	72.0	605	80.4	589	79.6	741	73.5
2009	767	66.5	543	70.9	602	78.4	800	79.0
2010	741	61.8	583	73.0	551	70.5	801	75.8
2011	805	64.9	561	68.7	593	72.9	832	77.9
2012	732	56.9	573	67.7	626	75.4	806	73.8
2013	759	57.5	512	59.1	560	65.3	696	62.3
2014	762	55.5	571	63.3	616	70.3	709	61.6
2015	715	50.8	557	60.0	634	69.9	692	58.4
2016	631	43.5	520	54.2	513	55.5	614	50.1
2017	668	44.3	470	47.1	591	62.4	670	53.8
2018	689	44.5	537	52.4	496	51.4	628	49.8
2019	659	41.4	526	49.9	548	55.4	646	50.0
2020	617	37.6	501	45.9	495	48.9	576	43.0

Table A142. I25 SMI mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.02	(0.94 - 1.10)	0.98	(0.89 - 1.07)	1.10	(1.00 - 1.19)	0.92	(0.85 - 1.00)
2001	1.00	(0.93 - 1.08)	1.04	(0.95 - 1.13)	1.02	(0.93 - 1.11)	0.96	(0.88 - 1.04)
2002	1.03	(0.95 - 1.11)	1.09	(1.00 - 1.19)	0.90	(0.82 - 0.99)	0.97	(0.89 - 1.05)
2003	1.01	(0.94 - 1.09)	1.04	(0.95 - 1.14)	1.00	(0.92 - 1.10)	0.94	(0.87 - 1.02)
2004	0.93	(0.86 - 1.01)	1.04	(0.95 - 1.13)	1.04	(0.95 - 1.13)	1.01	(0.94 - 1.09)
2005	0.92	(0.85 - 1.00)	1.11	(1.01 - 1.21)	1.02	(0.93 - 1.12)	0.99	(0.91 - 1.07)
2006	0.87	(0.80 - 0.94)	1.14	(1.04 - 1.23)	1.04	(0.95 - 1.13)	1.01	(0.94 - 1.10)
2007	0.93	(0.85 - 1.00)	1.11	(1.01 - 1.21)	1.02	(0.93 - 1.12)	0.98	(0.90 - 1.07)
2008	0.95	(0.87 - 1.03)	1.06	(0.97 - 1.16)	1.05	(0.96 - 1.15)	0.97	(0.89 - 1.05)
2009	0.91	(0.83 - 0.98)	0.97	(0.88 - 1.06)	1.07	(0.98 - 1.17)	1.08	(0.99 - 1.16)
2010	0.88	(0.81 - 0.96)	1.04	(0.95 - 1.14)	1.01	(0.92 - 1.11)	1.08	(1.00 - 1.17)
2011	0.92	(0.85 - 0.99)	0.97	(0.88 - 1.06)	1.03	(0.94 - 1.13)	1.10	(1.02 - 1.19)
2012	0.84	(0.78 - 0.92)	1.00	(0.91 - 1.10)	1.12	(1.02 - 1.22)	1.09	(1.01 - 1.18)
2013	0.95	(0.87 - 1.03)	0.97	(0.88 - 1.07)	1.07	(0.98 - 1.18)	1.03	(0.94 - 1.12)
2014	0.90	(0.83 - 0.97)	1.02	(0.93 - 1.12)	1.14	(1.04 - 1.24)	1.00	(0.92 - 1.08)
2015	0.86	(0.79 - 0.94)	1.02	(0.93 - 1.12)	1.19	(1.09 - 1.30)	0.99	(0.91 - 1.08)
2016	0.87	(0.80 - 0.95)	1.08	(0.98 - 1.19)	1.11	(1.01 - 1.22)	1.00	(0.92 - 1.10)
2017	0.87	(0.79 - 0.94)	0.92	(0.83 - 1.02)	1.22	(1.11 - 1.34)	1.05	(0.96 - 1.15)
2018	0.91	(0.83 - 0.99)	1.07	(0.97 - 1.18)	1.05	(0.95 - 1.16)	1.02	(0.93 - 1.11)
2019	0.85	(0.78 - 0.93)	1.03	(0.94 - 1.13)	1.15	(1.04 - 1.26)	1.03	(0.95 - 1.13)
2020	0.87	(0.79 - 0.95)	1.06	(0.96 - 1.17)	1.13	(1.03 - 1.25)	1.00	(0.91 - 1.09)

Table A143. I25 SMI mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	2189	44.3	45.7	(43.8-47.7)	1.00	Baseline
Northland	96	50.8	44.1	(35.7-54.0)	0.97	(0.78 - 1.19)
Waitematā	172	27.7	31.2	(26.7-36.2)	0.68	(0.58 - 0.80)
Auckland	181	37.6	47.3	(40.6-54.7)	1.03	(0.88 - 1.2-)
Counties Manukau	168	29.3	41.8	(35.6-48.6)	0.91	(0.78 - 1.07)
Waikato	201	47.0	47.3	(40.9-54.3)	1.03	(0.89 - 1.2)
Lakes	59	51.8	53.2	(40.5-68.7)	1.16	(0.88 - 1.51)
Bay of Plenty	125	48.9	39.8	(33.1-47.5)	0.87	(0.72 - 1.04)
Tairāwhiti	33	65.8	68.6	(47.2-96.4)	1.50	(1.03 - 2.12)
Taranaki	83	67.3	59.0	(47.0-73.3)	1.29	(1.02 - 1.61)
Hawke's Bay	104	60.0	53.8	(43.9-65.2)	1.18	(0.96 - 1.43)
Whanganui	53	78.9	66.2	(49.5-87.0)	1.45	(1.08 - 1.91)
MidCentral	131	71.6	64.8	(54.2-77.0)	1.42	(1.18 - 1.69)
Capital, Coast & Hutt Valley	177	37.9	42.7	(36.6-49.5)	0.93	(0.80 - 1.09)
Wairarapa	30	62.6	47.4	(31.9-68.3)	1.04	(0.70 - 1.5)
Nelson Marlborough	113	71.9	56.0	(46.1-67.5)	1.22	(1.00 - 1.48)
West Coast	20	60.9	54.9	(33.5-85.6)	1.20	(0.73 - 1.88)
Canterbury	189	33.0	32.5	(28.0-37.5)	0.71	(0.61 - 0.83)
South Canterbury	54	88.7	64.3	(48.2-84.6)	1.41	(1.05 - 1.86)
Southern	200	58.9	55.2	(47.8-63.4)	1.21	(1.04 - 1.40)

Table A144. I25 SMI mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	1252	39.1	39.1	(37.0-41.4)	1	Baseline
U2	597	65.9	49.9	(46.0-54.2)	1.28	(1.15-1.41)
R1	376	61.0	42.9	(38.6-47.6)	1.10	(0.97-1.23)
R2	169	58.1	41.2	(35.2-48.1)	1.05	(0.89-1.24)
R3	43	87.0	61.1	(43.8-83.7)	1.56	(1.11-2.15)

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Table A145. I42 cardiomyopathy mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	185	4.8	6.0	(5.1-6.9)
2001	176	4.5	5.6	(4.8-6.5)
2002	198	5.0	6.0	(5.2-6.9)
2003	204	5.1	6.0	(5.2-6.9)
2004	195	4.8	5.7	(4.9-6.5)
2005	171	4.1	4.9	(4.2-5.7)
2006	148	3.5	4.2	(3.5-4.9)
2007	160	3.8	4.3	(3.7-5.0)
2008	201	4.7	5.3	(4.6-6.1)
2009	168	3.9	4.3	(3.7-5.0)
2010	198	4.6	4.9	(4.2-5.7)
2011	190	4.3	4.6	(4.0-5.3)
2012	205	4.7	4.9	(4.2-5.6)
2013	234	5.3	5.5	(4.8-6.2)
2014	258	5.7	5.9	(5.2-6.7)
2015	269	5.8	6.1	(5.4-6.8)
2016	241	5.1	5.3	(4.6-6.0)
2017	294	6.1	6.2	(5.5-7.0)
2018	270	5.5	5.6	(5.0-6.3)
2019	323	6.5	6.6	(5.9-7.3)
2020	303	6.0	6.0	(5.3-6.7)

Table A146. I42 cardiomyopathy mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	129	10.8	56	4.3	0.36	(0.26-0.5)
2001	124	10.4	52	3.9	0.34	(0.24-0.48)
2002	147	11.1	51	3.8	0.31	(0.22-0.43)
2003	151	11.2	53	3.8	0.31	(0.22-0.43)
2004	142	10.4	53	3.7	0.32	(0.23-0.44)
2005	127	9.1	44	3.2	0.31	(0.21-0.44)
2006	110	8.1	38	2.7	0.29	(0.2-0.43)
2007	121	8.3	39	2.6	0.28	(0.19-0.4)
2008	145	9.6	56	3.6	0.34	(0.24-0.47)
2009	123	8.3	45	2.9	0.31	(0.22-0.44)
2010	126	8.1	72	4.2	0.50	(0.37-0.67)
2011	128	8.0	62	3.6	0.42	(0.3-0.57)
2012	141	8.7	64	3.6	0.39	(0.28-0.52)
2013	161	9.3	73	4.1	0.40	(0.3-0.54)
2014	193	11.0	65	3.6	0.29	(0.22-0.39)
2015	195	10.9	74	3.9	0.33	(0.25-0.43)
2016	180	9.8	61	3.2	0.30	(0.22-0.4)
2017	193	10.3	101	4.9	0.45	(0.35-0.58)
2018	186	9.6	84	4.1	0.40	(0.3-0.52)
2019	231	11.7	92	4.4	0.35	(0.27-0.44)
2020	181	9.0	122	5.4	0.58	(0.46-0.74)

Table A147. I42 cardiomyopathy mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	10	0.5	46	4.2	43	12.7	49	19.5	37	18.2
2001	7	0.4	33	3.0	44	12.6	40	15.9	52	24.9
2002	11	0.6	47	4.2	55	14.9	43	17.0	42	19.6
2003	19	0.9	44	3.8	48	12.4	48	18.7	45	20.5
2004	12	0.6	41	3.5	29	7.2	56	21.5	57	25.4
2005	15	0.7	33	2.8	35	8.4	42	15.8	46	20.0
2006	10	0.5	23	1.9	30	7.0	42	15.2	43	18.2
2007	8	0.4	35	2.9	31	7.0	37	13.0	49	20.4
2008	15	0.7	41	3.3	34	7.4	50	17.2	61	25.0
2009	9	0.4	38	3.1	32	6.8	45	15.0	44	17.7
2010	15	0.7	43	3.5	46	9.5	33	10.6	61	24.2
2011	19	0.9	48	3.9	32	6.4	39	12.0	52	20.3
2012	12	0.6	42	3.4	42	8.3	42	12.3	67	25.7
2013	11	0.5	61	5.0	44	8.6	61	17.0	57	21.4
2014	9	0.4	53	4.3	58	11.1	56	14.9	82	30.0
2015	12	0.6	50	4.1	45	8.4	70	18.0	92	32.7
2016	12	0.5	46	3.7	45	8.1	58	14.5	80	27.4
2017	17	0.7	43	3.4	52	9.1	68	16.5	114	37.7
2018	10	0.4	45	3.6	49	8.3	64	15.0	102	33.1
2019	13	0.6	59	4.6	51	8.5	78	17.7	122	38.4
2020	12	0.5	44	3.4	62	10.1	59	12.9	126	38.3

Table A148. I42 cardiomyopathy mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	116	2.7	52	14.4	14	10.4	3	2.1	0	0.0
2001	106	2.1	51	14.3	15	10.0	4	2.0	0	0.0
2002	124	2.8	61	15.7	11	6.5	3	1.5	0	0.0
2003	137	3.0	51	12.6	15	7.7	3	0.9	0	0.0
2004	125	2.5	49	11.9	19	10.7	1	0.2	1	2.9
2005	107	2.1	46	10.5	17	8.3	0	0.0	1	5.6
2006	93	1.7	37	8.1	16	8.0	2	0.7	1	2.0
2007	89	1.5	54	11.1	15	7.6	1	0.2	1	5.3
2008	139	2.5	43	8.5	13	5.1	6	1.4	0	0.0
2009	107	1.9	46	9.0	12	5.2	2	0.4	1	4.0
2010	127	2.4	52	9.8	17	7.1	1	0.2	1	2.2
2011	123	2.3	42	7.2	19	7.4	4	0.9	2	4.0
2012	120	2.0	60	10.6	16	6.1	9	2.0	0	0.0
2013	138	2.4	79	13.2	13	4.4	4	0.7	1	3.0
2014	152	2.3	77	12.5	23	7.9	5	0.8	2	5.1
2015	175	2.6	62	9.5	20	6.4	12	2.0	1	2.9
2016	148	2.1	67	9.7	20	6.2	7	1.1	1	2.1
2017	180	2.6	78	10.7	27	8.2	8	1.1	2	2.4
2018	166	2.2	70	9.2	25	7.4	7	0.8	3	5.1
2019	194	2.6	83	10.4	33	9.1	11	1.3	3	5.0
2020	169	2.1	95	11.3	25	6.8	14	1.7	0	0.0

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A149. I42 cardiomyopathy mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	5.36	(3.71-7.63)	3.85	(1.99-6.74)	0.79	(0.16-2.24)	0.00	(0.00-7.81)
2001	6.83	(4.67-9.81)	4.78	(2.50-8.35)	0.95	(0.25-2.52)	0.00	(0.00-9.37)
2002	5.70	(4.05-7.93)	2.38	(1.12-4.44)	0.55	(0.11-1.6)	0.00	(0.00-6.66)
2003	4.18	(2.91-5.89)	2.56	(1.35-4.44)	0.31	(0.06-1.02)	0.00	(0.00-5.69)
2004	4.74	(3.27-6.75)	4.27	(2.42-7.02)	0.08	(0.00-0.66)	1.17	(0.03-8.34)
2005	5.02	(3.38-7.30)	3.98	(2.16-6.79)	0.00	(0.00-0.61)	2.67	(0.07-13.33)
2006	4.74	(3.05-7.20)	4.71	(2.50-8.21)	0.41	(0.05-1.50)	1.16	(0.03-10.32)
2007	7.30	(4.96-10.58)	4.98	(2.60-8.74)	0.14	(0.00-0.97)	3.51	(0.09-17.15)
2008	3.34	(2.27-4.81)	2.01	(0.99-3.66)	0.55	(0.19-1.28)	0.00	(0.00-5.08)
2009	4.66	(3.16-6.73)	2.68	(1.31-4.92)	0.19	(0.02-0.81)	2.07	(0.05-10.71)
2010	4.11	(2.85-5.82)	2.95	(1.63-4.97)	0.06	(0.00-0.48)	0.93	(0.02-6.34)
2011	3.06	(2.05-4.47)	3.14	(1.78-5.21)	0.38	(0.09-1.03)	1.69	(0.20-7.32)
2012	5.35	(3.75-7.52)	3.08	(1.66-5.29)	1.01	(0.44-2.00)	0.00	(0.00-5.29)
2013	5.43	(3.98-7.34)	1.83	(0.93-3.27)	0.30	(0.08-0.81)	1.24	(0.03-6.63)
2014	5.34	(3.92-7.20)	3.37	(2.03-5.32)	0.35	(0.11-0.87)	2.19	(0.23-8.03)
2015	3.59	(2.59-4.89)	2.41	(1.41-3.88)	0.77	(0.38-1.39)	1.08	(0.03-5.39)
2016	4.51	(3.25-6.15)	2.88	(1.67-4.66)	0.50	(0.19-1.07)	1.00	(0.02-5.43)
2017	4.09	(3.00-5.51)	3.13	(1.96-4.80)	0.44	(0.18-0.90)	0.93	(0.10-4.10)
2018	4.21	(3.06-5.69)	3.37	(2.07-5.21)	0.38	(0.14-0.82)	2.32	(0.45-7.00)
2019	4.01	(2.99-5.31)	3.50	(2.30-5.16)	0.51	(0.25-0.96)	1.94	(0.38-5.74)
2020	5.49	(4.10-7.27)	3.28	(2.01-5.08)	0.81	(0.42-1.43)	0.00	(0.00-2.70)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A150. I42 cardiomyopathy mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	15	2.4	31	4.9	29	4.6	38	6.5	62	11.0
2001	17	2.7	19	2.9	38	6.0	48	7.6	46	8.0
2002	20	3.1	20	3.1	42	6.2	51	7.6	54	9.0
2003	21	3.2	38	5.5	37	5.2	39	5.8	68	10.7
2004	26	3.8	22	3.1	38	5.3	50	7.2	58	8.8
2005	15	2.4	22	3.2	36	4.8	43	6.1	55	8.3
2006	15	2.3	18	2.6	33	4.5	31	4.3	51	7.5
2007	16	2.4	17	2.4	27	3.5	43	5.8	56	8.1
2008	26	3.5	27	3.6	40	5.2	51	6.6	55	7.6
2009	29	4.0	25	3.1	30	3.8	33	4.3	50	7.1
2010	19	2.6	23	2.9	39	4.9	53	6.6	64	8.8
2011	24	3.0	23	2.8	35	4.4	43	5.3	62	8.4
2012	23	2.8	29	3.5	24	2.9	62	7.5	64	9.0
2013	29	3.2	29	3.3	32	3.7	62	7.6	82	11.6
2014	21	2.5	42	4.7	41	4.8	67	7.9	87	11.8
2015	29	3.5	45	5.0	56	6.2	67	7.6	69	8.8
2016	27	3.0	31	3.3	43	4.6	62	6.6	76	9.6
2017	35	4.0	54	5.7	58	6.0	65	6.8	79	9.3
2018	36	4.2	43	4.4	50	5.0	59	6.1	79	9.3
2019	38	4.4	46	4.6	50	4.9	75	7.6	110	12.6
2020	31	3.1	61	5.9	51	4.9	70	6.9	90	10.2

Table A151. I42 cardiomyopathy mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.07	(1.08 - 4.17)	1.95	(1.01 - 3.95)	2.74	(1.47 - 5.41)	4.68	(2.63 - 8.96)
2001	1.10	(0.54 - 2.26)	2.24	(1.24 - 4.26)	2.86	(1.62 - 5.33)	3.00	(1.69 - 5.61)
2002	1.00	(0.51 - 1.96)	2.02	(1.16 - 3.65)	2.50	(1.47 - 4.45)	2.94	(1.73 - 5.19)
2003	1.74	(0.99 - 3.14)	1.64	(0.93 - 2.97)	1.82	(1.04 - 3.28)	3.38	(2.04 - 5.86)
2004	0.82	(0.44 - 1.51)	1.39	(0.82 - 2.39)	1.87	(1.14 - 3.15)	2.30	(1.42 - 3.84)
2005	1.32	(0.66 - 2.73)	1.99	(1.07 - 3.92)	2.54	(1.39 - 4.94)	3.45	(1.93 - 6.59)
2006	1.16	(0.55 - 2.48)	2.02	(1.07 - 4.01)	1.91	(1.00 - 3.82)	3.33	(1.84 - 6.41)
2007	0.99	(0.47 - 2.09)	1.47	(0.77 - 2.94)	2.43	(1.35 - 4.64)	3.39	(1.92 - 6.35)
2008	1.01	(0.57 - 1.81)	1.47	(0.87 - 2.52)	1.87	(1.14 - 3.14)	2.16	(1.33 - 3.62)
2009	0.79	(0.44 - 1.40)	0.96	(0.56 - 1.66)	1.08	(0.64 - 1.85)	1.80	(1.11 - 2.95)
2010	1.12	(0.58 - 2.18)	1.91	(1.08 - 3.51)	2.57	(1.50 - 4.62)	3.44	(2.04 - 6.11)
2011	0.93	(0.50 - 1.74)	1.44	(0.83 - 2.55)	1.74	(1.03 - 3.02)	2.78	(1.70 - 4.69)
2012	1.25	(0.70 - 2.27)	1.05	(0.56 - 1.95)	2.69	(1.63 - 4.57)	3.20	(1.95 - 5.44)
2013	1.03	(0.59 - 1.79)	1.16	(0.67 - 1.99)	2.36	(1.48 - 3.83)	3.63	(2.33 - 5.78)
2014	1.87	(1.08 - 3.36)	1.89	(1.09 - 3.39)	3.13	(1.89 - 5.43)	4.67	(2.86 - 7.99)
2015	1.41	(0.86 - 2.35)	1.77	(1.11 - 2.89)	2.16	(1.37 - 3.48)	2.51	(1.60 - 4.04)
2016	1.11	(0.64 - 1.96)	1.55	(0.93 - 2.64)	2.23	(1.38 - 3.68)	3.23	(2.04 - 5.26)
2017	1.41	(0.90 - 2.25)	1.50	(0.97 - 2.37)	1.70	(1.11 - 2.66)	2.32	(1.53 - 3.58)
2018	1.05	(0.66 - 1.7)	1.19	(0.76 - 1.90)	1.45	(0.94 - 2.28)	2.22	(1.47 - 3.41)
2019	1.03	(0.66 - 1.64)	1.11	(0.71 - 1.76)	1.71	(1.14 - 2.61)	2.84	(1.94 - 4.25)
2020	1.89	(1.20 - 3.02)	1.58	(0.99 - 2.57)	2.22	(1.43 - 3.52)	3.26	(2.14 - 5.09)

Table A152. I42 cardiomyopathy mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	31	3.3	3.1	(2.1-4.4)	1.00	Baseline
3 - 4	61	6.3	5.9	(4.5-7.6)	1.89	(1.20-3.02)
5 - 6	51	5.2	4.9	(3.7-6.5)	1.58	(0.99-2.57)
7 - 8	70	7.0	6.9	(5.4-8.7)	2.22	(1.43-3.52)
9 - 10						

Table A153. I42 cardiomyopathy mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	66	6.5	38	6.0	34	5.2	45	5.7
2001	69	6.8	34	5.1	37	5.8	32	3.9
2002	62	5.8	44	6.7	47	6.9	44	5.0
2003	87	7.5	38	5.5	44	6.4	34	3.9
2004	64	5.5	41	5.8	51	7.3	38	4.3
2005	64	5.2	31	4.4	45	6.2	31	3.6
2006	53	4.4	38	5.3	24	3.5	33	3.5
2007	46	3.8	41	5.5	29	3.9	43	4.4
2008	62	4.9	52	6.6	35	4.6	50	5.0
2009	49	3.7	44	5.6	33	4.2	33	3.3
2010	57	4.2	41	5.1	41	5.1	48	4.5
2011	66	4.9	41	4.8	45	5.5	32	3.0
2012	56	4.0	47	5.7	47	5.5	42	3.8
2013	70	4.7	66	7.7	36	4.2	50	4.6
2014	92	6.0	48	5.4	54	6.2	50	4.6
2015	78	5.1	57	6.3	62	6.9	51	4.5
2016	71	4.5	49	5.2	50	5.5	49	4.1
2017	91	5.7	62	6.3	51	5.4	59	4.9
2018	79	4.7	57	5.6	49	5.1	53	4.3
2019	103	6.2	66	6.5	61	6.3	54	4.3
2020	103	6.0	81	7.7	52	5.2	49	3.8

Table A154. I42 cardiomyopathy mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.09	(0.81 - 1.47)	1.01	(0.69 - 1.44)	0.89	(0.59 - 1.29)	0.97	(0.68 - 1.35)
2001	1.25	(0.92 - 1.66)	0.93	(0.62 - 1.35)	1.06	(0.72 - 1.52)	0.71	(0.47 - 1.04)
2002	0.96	(0.71 - 1.29)	1.11	(0.78 - 1.56)	1.16	(0.82 - 1.60)	0.83	(0.58 - 1.16)
2003	1.25	(0.96 - 1.62)	0.92	(0.63 - 1.31)	1.08	(0.76 - 1.50)	0.65	(0.44 - 0.94)
2004	0.98	(0.72 - 1.31)	1.02	(0.71 - 1.44)	1.29	(0.93 - 1.77)	0.76	(0.52 - 1.09)
2005	1.08	(0.79 - 1.45)	0.90	(0.59 - 1.33)	1.28	(0.90 - 1.79)	0.73	(0.48 - 1.08)
2006	1.05	(0.75 - 1.46)	1.26	(0.86 - 1.82)	0.83	(0.52 - 1.29)	0.84	(0.55 - 1.23)
2007	0.89	(0.62 - 1.25)	1.29	(0.89 - 1.84)	0.90	(0.58 - 1.35)	1.01	(0.71 - 1.43)
2008	0.93	(0.68 - 1.25)	1.27	(0.91 - 1.73)	0.87	(0.59 - 1.26)	0.96	(0.69 - 1.32)
2009	0.91	(0.64 - 1.26)	1.36	(0.95 - 1.92)	1.03	(0.69 - 1.51)	0.80	(0.53 - 1.17)
2010	0.90	(0.66 - 1.23)	1.09	(0.76 - 1.54)	1.09	(0.76 - 1.54)	0.97	(0.69 - 1.35)
2011	1.09	(0.81 - 1.46)	1.08	(0.75 - 1.52)	1.23	(0.87 - 1.72)	0.67	(0.45 - 0.99)
2012	0.87	(0.63 - 1.18)	1.24	(0.88 - 1.71)	1.20	(0.85 - 1.66)	0.84	(0.58 - 1.18)
2013	0.90	(0.67 - 1.18)	1.47	(1.10 - 1.95)	0.80	(0.54 - 1.14)	0.88	(0.63 - 1.20)
2014	1.08	(0.84 - 1.38)	0.97	(0.69 - 1.33)	1.11	(0.81 - 1.49)	0.82	(0.59 - 1.11)
2015	0.92	(0.70 - 1.19)	1.14	(0.84 - 1.52)	1.23	(0.91 - 1.63)	0.80	(0.58 - 1.09)
2016	0.94	(0.71 - 1.24)	1.08	(0.78 - 1.48)	1.14	(0.82 - 1.56)	0.87	(0.62 - 1.19)
2017	1.02	(0.79 - 1.30)	1.13	(0.84 - 1.49)	0.98	(0.71 - 1.32)	0.88	(0.65 - 1.18)
2018	0.96	(0.73 - 1.24)	1.14	(0.84 - 1.53)	1.04	(0.75 - 1.41)	0.88	(0.64 - 1.19)
2019	1.07	(0.85 - 1.35)	1.12	(0.85 - 1.48)	1.09	(0.81 - 1.44)	0.74	(0.54 - 0.99)
2020	1.06	(0.84 - 1.34)	1.37	(1.06 - 1.76)	0.92	(0.67 - 1.25)	0.67	(0.48 - 0.91)

Table A155. I42 cardiomyopathy mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	285	5.8	5.9	(5.2-6.6)	1.00	Baseline
Northland	23	12.2	10.7	(6.8-16.3)	1.82	(1.13 - 2.81)
Waitematā	32	5.1	5.7	(3.9-8.0)	0.96	(0.64 - 1.38)
Auckland	15	3.1	3.9	(2.1-6.3)	0.65	(0.36 - 1.09)
Counties Manukau	33	5.7	7.0	(4.8-9.9)	1.19	(0.80 - 1.71)
Waikato	37	8.6	8.7	(6.1-12)	1.48	(1.02 - 2.09)
Lakes	12	10.5	10.2	(5.3-17.9)	1.73	(0.88 - 3.08)
Bay of Plenty	17	6.7	5.9	(3.4-9.5)	1.00	(0.57 - 1.64)
Tairāwhiti	5	10.0	10.3	(3.3-24.1)	1.75	(0.56 - 4.12)
Taranaki	10	8.1	7.3	(3.5-13.5)	1.23	(0.58 - 2.31)
Hawke's Bay	16	9.2	8.7	(5.0-14.2)	1.47	(0.83 - 2.44)
Whanganui	3	4.5	4.0	(0.8-12.0)	0.68	(0.14 - 2.05)
MidCentral	12	6.6	6.1	(3.2-10.7)	1.03	(0.53 - 1.85)
Capital, Coast & Hutt Valley	20	4.3	5.0	(3.0-7.6)	0.84	(0.51 - 1.32)
Wairarapa	1	2.1	1.6	(0.0-10.4)	0.27	(0.01 - 1.77)
Nelson Marlborough	10	6.4	4.9	(2.4-9.3)	0.83	(0.39 - 1.60)
West Coast	1	3.0	2.5	(0.1-16)	0.43	(0.01 - 2.73)
Canterbury	15	2.6	2.6	(1.5-4.4)	0.45	(0.25 - 0.75)
South Canterbury	0	0.0	0.0	(0.0-6.0)	0.00	(0.00 - 1.03)
Southern	23	6.8	6.6	(4.2-9.9)	1.11	(0.69 - 1.70)

Table A156. I42 cardiomyopathy mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	166	5.2	5.2	(4.4-6.0)	1	Baseline
U2	62	6.8	5.8	(4.4-7.5)	1.12	(0.82-1.51)
R1	45	7.3	5.7	(4.1-7.6)	1.09	(0.76-1.54)
R2	25	8.6	6.3	(4.1-9.5)	1.22	(0.76-1.90)
R3	5	10.1	8.2	(2.3-20.9)	1.57	(0.44-4.10)

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Table A157. I48 AFF mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	223	5.8	8.0	(7.0-9.1)
2001	255	6.6	8.7	(7.6-9.8)
2002	260	6.6	8.6	(7.6-9.8)
2003	235	5.8	7.6	(6.7-8.6)
2004	222	5.4	7.0	(6.1-8.0)
2005	188	4.5	5.8	(5.0-6.6)
2006	204	4.9	5.9	(5.1-6.8)
2007	163	3.9	4.7	(4.0-5.5)
2008	197	4.6	5.6	(4.8-6.4)
2009	243	5.6	6.6	(5.8-7.5)
2010	205	4.7	5.4	(4.6-6.1)
2011	264	6.0	6.6	(5.8-7.4)
2012	295	6.7	7.4	(6.5-8.3)
2013	284	6.4	6.8	(6.1-7.7)
2014	394	8.7	9.2	(8.3-10.1)
2015	438	9.5	10.0	(9.1-11.0)
2016	588	12.5	12.9	(11.9-14.0)
2017	655	13.6	14.0	(12.9-15.1)
2018	665	13.6	13.9	(12.8-14.9)
2019	673	13.5	13.7	(12.7-14.8)
2020	668	13.2	13.2	(12.2-14.2)

Table A158. I48 AFF mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	85	10.2	138	8.8	0.91	(0.69-1.21)
2001	89	10.1	166	10.2	1.06	(0.81-1.4)
2002	112	12.2	148	8.9	0.75	(0.58-0.97)
2003	101	10.8	134	8.0	0.76	(0.58-1.00)
2004	80	8.5	142	8.3	1.03	(0.78-1.38)
2005	78	7.8	110	6.4	0.85	(0.63-1.15)
2006	80	8.1	124	6.9	0.89	(0.67-1.21)
2007	57	5.6	106	5.9	1.11	(0.80-1.57)
2008	71	6.5	126	6.7	1.08	(0.80-1.48)
2009	79	7.1	164	8.4	1.26	(0.96-1.68)
2010	63	5.6	142	7.2	1.39	(1.03-1.90)
2011	90	7.2	174	8.3	1.22	(0.94-1.60)
2012	121	9.0	174	8.4	0.96	(0.75-1.22)
2013	99	7.2	185	8.6	1.26	(0.98-1.63)
2014	159	10.9	235	10.5	1.00	(0.81-1.23)
2015	180	11.6	258	11.1	0.98	(0.81-1.20)
2016	242	14.8	346	14.3	0.99	(0.84-1.17)
2017	269	15.7	386	15.6	1.01	(0.86-1.19)
2018	260	14.9	405	15.9	1.09	(0.93-1.28)
2019	253	14.1	420	16.2	1.19	(1.01-1.39)
2020	281	15.2	387	14.9	1.00	(0.85-1.17)

Table A159. I48 AFF mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	1	0.1	4	0.4	4	1.2	19	7.6	195	96.2
2001	0	0.0	3	0.3	7	2.0	24	9.5	221	105.8
2002	0	0.0	2	0.2	4	1.1	24	9.5	230	107.5
2003	0	0.0	0	0.0	6	1.5	18	7.0	211	96.1
2004	1	0.0	1	0.1	5	1.2	20	7.7	195	86.8
2005	0	0.0	2	0.2	5	1.2	19	7.1	162	70.5
2006	1	0.0	4	0.3	1	0.2	13	4.7	185	78.4
2007	0	0.0	1	0.1	4	0.9	10	3.5	148	61.6
2008	0	0.0	1	0.1	5	1.1	18	6.2	173	70.8
2009	0	0.0	0	0.0	4	0.9	18	6.0	221	89.1
2010	0	0.0	2	0.2	3	0.6	11	3.5	189	75.0
2011	0	0.0	1	0.1	0	0.0	7	2.2	256	99.9
2012	0	0.0	2	0.2	5	1.0	29	8.5	259	99.3
2013	0	0.0	2	0.2	7	1.4	24	6.7	251	94.3
2014	0	0.0	1	0.1	11	2.1	29	7.7	353	129.2
2015	0	0.0	4	0.3	6	1.1	43	11.1	385	136.7
2016	0	0.0	4	0.3	17	3.1	41	10.3	526	180.1
2017	0	0.0	4	0.3	16	2.8	58	14.1	577	190.9
2018	0	0.0	8	0.6	13	2.2	49	11.5	595	193.1
2019	0	0.0	5	0.4	12	2.0	55	12.5	601	189.4
2020	0	0.0	1	0.1	25	4.1	54	11.8	588	178.6

Table A160. I48 AFF mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	208	2.3	9	3.4	3	2.7	2	1.4	1	9.8
2001	231	2.4	16	5.4	6	4.7	2	1.3	0	0.0
2002	234	2.3	18	6.3	8	5.7	0	0.0	0	0.0
2003	206	2.0	20	6.5	8	5.8	2	1.1	0	0.0
2004	189	1.8	22	6.5	5	3.3	5	2.4	1	7.1
2005	164	1.6	20	5.9	3	1.8	1	0.5	0	0.0
2006	189	1.7	7	1.9	2	1.2	4	1.3	2	9.6
2007	149	1.3	11	2.9	2	1.1	0	0.0	1	5.3
2008	174	1.5	14	3.7	8	4.3	1	0.3	0	0.0
2009	214	1.7	19	4.6	9	4.6	0	0.0	1	4.6
2010	183	1.5	13	3.0	1	0.5	7	2.0	1	3.8
2011	237	1.7	17	3.6	2	0.9	8	2.0	0	0.0
2012	248	1.9	27	5.3	10	4.3	10	2.4	0	0.0
2013	251	1.9	19	3.5	6	2.5	7	1.4	2	7.6
2014	334	2.4	40	7.1	12	4.6	9	1.7	1	3.3
2015	381	2.8	44	7.3	9	3.2	4	0.7	0	0.0
2016	504	3.5	57	8.6	18	6.0	9	1.3	1	2.3
2017	548	3.7	73	10.4	17	5.5	15	2.1	2	4.5
2018	561	3.6	78	10.5	17	5.1	8	1.0	1	2.2
2019	570	3.8	61	7.7	22	6.1	18	2.1	2	3.8
2020	554	3.6	67	8.0	23	6.2	22	2.4	2	3.2

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A161. I48 AFF mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.49	(0.65-2.82)	1.16	(0.23-3.21)	0.58	(0.07-2.00)	4.20	(0.10-19.09)
2001	2.20	(1.21-3.63)	1.94	(0.69-4.15)	0.55	(0.07-1.83)	0.00	(0.00-7.94)
2002	2.68	(1.53-4.30)	2.42	(1.01-4.75)	0.00	(0.00-0.69)	0.00	(0.00-7.73)
2003	3.26	(1.92-5.14)	2.92	(1.22-5.70)	0.53	(0.06-1.80)	0.00	(0.00-8.57)
2004	3.55	(2.12-5.52)	1.82	(0.57-4.15)	1.29	(0.41-2.96)	3.88	(0.10-17.96)
2005	3.78	(2.19-6.02)	1.17	(0.24-3.31)	0.30	(0.01-1.47)	0.00	(0.00-9.86)
2006	1.11	(0.42-2.33)	0.71	(0.08-2.38)	0.78	(0.19-2.05)	5.62	(0.62-19.55)
2007	2.28	(1.07-4.16)	0.88	(0.10-3.00)	0.00	(0.00-0.85)	4.11	(0.10-19.84)
2008	2.49	(1.30-4.27)	2.91	(1.21-5.73)	0.20	(0.00-1.09)	0.00	(0.00-8.66)
2009	2.70	(1.56-4.31)	2.70	(1.2-5.12)	0.00	(0.00-0.56)	2.68	(0.07-12.98)
2010	2.02	(1.03-3.51)	0.33	(0.01-1.68)	1.35	(0.53-2.80)	2.57	(0.06-13.15)
2011	2.10	(1.18-3.42)	0.54	(0.06-1.83)	1.15	(0.48-2.28)	0.00	(0.00-6.26)
2012	2.74	(1.73-4.09)	2.22	(1.04-4.10)	1.22	(0.57-2.27)	0.00	(0.00-5.31)
2013	1.87	(1.09-2.98)	1.29	(0.46-2.80)	0.76	(0.30-1.59)	4.03	(0.48-13.32)
2014	2.94	(2.03-4.1)	1.89	(0.95-3.32)	0.69	(0.31-1.33)	1.37	(0.03-6.66)
2015	2.60	(1.83-3.56)	1.14	(0.51-2.16)	0.25	(0.07-0.64)	0.00	(0.00-2.85)
2016	2.45	(1.81-3.23)	1.68	(0.98-2.68)	0.38	(0.17-0.74)	0.66	(0.02-3.41)
2017	2.81	(2.14-3.6)	1.49	(0.85-2.39)	0.56	(0.31-0.94)	1.22	(0.14-4.14)
2018	2.91	(2.24-3.7)	1.41	(0.81-2.27)	0.28	(0.12-0.56)	0.61	(0.02-3.02)
2019	2.04	(1.53-2.67)	1.61	(0.99-2.46)	0.55	(0.32-0.89)	0.99	(0.12-3.42)
2020	2.24	(1.69-2.9)	1.74	(1.08-2.64)	0.67	(0.41-1.04)	0.90	(0.11-3.19)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A162. I48 AFF mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	32	5.6	38	6.6	42	6.6	61	10.1	44	8.8
2001	41	7.3	34	5.7	56	8.6	63	10.0	50	9.8
2002	38	6.7	55	9.0	56	8.6	51	7.9	51	9.4
2003	32	5.6	41	6.6	62	9.2	47	6.9	51	9.1
2004	33	5.7	41	6.5	46	6.7	59	8.3	41	6.9
2005	30	5.0	28	4.3	47	6.7	36	5.0	47	7.8
2006	38	6.3	29	4.4	34	4.8	66	8.7	36	5.6
2007	29	4.7	25	3.7	48	6.6	27	3.5	34	5.3
2008	22	3.4	35	5.1	46	6.2	52	6.6	41	6.4
2009	29	4.5	38	5.4	57	7.5	66	8.0	52	8.1
2010	25	3.8	29	4.0	43	5.6	61	7.2	47	7.1
2011	41	6.1	38	5.2	52	6.6	75	8.6	58	8.7
2012	46	6.6	47	6.2	55	6.8	81	9.2	65	9.6
2013	38	5.2	39	5.1	63	7.7	83	9.1	60	8.9
2014	62	8.7	62	7.7	81	9.3	112	11.7	79	11.2
2015	55	7.9	65	7.6	114	12.4	117	11.6	86	11.7
2016	74	10.6	104	11.6	125	12.9	136	13.2	148	19.5
2017	97	13.8	109	11.7	145	14.1	152	14.1	151	19.1
2018	75	11.0	117	12.0	146	13.7	188	16.5	137	16.7
2019	86	11.5	129	12.8	157	14.4	152	13.4	148	17.9
2020	87	11.0	137	13.2	152	13.7	164	14.5	128	15.3

Table A163. I48 AFF mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.17	(0.72 - 1.93)	1.17	(0.72 - 1.91)	1.78	(1.15 - 2.83)	1.56	(0.97 - 2.53)
2001	0.78	(0.49 - 1.26)	1.18	(0.78 - 1.81)	1.37	(0.92 - 2.09)	1.34	(0.87 - 2.07)
2002	1.35	(0.88 - 2.09)	1.28	(0.84 - 1.99)	1.18	(0.76 - 1.84)	1.40	(0.91 - 2.19)
2003	1.18	(0.73 - 1.94)	1.65	(1.07 - 2.61)	1.24	(0.78 - 2.00)	1.62	(1.03 - 2.60)
2004	1.14	(0.71 - 1.85)	1.18	(0.74 - 1.90)	1.46	(0.94 - 2.30)	1.22	(0.75 - 1.98)
2005	0.86	(0.5 - 1.48)	1.34	(0.83 - 2.19)	1.00	(0.60 - 1.67)	1.57	(0.98 - 2.55)
2006	0.70	(0.42 - 1.15)	0.75	(0.46 - 1.23)	1.38	(0.92 - 2.12)	0.89	(0.55 - 1.44)
2007	0.79	(0.45 - 1.39)	1.42	(0.88 - 2.33)	0.74	(0.42 - 1.30)	1.13	(0.67 - 1.91)
2008	1.49	(0.86 - 2.67)	1.83	(1.08 - 3.19)	1.92	(1.15 - 3.32)	1.86	(1.09 - 3.27)
2009	1.21	(0.73 - 2.02)	1.68	(1.06 - 2.72)	1.77	(1.13 - 2.84)	1.80	(1.13 - 2.92)
2010	1.06	(0.60 - 1.89)	1.48	(0.89 - 2.52)	1.90	(1.18 - 3.16)	1.89	(1.15 - 3.19)
2011	0.85	(0.53 - 1.35)	1.08	(0.71 - 1.66)	1.41	(0.96 - 2.12)	1.42	(0.94 - 2.17)
2012	0.94	(0.61 - 1.44)	1.03	(0.69 - 1.56)	1.39	(0.96 - 2.04)	1.46	(0.99 - 2.17)
2013	0.97	(0.60 - 1.55)	1.47	(0.97 - 2.26)	1.73	(1.17 - 2.62)	1.69	(1.11 - 2.60)
2014	0.88	(0.61 - 1.28)	1.07	(0.76 - 1.52)	1.35	(0.98 - 1.88)	1.28	(0.91 - 1.82)
2015	0.97	(0.67 - 1.41)	1.57	(1.13 - 2.21)	1.47	(1.06 - 2.07)	1.48	(1.05 - 2.12)
2016	1.10	(0.81 - 1.50)	1.21	(0.90 - 1.64)	1.24	(0.93 - 1.68)	1.83	(1.38 - 2.46)
2017	0.84	(0.64 - 1.12)	1.02	(0.78 - 1.34)	1.02	(0.78 - 1.33)	1.38	(1.07 - 1.80)
2018	1.10	(0.81 - 1.49)	1.25	(0.94 - 1.68)	1.50	(1.15 - 2.00)	1.52	(1.14 - 2.05)
2019	1.12	(0.84 - 1.49)	1.26	(0.96 - 1.66)	1.17	(0.89 - 1.55)	1.56	(1.19 - 2.06)
2020	1.20	(0.91 - 1.59)	1.25	(0.96 - 1.65)	1.33	(1.02 - 1.74)	1.39	(1.05 - 1.85)

Table A164. I48 AFF mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	87	9.1	11.0	(8.8-13.5)	1.00	Baseline
3 - 4	137	14.2	13.2	(11.1-15.6)	1.20	(0.91-1.59)
5 - 6	152	15.6	13.7	(11.6-16.1)	1.25	(0.96-1.65)
7 - 8	164	16.4	14.5	(12.4-17.0)	1.33	(1.02-1.74)
9 - 10	128	12.3	15.3	(12.7-18.1)	1.39	(1.05-1.85)

Table A165. I48 AFF mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	65	7.4	65	11.9	38	6.6	53	6.7
2001	65	7.2	68	11.6	61	9.9	60	7.3
2002	80	8.8	45	7.3	68	10.5	66	7.9
2003	67	7.0	43	6.8	45	6.9	78	9.1
2004	74	7.6	46	6.9	51	7.6	49	5.6
2005	45	4.4	44	6.6	43	6.4	56	6.0
2006	53	5.1	54	7.7	40	5.6	56	5.7
2007	51	4.8	32	4.4	39	5.4	41	4.2
2008	59	5.5	42	5.6	44	6.0	52	5.3
2009	73	6.4	61	8.0	57	7.6	37	3.6
2010	61	5.3	56	7.0	41	5.2	39	3.5
2011	80	6.5	50	6.1	47	5.6	73	6.7
2012	86	6.9	64	7.7	59	7.1	76	7.0
2013	67	5.2	66	7.7	63	7.4	70	6.1
2014	83	6.2	97	10.7	88	10.0	102	8.7
2015	104	7.5	110	11.8	91	10.0	94	8.0
2016	143	10.1	130	13.4	149	16.0	107	8.7
2017	143	9.8	132	13.1	155	16.2	150	11.9
2018	172	11.3	155	15.0	140	14.3	136	10.6
2019	169	10.9	147	13.8	145	14.6	142	10.9
2020	174	10.9	153	13.9	129	12.6	149	11.1

Table A166. Total heart disease mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.94	(0.70 - 1.24)	1.50	(1.11 - 1.98)	0.83	(0.57 - 1.17)	0.85	(0.61 - 1.15)
2001	0.83	(0.62 - 1.09)	1.34	(1.01 - 1.76)	1.14	(0.85 - 1.51)	0.85	(0.63 - 1.13)
2002	1.02	(0.78 - 1.31)	0.85	(0.60 - 1.17)	1.22	(0.92 - 1.60)	0.91	(0.68 - 1.20)
2003	0.93	(0.69 - 1.22)	0.90	(0.63 - 1.25)	0.91	(0.65 - 1.26)	1.21	(0.92 - 1.57)
2004	1.10	(0.83 - 1.44)	1.00	(0.71 - 1.39)	1.09	(0.79 - 1.49)	0.81	(0.58 - 1.11)
2005	0.77	(0.54 - 1.07)	1.14	(0.80 - 1.59)	1.12	(0.78 - 1.56)	1.05	(0.76 - 1.42)
2006	0.87	(0.63 - 1.18)	1.30	(0.94 - 1.77)	0.94	(0.65 - 1.33)	0.96	(0.70 - 1.30)
2007	1.03	(0.73 - 1.41)	0.93	(0.62 - 1.37)	1.15	(0.79 - 1.65)	0.90	(0.62 - 1.28)
2008	0.98	(0.72 - 1.32)	1.01	(0.71 - 1.42)	1.09	(0.76 - 1.51)	0.95	(0.69 - 1.30)
2009	1.03	(0.78 - 1.35)	1.30	(0.96 - 1.73)	1.23	(0.90 - 1.66)	0.58	(0.40 - 0.82)
2010	1.03	(0.76 - 1.37)	1.37	(1.00 - 1.86)	1.02	(0.71 - 1.43)	0.68	(0.47 - 0.96)
2011	1.04	(0.79 - 1.34)	0.97	(0.70 - 1.33)	0.90	(0.64 - 1.23)	1.07	(0.81 - 1.39)
2012	0.97	(0.75 - 1.24)	1.08	(0.81 - 1.42)	1.00	(0.74 - 1.33)	0.98	(0.75 - 1.27)
2013	0.81	(0.61 - 1.06)	1.21	(0.90 - 1.59)	1.16	(0.87 - 1.53)	0.96	(0.72 - 1.25)
2014	0.72	(0.56 - 0.91)	1.24	(0.98 - 1.55)	1.16	(0.91 - 1.47)	1.01	(0.80 - 1.26)
2015	0.83	(0.66 - 1.03)	1.30	(1.04 - 1.61)	1.10	(0.86 - 1.38)	0.88	(0.69 - 1.11)
2016	0.86	(0.71 - 1.04)	1.15	(0.94 - 1.40)	1.38	(1.14 - 1.65)	0.74	(0.60 - 0.92)
2017	0.79	(0.65 - 0.95)	1.06	(0.87 - 1.28)	1.31	(1.09 - 1.57)	0.96	(0.80 - 1.15)
2018	0.90	(0.76 - 1.07)	1.20	(1.00 - 1.43)	1.14	(0.94 - 1.38)	0.85	(0.70 - 1.02)
2019	0.89	(0.74 - 1.05)	1.12	(0.93 - 1.35)	1.19	(0.99 - 1.43)	0.89	(0.73 - 1.07)
2020	0.91	(0.76 - 1.08)	1.17	(0.97 - 1.39)	1.06	(0.87 - 1.28)	0.93	(0.77 - 1.11)

Table A167. I48 AFF mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		raw)	age adj'd	95%CI	RR	95% CI
Total	605	12.3	12.7	(11.7-13.7)	1.00	Baseline
Northland	33	17.5	15.1	(10.4-21.3)	1.19	(0.81 - 1.70)
Waitematā	47	7.6	8.7	(6.4-11.5)	0.68	(0.50 - 0.92)
Auckland	47	9.8	12.6	(9.3-16.8)	1.00	(0.72 - 1.34)
Counties Manukau	47	8.2	12.6	(9.3-16.7)	0.99	(0.72 - 1.33)
Waikato	65	15.2	15.4	(11.8-19.6)	1.21	(0.92 - 1.57)
Lakes	19	16.7	17.5	(10.6-27.3)	1.38	(0.83 - 2.18)
Bay of Plenty	37	14.5	11.5	(8.1-16.0)	0.91	(0.63 - 1.27)
Tairāwhiti	9	17.9	19.6	(9.0-36.9)	1.55	(0.70 - 2.93)
Taranaki	23	18.7	16.1	(10.2-24.3)	1.27	(0.80 - 1.94)
Hawke's Bay	17	9.8	8.6	(5.0-13.9)	0.68	(0.39 - 1.11)
Whanganui	13	19.4	15.7	(8.4-27.3)	1.24	(0.66 - 2.17)
MidCentral	20	10.9	9.7	(5.9-15.0)	0.76	(0.46 - 1.19)
Capital, Coast & Hutt Valley	68	14.6	16.6	(12.9-21.0)	1.31	(1.00 - 1.68)
Wairarapa	11	23.0	17.3	(8.6-31.9)	1.37	(0.68 - 2.53)
Nelson Marlborough	26	16.5	12.9	(8.4-19.1)	1.02	(0.66 - 1.52)
West Coast	3	9.1	8.9	(1.8-26.5)	0.70	(0.14 - 2.10)
Canterbury	67	11.7	11.4	(8.9-14.5)	0.90	(0.69 - 1.16)
South Canterbury	11	18.1	13.2	(6.6-24.4)	1.04	(0.52 - 1.94)
Southern	42	12.4	11.6	(8.4-15.7)	0.92	(0.65 - 1.26)

Table A168. I48 AFF mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	366	11.4	11.4	(10.3-12.7)	1.00	Baseline
U2	147	16.2	12.0	(10.2-14.2)	1.05	(0.86-1.28)
R1	105	17.0	11.6	(9.5-14.2)	1.02	(0.81-1.27)
R2	40	13.8	9.2	(6.6-12.7)	0.80	(0.56-1.13)
R3	10	20.2	13.6	(6.5-26.5)	1.19	(0.56-2.34)

ISO HEART FAILURE MORTALITY

Table A169. ISO heart failure mortality numbers and rates, 2000 to 2020

Year	Total heart disease			
	n	Rate		
		Crude	Age-adj'd	95% CI
2000	373	9.7	14.1	(12.7-15.6)
2001	369	9.5	13.4	(12.1-14.8)
2002	402	10.2	14.0	(12.7-15.5)
2003	399	9.9	13.5	(12.2-14.9)
2004	366	9.0	12.1	(10.9-13.4)
2005	313	7.6	10.0	(8.9-11.2)
2006	330	7.9	10.1	(9.1-11.3)
2007	335	7.9	9.8	(8.8-10.9)
2008	322	7.6	9.2	(8.2-10.3)
2009	297	6.9	8.3	(7.4-9.3)
2010	315	7.2	8.4	(7.5-9.4)
2011	273	6.2	7.0	(6.2-7.8)
2012	284	6.4	7.0	(6.2-7.9)
2013	249	5.6	6.0	(5.3-6.8)
2014	265	5.9	6.1	(5.4-6.9)
2015	269	5.8	6.1	(5.4-6.9)
2016	268	5.7	5.8	(5.2-6.6)
2017	285	5.9	6.0	(5.4-6.8)
2018	289	5.9	6.0	(5.3-6.7)
2019	339	6.8	6.9	(6.2-7.7)
2020	269	5.3	5.3	(4.7-6.0)

Table A170. 150 heart failure mortality numbers and rates by gender, 2000 to 2020

Year	Male		Female		Rate ratio female to male	
	Count	Rate	Count	Rate	RR	95% CI
2000	106	13.1	267	16.1	1.32	(1.05-1.67)
2001	131	16.5	238	13.9	0.88	(0.71-1.10)
2002	119	13.2	283	16.1	1.29	(1.04-1.62)
2003	140	15.0	259	14.3	1.00	(0.81-1.24)
2004	107	11.8	259	14.0	1.27	(1.01-1.61)
2005	87	9.4	226	12.0	1.37	(1.07-1.79)
2006	110	11.2	220	11.4	1.07	(0.85-1.36)
2007	110	10.6	225	11.4	1.13	(0.90-1.44)
2008	106	9.8	216	10.7	1.15	(0.91-1.47)
2009	101	9.1	196	9.6	1.11	(0.87-1.43)
2010	117	9.8	198	9.4	1.00	(0.79-1.27)
2011	100	8.3	173	8.2	1.04	(0.81-1.34)
2012	98	7.7	186	8.6	1.17	(0.91-1.51)
2013	89	6.8	160	7.3	1.12	(0.86-1.48)
2014	97	7.0	168	7.5	1.11	(0.86-1.45)
2015	102	7.2	167	7.3	1.06	(0.82-1.37)
2016	99	6.7	169	7.2	1.11	(0.86-1.44)
2017	103	6.7	182	7.6	1.18	(0.92-1.52)
2018	114	7.1	175	7.1	1.03	(0.81-1.32)
2019	144	8.6	195	7.8	0.92	(0.74-1.15)
2020	105	6.3	164	6.5	1.07	(0.83-1.38)

Table A171. I50 heart failure mortality rates by age group, 2000 – 2020

Year	< 35 years		35 – 54 years		55 – 64 years		65 – 74 years		75+ years	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	0	0.0	2	0.2	1	0.3	26	10.4	344	169.6
2001	0	0.0	0	0.0	4	1.1	12	4.8	353	169.0
2002	0	0.0	3	0.3	5	1.4	26	10.3	368	172.1
2003	3	0.1	2	0.2	7	1.8	22	8.6	365	166.3
2004	0	0.0	1	0.1	2	0.5	12	4.6	351	156.3
2005	0	0.0	1	0.1	4	1.0	10	3.8	298	129.7
2006	0	0.0	3	0.2	6	1.4	10	3.6	311	131.8
2007	1	0.0	4	0.3	3	0.7	8	2.8	319	132.8
2008	0	0.0	0	0.0	2	0.4	5	1.7	315	129.0
2009	1	0.0	2	0.2	2	0.4	6	2.0	286	115.4
2010	0	0.0	3	0.2	7	1.4	4	1.3	301	119.5
2011	0	0.0	1	0.1	2	0.4	8	2.5	262	102.3
2012	0	0.0	4	0.3	2	0.4	6	1.8	272	104.3
2013	1	0.0	1	0.1	5	1.0	6	1.7	236	88.7
2014	0	0.0	4	0.3	5	1.0	9	2.4	247	90.4
2015	0	0.0	1	0.1	1	0.2	9	2.3	258	91.6
2016	0	0.0	1	0.1	5	0.9	9	2.3	253	86.6
2017	0	0.0	2	0.2	5	0.9	11	2.7	267	88.3
2018	0	0.0	3	0.2	3	0.5	8	1.9	275	89.2
2019	1	0.0	4	0.3	2	0.3	12	2.7	320	100.8
2020	1	0.0	2	0.2	5	0.8	9	2.0	252	76.6

Table A172. 150 heart failure mortality numbers and rates by ethnic group, 2000 – 2020

Year	NZ Euro		Māori		Pacific		Asian		MELAA	
	n	Rate	n	Rate	n	Rate	n	Rate	n	Rate
2000	341	3.4	21	8.4	8	7.3	2	1.5	1	3.9
2001	337	3.0	21	8.1	7	5.5	3	1.9	1	8.7
2002	374	3.6	15	5.3	8	6.7	4	2.3	1	7.9
2003	363	3.4	26	8.7	7	5.4	3	1.5	0	0.0
2004	343	3.0	11	3.8	7	5.0	5	2.5	0	0.0
2005	292	2.4	14	4.8	4	2.8	1	0.4	2	10.1
2006	303	2.4	15	4.4	8	4.8	3	1.2	1	3.8
2007	310	2.5	18	5.2	1	0.5	5	1.9	1	3.8
2008	304	2.3	10	2.6	4	2.1	3	0.9	1	3.8
2009	270	1.9	20	4.8	4	2.0	3	0.9	0	0.0
2010	281	2.0	19	4.3	10	4.6	5	1.4	1	4.3
2011	250	1.7	13	2.7	5	2.3	5	1.3	0	0.0
2012	253	1.7	17	3.4	5	2.1	9	2.2	0	0.0
2013	223	1.5	19	3.7	4	1.7	2	0.5	1	3.8
2014	234	1.6	17	3.0	9	3.4	4	0.8	1	3.2
2015	234	1.5	22	3.7	7	2.4	4	0.7	2	5.5
2016	241	1.5	20	3.1	5	1.7	2	0.3	0	0.0
2017	252	1.6	17	2.4	7	2.1	5	0.7	4	8.9
2018	254	1.5	23	3.1	4	1.1	8	1.0	0	0.0
2019	297	1.7	32	4.1	9	2.6	1	0.1	0	0.0
2020	232	1.4	21	2.5	6	1.5	11	1.2	0	0.0

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A173. I50 heart failure mortality rate ratios to NZ European rates by ethnic group, 2000 – 2020

Year	Māori		Pacific		Asian		MELAA*	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	2.50	(1.51-3.83)	2.15	(0.89-4.17)	0.44	(0.05-1.47)	1.14	(0.03-7.92)
2001	2.72	(1.64-4.17)	1.84	(0.72-3.72)	0.65	(0.13-1.80)	2.91	(0.07-13.32)
2002	1.47	(0.8-2.43)	1.86	(0.79-3.58)	0.65	(0.18-1.60)	2.21	(0.06-10.18)
2003	2.60	(1.64-3.87)	1.62	(0.64-3.25)	0.45	(0.09-1.27)	0.00	(0.00-5.08)
2004	1.29	(0.62-2.29)	1.66	(0.66-3.35)	0.84	(0.27-1.90)	0.00	(0.00-5.41)
2005	1.95	(1.03-3.27)	1.14	(0.30-2.77)	0.18	(0.00-0.89)	4.14	(0.45-14.35)
2006	1.81	(0.98-3.00)	1.98	(0.84-3.84)	0.52	(0.10-1.44)	1.58	(0.04-8.97)
2007	2.10	(1.20-3.36)	0.22	(0.01-1.11)	0.75	(0.24-1.71)	1.53	(0.04-8.41)
2008	1.17	(0.54-2.14)	0.94	(0.25-2.33)	0.42	(0.08-1.20)	1.70	(0.04-9.01)
2009	2.48	(1.45-3.90)	1.05	(0.28-2.60)	0.49	(0.10-1.39)	0.00	(0.00-6.24)
2010	2.16	(1.25-3.42)	2.31	(1.07-4.27)	0.71	(0.22-1.63)	2.13	(0.05-10.35)
2011	1.57	(0.80-2.71)	1.33	(0.42-3.05)	0.78	(0.25-1.80)	0.00	(0.00-6.28)
2012	1.96	(1.10-3.19)	1.20	(0.38-2.79)	1.25	(0.55-2.39)	0.00	(0.00-5.98)
2013	2.49	(1.43-3.97)	1.13	(0.30-2.84)	0.32	(0.04-1.13)	2.58	(0.06-12.47)
2014	1.86	(1.04-3.05)	2.13	(0.94-4.07)	0.49	(0.13-1.26)	1.96	(0.05-9.73)
2015	2.50	(1.50-3.87)	1.64	(0.64-3.39)	0.46	(0.12-1.20)	3.75	(0.44-12.71)
2016	2.10	(1.23-3.31)	1.13	(0.35-2.63)	0.21	(0.02-0.78)	0.00	(0.00-4.97)
2017	1.51	(0.85-2.47)	1.31	(0.51-2.72)	0.43	(0.13-1.03)	5.51	(1.46-13.8)
2018	2.04	(1.24-3.14)	0.74	(0.20-1.92)	0.66	(0.28-1.35)	0.00	(0.00-4.17)
2019	2.36	(1.55-3.41)	1.48	(0.66-2.84)	0.07	(0.00-0.41)	0.00	(0.00-3.43)
2020	1.84	(1.09-2.90)	1.08	(0.38-2.41)	0.87	(0.41-1.61)	0.00	(0.00-4.08)
2000 - 2020	1.91	(1.72-2.12)	1.28	(1.08-1.53)	0.46	(0.37-0.56)	1.22	(0.75-1.96)

*N.B. Use of the MELAA category changed during the study period, and therefore it is not clear how reliable results are for this ethnic grouping.

Table A174. I50 heart failure mortality rates by NZDep quintile 2000 – 2020

Year	NZDep 1 - 2		NZDep 3 - 4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	n	rate	n	rate	n	rate	n	rate	n	rate
2000	50	9.2	56	9.8	97	15.6	87	14.5	65	13.5
2001	49	8.8	59	10.3	80	12.7	101	16.4	71	14.2
2002	44	7.7	55	9.3	85	13.1	128	19.7	81	15.2
2003	47	8.1	78	12.9	90	13.6	109	16.3	75	13.5
2004	49	8.5	48	7.8	79	11.8	118	16.8	72	12.4
2005	43	7.3	58	9.2	66	9.6	90	12.3	56	9.4
2006	47	8.0	45	6.9	63	9.0	118	15.5	57	9.1
2007	38	6.1	55	8.1	84	11.7	89	11.4	69	10.9
2008	30	4.8	62	9.1	65	8.8	103	12.7	61	9.5
2009	46	7.2	51	7.3	64	8.5	85	10.2	51	7.8
2010	37	5.7	58	8.1	61	7.9	82	9.5	76	11.4
2011	30	4.5	45	6.2	56	7.1	80	9.0	62	9.3
2012	34	5.0	40	5.4	57	7.0	81	8.9	72	10.7
2013	28	4.0	39	5.1	45	5.4	75	8.1	61	8.9
2014	31	4.4	41	5.1	57	6.5	77	7.9	58	8.2
2015	37	5.4	50	5.9	66	7.1	61	5.8	55	7.5
2016	38	5.6	55	6.2	59	6.0	60	5.6	56	7.3
2017	36	5.3	53	5.7	61	5.8	65	5.8	69	8.7
2018	32	4.8	44	4.5	76	7.0	71	6.0	66	8.1
2019	52	7.3	65	6.5	88	7.9	61	5.2	73	8.8
2020	40	5.4	48	4.6	57	5.1	61	5.2	63	7.5

Table A175. 150 heart failure mortality rate ratios to NZDep 1-2 by NZDep quintile 2000 – 2020

Year	NZDep 3 -4		NZDep 5 - 6		NZDep 7 - 8		NZDep 9 - 10	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	1.06	(0.71 - 1.58)	1.70	(1.20 - 2.43)	1.57	(1.10 - 2.27)	1.47	(1.00 - 2.16)
2001	1.16	(0.79 - 1.73)	1.43	(1.00 - 2.09)	1.86	(1.31 - 2.67)	1.61	(1.11 - 2.36)
2002	1.20	(0.80 - 1.83)	1.70	(1.17 - 2.50)	2.55	(1.81 - 3.68)	1.97	(1.35 - 2.90)
2003	1.59	(1.09 - 2.32)	1.68	(1.17 - 2.45)	2.01	(1.42 - 2.89)	1.66	(1.14 - 2.44)
2004	0.91	(0.60 - 1.38)	1.39	(0.96 - 2.02)	1.97	(1.41 - 2.81)	1.46	(1.01 - 2.14)
2005	1.26	(0.84 - 1.91)	1.31	(0.89 - 1.97)	1.68	(1.16 - 2.48)	1.28	(0.85 - 1.95)
2006	0.87	(0.57 - 1.33)	1.13	(0.77 - 1.69)	1.95	(1.39 - 2.80)	1.14	(0.77 - 1.71)
2007	1.32	(0.86 - 2.05)	1.91	(1.29 - 2.87)	1.86	(1.26 - 2.79)	1.77	(1.18 - 2.70)
2008	1.89	(1.21 - 3.01)	1.83	(1.18 - 2.91)	2.63	(1.75 - 4.10)	1.98	(1.27 - 3.16)
2009	1.01	(0.67 - 1.54)	1.17	(0.79 - 1.75)	1.42	(0.98 - 2.07)	1.08	(0.71 - 1.64)
2010	1.44	(0.94 - 2.23)	1.39	(0.91 - 2.15)	1.68	(1.13 - 2.55)	2.01	(1.35 - 3.06)
2011	1.38	(0.85 - 2.26)	1.58	(1.00 - 2.54)	2.01	(1.31 - 3.17)	2.07	(1.33 - 3.31)
2012	1.08	(0.67 - 1.75)	1.41	(0.91 - 2.22)	1.79	(1.19 - 2.75)	2.14	(1.41 - 3.31)
2013	1.27	(0.76 - 2.13)	1.34	(0.83 - 2.24)	2.00	(1.29 - 3.21)	2.20	(1.39 - 3.57)
2014	1.16	(0.71 - 1.91)	1.47	(0.94 - 2.35)	1.79	(1.17 - 2.82)	1.86	(1.19 - 2.96)
2015	1.10	(0.71 - 1.74)	1.33	(0.88 - 2.05)	1.09	(0.72 - 1.70)	1.40	(0.91 - 2.18)
2016	1.11	(0.73 - 1.73)	1.08	(0.71 - 1.68)	1.00	(0.66 - 1.56)	1.31	(0.86 - 2.03)
2017	1.07	(0.69 - 1.69)	1.10	(0.72 - 1.72)	1.10	(0.72 - 1.71)	1.64	(1.08 - 2.53)
2018	0.94	(0.59 - 1.54)	1.46	(0.96 - 2.29)	1.25	(0.81 - 1.97)	1.68	(1.09 - 2.65)
2019	0.89	(0.61 - 1.31)	1.09	(0.77 - 1.57)	0.71	(0.49 - 1.06)	1.20	(0.83 - 1.75)
2020	0.87	(0.56 - 1.35)	0.95	(0.63 - 1.47)	0.97	(0.64 - 1.49)	1.41	(0.94 - 2.15)

Table A176. 150 heart failure mortality numbers, rates, and rate ratios by NZDep, 2020

NZDep	N	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
1 - 2	40	4.2	5.4	(3.8-7.3)	1.00	Baseline
3 - 4	48	5.0	4.6	(3.4-6.2)	0.87	(0.56-1.35)
5 - 6	57	5.8	5.1	(3.9-6.6)	0.95	(0.63-1.47)
7 - 8	61	6.1	5.2	(4.0-6.7)	0.97	(0.64-1.49)
9 - 10	63	6.1	7.5	(5.8-9.6)	1.41	(0.94-2.15)

Table A177. I50 heart failure mortality rates by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	n	rate	n	rate	n	rate	n	rate
2000	91	11.4	79	14.9	98	17.1	105	14.1
2001	82	9.6	86	16.1	86	14.4	115	15.0
2002	93	10.5	106	18.9	101	16.3	102	12.7
2003	94	10.1	106	18.4	88	14.0	111	13.5
2004	85	9.2	90	15.0	89	13.7	102	12.2
2005	76	7.8	69	11.2	78	11.9	90	10.3
2006	86	8.6	92	14.0	61	8.9	91	9.9
2007	78	7.4	77	11.0	72	10.2	108	11.4
2008	71	6.5	83	11.6	59	8.2	109	11.2
2009	60	5.4	69	9.4	76	10.2	83	8.3
2010	80	6.8	72	9.6	66	8.6	89	8.4
2011	42	3.4	59	7.4	68	8.3	95	8.8
2012	55	4.4	69	8.4	68	8.1	81	7.3
2013	54	4.2	56	6.6	55	6.5	75	6.6
2014	56	4.1	60	6.7	55	6.2	86	7.3
2015	46	3.3	50	5.4	64	7.0	84	7.0
2016	52	3.6	63	6.5	51	5.4	80	6.4
2017	49	3.3	73	7.3	69	7.2	78	6.1
2018	46	3.0	75	7.2	55	5.7	86	6.7
2019	50	3.2	92	8.7	78	7.8	94	7.1
2020	50	3.1	71	6.5	55	5.4	75	5.5

Table A178. 150 heart failure mortality rate ratios to national average by health region 2000 – 2020

Year	Northern		Midland Te Manawa Taki		Central Te Ikaroa		Southern Te Waipounamu	
	RR	95%CI	RR	95%CI	RR	95%CI	RR	95%CI
2000	0.81	(0.63 - 1.02)	1.06	(0.82 - 1.35)	1.22	(0.96 - 1.52)	1.01	(0.80 - 1.25)
2001	0.71	(0.55 - 0.91)	1.20	(0.94 - 1.52)	1.08	(0.84 - 1.36)	1.12	(0.90 - 1.39)
2002	0.75	(0.59 - 0.94)	1.35	(1.08 - 1.68)	1.16	(0.93 - 1.45)	0.91	(0.72 - 1.13)
2003	0.75	(0.59 - 0.94)	1.36	(1.09 - 1.69)	1.04	(0.81 - 1.31)	1.00	(0.80 - 1.24)
2004	0.76	(0.59 - 0.96)	1.24	(0.97 - 1.56)	1.13	(0.88 - 1.43)	1.01	(0.80 - 1.26)
2005	0.77	(0.59 - 1.00)	1.11	(0.84 - 1.45)	1.19	(0.91 - 1.53)	1.03	(0.80 - 1.31)
2006	0.85	(0.66 - 1.07)	1.38	(1.08 - 1.75)	0.88	(0.66 - 1.16)	0.98	(0.77 - 1.24)
2007	0.75	(0.58 - 0.96)	1.12	(0.86 - 1.44)	1.03	(0.79 - 1.34)	1.16	(0.92 - 1.45)
2008	0.71	(0.54 - 0.92)	1.26	(0.98 - 1.61)	0.88	(0.66 - 1.17)	1.21	(0.97 - 1.52)
2009	0.68	(0.50 - 0.89)	1.16	(0.88 - 1.52)	1.27	(0.97 - 1.64)	1.04	(0.80 - 1.33)
2010	0.83	(0.64 - 1.06)	1.17	(0.89 - 1.52)	1.05	(0.79 - 1.37)	1.03	(0.80 - 1.31)
2011	0.50	(0.35 - 0.70)	1.10	(0.81 - 1.46)	1.23	(0.93 - 1.61)	1.30	(1.02 - 1.66)
2012	0.64	(0.47 - 0.86)	1.23	(0.93 - 1.61)	1.20	(0.91 - 1.57)	1.08	(0.83 - 1.39)
2013	0.72	(0.52 - 0.97)	1.12	(0.82 - 1.51)	1.11	(0.81 - 1.50)	1.14	(0.87 - 1.49)
2014	0.69	(0.51 - 0.93)	1.13	(0.84 - 1.51)	1.04	(0.76 - 1.39)	1.23	(0.95 - 1.58)
2015	0.60	(0.43 - 0.83)	0.98	(0.70 - 1.33)	1.27	(0.95 - 1.68)	1.26	(0.97 - 1.63)
2016	0.67	(0.49 - 0.91)	1.22	(0.91 - 1.61)	1.01	(0.73 - 1.37)	1.20	(0.92 - 1.55)
2017	0.58	(0.42 - 0.79)	1.28	(0.97 - 1.66)	1.25	(0.95 - 1.64)	1.07	(0.82 - 1.39)
2018	0.56	(0.40 - 0.76)	1.33	(1.01 - 1.72)	1.05	(0.77 - 1.40)	1.22	(0.95 - 1.57)
2019	0.50	(0.37 - 0.68)	1.36	(1.07 - 1.72)	1.23	(0.94 - 1.58)	1.12	(0.88 - 1.41)
2020	0.63	(0.46 - 0.85)	1.31	(0.99 - 1.71)	1.09	(0.80 - 1.46)	1.12	(0.85 - 1.46)

Table A179. I50 heart failure mortality numbers, rates, and rate ratios to total rate, by health district, 2020

Health District	N	Rate			Rate ratio to national rate	
		Crude	age adj'd	95%CI	RR	95% CI
Total	251	5.1	5.2	(4.6-5.9)	1.00	Baseline
Northland	19	10.0	9.3	(5.6-14.6)	1.77	(1.05 - 2.84)
Waitematā	9	1.4	1.6	(0.7-3.0)	0.31	(0.14 - 0.59)
Auckland	14	2.9	3.6	(2.0-6.0)	0.69	(0.37 - 1.17)
Counties Manukau	8	1.4	2.1	(0.9-4.0)	0.40	(0.17 - 0.78)
Waikato	21	4.9	5.0	(3.1-7.6)	0.95	(0.58 - 1.48)
Lakes	5	4.4	4.7	(1.5-10.9)	0.90	(0.29 - 2.11)
Bay of Plenty	29	11.3	8.9	(6.0-12.9)	1.70	(1.12 - 2.53)
Tairāwhiti	1	2.0	2.2	(0.1-11.7)	0.42	(0.01 - 2.26)
Taranaki	15	12.2	10.3	(5.7-17.1)	1.96	(1.08 - 3.34)
Hawke's Bay	8	4.6	4.1	(1.8-8.1)	0.78	(0.33 - 1.57)
Whanganui	7	10.4	8.3	(3.3-17.7)	1.59	(0.63 - 3.43)
MidCentral	12	6.6	5.8	(3-10.2)	1.10	(0.56 - 1.98)
Capital, Coast & Hutt Valley	27	5.8	6.6	(4.3-9.5)	1.25	(0.81 - 1.86)
Wairarapa	1	2.1	1.7	(0.0-10.7)	0.33	(0.01 - 2.06)
Nelson Marlborough	13	8.3	6.4	(3.4-11.3)	1.23	(0.65 - 2.19)
West Coast	1	3.0	3.0	(0.1-17.1)	0.57	(0.01 - 3.30)
Canterbury	25	4.4	4.3	(2.8-6.3)	0.81	(0.52 - 1.23)
South Canterbury	10	16.4	11.8	(5.7-22.5)	2.26	(1.07 - 4.38)
Southern	26	7.7	7.1	(4.6-10.5)	1.36	(0.87 - 2.05)

Table A180. I50 heart failure mortality rates and rate ratios by GCH, 2020

GCH	n	Rate			RR	95% CI
		Crude	Age-adj'd	95% CI		
U1	130	4.1	4.1	(3.4-4.8)	1	Baseline
U2	65	7.2	5.3	(4.1-6.8)	1.30	(0.95-1.78)
R1	39	6.3	4.2	(3.0-5.9)	1.04	(0.71-1.52)
R2	29	10.0	6.8	(4.5-9.9)	1.67	(1.07-2.55)
R3	6	12.1	8.1	(2.9-19.2)	1.98	(0.71-4.85)

Table A181. Included scripts

TG_NAME1	TG_NAME2	TG_NAME3	CHEMICAL NAME
Cardiovascular System	Agents Affecting the Renin-Angiotensin System	Angiotensin II Antagonists with Neprilysin Inhibitors	All
		Angiotensin II Antagonists	
		ACE Inhibitors	
	Beta-Adrenoceptor Blockers	Beta Adrenoceptor Blockers	
	Diuretics	Loop diuretics	
		Potassium Sparing Diuretics	
	Lipid-Modifying Agents	Fibrates	
		HMG CoA Reductase Inhibitors (Statins)	
	Nitrates	Nitrates	
Blood and Blood Forming Organs	Antithrombotic Agents	Antiplatelet Agents	Aspirin (100mg)
			Clopidogrel
			Ticagrelor
		Oral anticoagulants	Warfarin
			Rivaroxaban
			Dabigatran
Alimentary Tract and Metabolism	Diabetes	SGLT2 Inhibitors	All

Scripts in bold were included in costs. Non-bolded scripts were collected for potential inclusion, but excluded on the basis of potential for prescription for non-cardiac conditions.

Prescription data reported cover statins (shaded in green).

APPENDIX 3: WORKFORCE DATA

MINISTRY OF HEALTH DATA

The following data were provided by the Ministry of Health under the Official Information Act, in response to a request for numbers of staff employed in the public health system in Aotearoa, broken down by (former) DHB region, across the following categories:

- Cardiologists
- Cardiovascular/cardiac/cardiothoracic nurses or other cardiac-related specialty nurses
- Sonologists/sonographers
- Cardiac physiologists

The Ministry of Health noted that data were provided from the Health Workforce Information Programme (HWIP) – a programme within Health New Zealand | Te Whatu Ora (Health NZ), sponsored by the People and Communications Group. The programme holds data on the District employed workforce providing a national, regional and local picture of the health and disability sector workforce in terms of its 'stocks and flows'. More information is available at <https://www.tewhatauora.govt.nz/our-health-system/health-workforce-information-programme/>

The following notes were provided on the data:

- Health NZ District data was extracted from the HWIP database on 11/03/2024 and reflects people employed by the Health NZ Districts.
- HWIP collects data from the Health NZ Districts as at the end of each quarter, and data as at 30 September 2024 is the most current data available.
- Data includes permanent and fixed term employees and excludes contractors, employees on long term leave, parental leave, leave without pay and those with zero contracted hours.
- For this request data has been included from 18 Health New Zealand Districts.
- Employee Count is a distinct count of individual employee numbers. There is the potential for individuals to be counted more than once if they have roles in more than one Occupation Group.
- All FTE values are contracted FTE (where 1 FTE = 2086 hours per year).
- Cardiologists are employees with ANZSCO Description 'Cardiologist', code 253312.
- Sonographers are employees with ANZSCO Description 'Sonographer', code 251214 and Primary Area of Work 'Medicine - Cardiology' (codes 0107). There is no ANZSCO code for 'Sonologists' workforce.
- Cardiac Physiologists do not have a specific ANZSCO code, employees have been identified using the term 'physiol' appearing in their Job Title and a Primary Area of Work of 'Cardiology' (codes 0107, 0611), or employees whose job title say 'CARDIAC PHYSIOLOGIST' whose primary area of work is outside Cardiology (0107, 0611).
- Nursing staff are those with Occupational Group 'Nursing' and Primary Area of Work 'Cardiology' (codes 0107, 0611).
- This data does not include Health NZ National Office or Shared Service Agency employees.
- Where there are blanks/dashes in the tables this means no data has been reported to HWIP from the District.
- The data provided in Table A182, as noted, has been extracted using a job title search for Sonographer - Cardiology and Nursing - Cardiology. These figures can be combined with the respective data in Table A183, if required.

Table A182. Cardiology workforce identified by Job title -as at 30 September 2024

(This count has been picked outside of the ANZSCO codes and PAOW 'Medicine - Cardiology' and 'Surgery - Cardio-thoracic Surgery')

District	Sonographer - Cardiology		Nurse - Cardiology	
	Employee count	Contracted FTE	Employee count	Contracted FTE
Bay of Plenty	2	1.0	-	-
Capital & Coast	-	-	1	0.8
Counties Manukau	-	-	1	0.5
Nelson Marlborough	-	-	1	0.7
Northland	2	1.9	6	4.9
South Canterbury	-	-	3	1.7
Southern	-	-	1	0.5
Tairāwhiti	3	2.8	-	-
West Coast	-	-	1	0.8
Grand Total	7	5.7	14	9.8

Table A183. Cardiology workforce identified by Job title -as at 30 September 2024

District	Cardiologist		Sonographer		Cardiac Physiologist		Nursing		Total	
	Employee count	Contracted FTE	Employee count	Contracted FTE	Employee count	Contracted FTE	Employee count	Contracted FTE	Employee count	Contracted FTE
Auckland	49	47.5	-	-	39	35.3	470	393.9	558	476.8
Bay of Plenty	9	6.6	-	-	6	5.0	20	14.8	35	26.4
Canterbury	16	14.9	10	7.4	17	14.6	126	100.9	169	137.8
Capital & Coast	17	13.3	1	0.9	21	18.7	108	80.5	147	113.4
Counties Manukau	20	19.9	7	6.5	15	14.5	27	24.8	69	65.7
Hawke's Bay	4	4.0	2	2.0	2	1.0	53	39.0	61	46.0
Hutt Valley	5	3.3	-	-	1	0.7	31	25.7	37	29.7
Lakes	-	-	-	-	-	-	4	2.9	4	2.9
MidCentral	4	4.0	-	-	3	3.0	56	45.3	63	52.3
Nelson Marlborough	4	3.5	-	-	6	3.9	10	8.6	20	16.0
Northland	4	4.6	-	-	2	2.0	-	-	6	6.6
South Canterbury	-	-	-	-	-	-	-	-	-	-
Southern	8	8.2	-	-	15	13.6	10	7.8	33	29.6
Tairāwhiti	-	-	-	-	-	-	-	-	-	-
Taranaki	-	-	-	-	3	2.4	13	9.6	16	12.0
Waikato	24	21.6	9	8.4	1	1.0	144	125.5	178	156.5
Wairarapa	-	-	-	-	-	-	-	-	-	-
Waitemata	19	21.8	15	12.6	22	19.0	102	78.7	158	132.1
West Coast	-	-	-	-	-	-	-	-	-	-
Whanganui	-	-	-	-	-	-	-	-	-	-
Grand Total	183	173.2	44	37.8	153	134.7	1174	958.0	1554	1303.7

MEDICAL COUNCIL OF NEW ZEALAND DATA

The Medical Council of New Zealand shared the following data on doctors who reported working in cardiology in its 2025 Workforce Survey. Region and employer were self-reported by the respondent. Head counts are shown in Table A184 and FTEs in Table A185. We note that not all doctors may have responded to the survey.

Table A184. Respondents who reported working in the sub-specialty of cardiology, head count by region (public and private)

Region	Work role					
	Other	House officer	Medical Officer	Registrar	Specialist	Grand Total
Auckland	<=3	6	4	9	50	70
Bay of Plenty			<=3	<=3	10	14
Canterbury	<=3	4		10	23	38
Capital, Coast, & Hutt Valley	<=3	<=3		10	21	34
Counties Manukau	<=3	5		5	17	28
Hawke's Bay			<=3		8	9
Lakes					<=3	<=3
MidCentral		<=3		<=3	4	6
Nelson Marlborough			<=3	<=3	5	8
Northland				<=3	8	10
South Canterbury					<=3	<=3
Southern				<=3	10	13
Tairāwhiti					<=3	<=3
Taranaki					<=3	<=3
Waikato		5		10	28	43
Waitematā	<=3	<=3	<=3	5	20	28
Whanganui					<=3	<=3
Total	9	25	9	57	185	279

Table A185. Respondents who reported working in the sub-specialty of cardiology, FTEs by sector and region

Region	Work role											
	Other		House officer		Medical Officer		Registrar		Specialist		Total	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Auckland	2.4	0.0	7.3		4.2		12.5		36.3	0.0	62.6	0.0
Bay of Plenty					1.0		1.5	0.0	7.3	9.2	9.8	9.7
Canterbury	1.3	0.0	5.0				13.5		16.6	7.3	36.4	7.3
Capital, Coast, & Hutt Valley	1.2	0.4	2.3				13.0		20.0	13.6	36.4	14.6
Counties Manukau	1.0		4.9	0.0			6.6		14.8	1.6	27.2	2.8
Hawke's Bay						0.0			5.7	0.9	5.7	0.9
Lakes									2.2	4.7	2.2	4.9
MidCentral			1.1				1.5		3.2	0.0	5.8	0.0
Nelson Marlborough					0.9	0.0	2.5		4.9	2.2	8.3	3.2
Northland							2.5		7.3	2.7	9.8	2.7
South Canterbury									1.6		1.6	
Southern							3.6		10.9	0.1	14.6	0.1
Tairāwhiti									0.4		0.4	1.1
Taranaki									1.4	0.1	1.4	0.3
Waikato			6.3				13.4		24.9	0.1	44.5	0.1
Waitematā		1.0	2.9		0.5		7.5		17.7	4.4	28.6	5.4
Whanganui									0.3		0.3	
Total	5.9	2.1	29.7	1.0	6.6	1.3	78.0	1.2	175.4	48.4	295.6	54.6

Figures for “private” were calculated by subtracting “public” from “total”.



Kia Manawanui Trust
The Heart of Aotearoa New Zealand

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