Nelson Marlborough Health Needs and Service Profile 2015

TE WAI ORA

Nelson Marlborough
District Health Board

This report was developed and written by Health Partners Consulting Group on behalf of Nelson Marlborough DHB. The DHB and PHO's assistance in supporting the data acquisition, analysis and feeding back on the commentary has been invaluable. Data analysis has been carried out in good faith, assuming all data provided is as stated. No responsibility can be taken for any errors resulting, or actions taken as a result of those errors. The report may be freely used and copied for the purposes of improving the health of New Zealanders, providing the source is acknowledged.

Health Partners Consulting Group
Street/courier address: Unit 3.1, 8a Cleveland Rd, Parnell, Auckland
Postal address: PO Box 147209, Ponsonby, Auckland

Lead authors:
Dr Gary Jackson
Luke Williams
Ahmed Marmoush
Contact: gary@healthpartnersconsulting.com
Phone: +64 9 379 8620

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The report is available in electronic form from: www.nmdhb.govt.nz

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Foreword

To provide the right health services to our community, we need to know what health services the people of our community require.

In Nelson Marlborough we aim for a whole of system approach, with a strong emphasis on public health and preventive care, leading the way to health conscious families. We work across organisational and professional boundaries to address the health issues for our community. We also work closely with our Treaty of Waitangi partners to address Māori health issues for our population.

We are therefore delighted to present the 2015 Nelson Marlborough Health Needs and Service Profile data. Building on past health needs assessment work, the report summarises the quantitative analyses around the health and well-being of our local community, and will underpin the next stages of the Nelson Marlborough strategic health planning process that will guide future service and facility development. While progress is being made in the health of our community, as this report demonstrates we have quite a way to go to address the health inequalities present.

The Nelson Marlborough Health Needs and Service Profile sits alongside other streams of work gathering the community's views on the health and disability services and their access to them, and more qualitative work assessing our progress in every area of our work.

It will form part of an outcomes framework that will allow us to measure our progress in improving people's health across our key health and wellbeing priorities. It also documents some areas where data is incomplete or is not easily available. For example, while it is straightforward to count hospitalisation rates, it is more challenging to measure the underlying illness and circumstances leading to those hospitalisations, and describing the preventive or primary care processes that might have pre-empted them. Further information in the disability space is needed, as it is for mental health, two major areas of opportunity for health gain for our DHB. Part of the future work will be developing our information capability to address some of these gaps.

Assessment of the community's health needs is a critical foundation for ensuring our services are responsive and relevant. A vital part of that is getting feedback from communities, groups and individuals across the region. We encourage you to read this document and give us your feedback so together we can shape our future health system.

Chris Fleming
Chief Executive
Nelson Marlborough District Health Board

Key Points

The Nelson Marlborough (NM) population has generally good health compared to others in New Zealand, and generally good access to health and disability support services.

Specific points to note, in the order presented in the document (see summary sheets at the beginning of most Sections):

- Nelson Marlborough has a relatively stable population, with low population growth expected. The largest proportionate growth is in the elderly, with the 75+ age group increasing at 4.5% pa, similar to the New Zealand average (Section 1)
- The NM population is relatively less deprived than the New Zealand average. Nelson Marlborough has lower proportions of Māori, Pacific and Asian populations (1, 2)
- The NM population has a higher life expectancy than the New Zealand average, and lower amenable mortality. Males have a lower life expectancy than females (3)
- **Māori** in NM are doing better than Māori elsewhere in New Zealand on most health indicators, but a large gap still exists in the majority of health indicators compared with non-Māori in NM. The impact of chronic conditions for Māori begins 10 years earlier than non-Māori (3-11)
- **Children** (0-14 years) are generally at lower risk and in better health than their national counterparts. Specific concerns include child abuse, dental health, Māori children (2.4, 3.4, 7.2, 7.3)
- The NM population ranks relatively low on most risk factors, but still has 15,000 **smokers** and 34,000 adults who are **obese** - 6,000 of them morbidly obese (4)
- More than 6,000 people in Nelson Marlborough have **diabetes**, and prevalence is growing (5.1)
- The incidence of coronary heart disease is falling, but it remains the single largest cause of health loss (5.2)
- General practice coverage and quality is similar to the New Zealand average. Cost is noted as a barrier to access by one-third of people (6)
- Most hospital care is provided locally. Unplanned admission rates are lower than the national average. Planned rates are slightly above the New Zealand average, indicating reasonable access to elective surgery (7)
- Ambulatory sensitive hospitalisation rates are lower than the New Zealand average, apart from Māori children (7.2)
- Emergency department (ED) attendance rates are higher than nationally, and are particularly high at Wairau Hospital (8). This may link to lower after-hours access to primary care (6.1)
- **Youth** (15-24 year olds) are at higher risk than their national counterparts – eg for injury, ED attendance and maternity (5.9, 7.3, 8, 10). Tobacco smoking initiation remains a concern (4.1, 4.1.1), as does alcohol misuse (4.2)
- The elderly (age 75+) appear to have good access to hospital and community-based services, with good ageing in place support (7.3, 9)
- Birth numbers are stable. 1 in 5 mothers are obese, increasing their obstetric risk. Caesarean section rates are relatively high, and are climbing (10)
- Access to mental health and addiction specialist services is similar to the national average. Māori have a higher need for and use of mental health and addiction services than non-Māori (11)
- People aged under age 65 use disability support services in NM at a higher Ministry of Health funded rate than the New Zealand average. Both residential care and non-residential support utilisation rates are high (12)

Introduction

The development of this Nelson Marlborough Health and Service Profile (also referred to as a health needs assessment) aims to support the future planning and strategic direction for Nelson Marlborough DHB. It reflects the past and current state, including:

- Analysis of the demographic, geographic, socio-economic and epidemiological factors that shape current demand
- Analysis of current utilisation of services, and the performance of these services against national, regional and specific DHB benchmarks and targets
- Projected future baseline demand based on demographic and performance parameters, assuming the current way of working continues.

The aim is to develop an evidence base to support identification of areas for health improvement for people living in Nelson Marlborough (NM). When linked with other information and qualitative work within the framework of **Health for Tomorrow**, it will form the foundation of a sustainable strategic approach to health care planning.

Health needs assessment

Health needs assessment is an ongoing process in DHB development – it is not a single document. This report has been developed with the view to expandability and continuous updating through its modular design. As further more detailed analysis is carried out, through either the DHB or other agencies, the results can be summarised and added. This Profile builds on previous health needs assessments and other work carried out in the area as referenced throughout.

A locality analysis is undertaken where possible in this Profile to highlight differences and similarities by the geographic area in which people live. For utilisation analyses the Profile covers treatments anywhere in New Zealand for NM residents.

The parts that ethnicity and deprivation play in the social patterning and determination of health, illness and mortality are described and quantified where possible. NM is compared with other areas across New Zealand or the national average as appropriate. Use of NMDHB services by non-residents (either from other parts of New Zealand or overseas) are generally not included in the Profile. The only place where they feature is the overall hospital capacity forecasts where a full service capacity picture is needed. The prime focus of a DHB is the health of the population it serves – that is the focus here.

Coverage

Not every aspect of the health system is covered, nor in as much detail as might be possible. The aim is not to produce a compendium of every possible health statistic, but to focus on key drivers and metrics needed to develop an evidence-based approach to health services planning.

In particular, we would note that the small sizes of some of the population groups limit the quantitative analyses that are possible (see comment on specific groups in *Methods* below). Similarly, while the Profile concentrates on data for NM residents, in some cases national data is used where local data is not available. This is clearly signalled in the text and tables concerned. It particularly applies to Māori health measures, where either the sample size is too small (eg, New Zealand Health Survey) or the population numbers are too small (eg, mortality rates) to allow meaningful comparisons to be made on the local data.

Child health is a key measure of a communities' overall health success, and is covered throughout the Profile in each section. Much more detail is available in previous reports compiled by the New Zealand Child Epidemiology Service for NM, which also include extensive literature reviews. Similarly, quality of hospital-based healthcare provision, and patient satisfaction and experience are covered in separate annual reports and are not further presented here.

Methods

International and national literature relating to population health was reviewed to inform the analysis and interpretation of this report. This included academic and relevant grey literature (government, DHB and other online publications), concentrating on material specific to NM. The literature review was selective in scope, guided by the priorities outlined above.

Existing work was used where possible, avoiding duplication of effort and resource. Locality analyses were developed where data allowed. Localities are based on the current Territorial Authority boundaries, as these are well-known to people, and reflect reasonable communities of interest - see Section 1.0.

Throughout the Profile we use a mixture of crude and age-standardised rates. Crude rates are useful in allowing actual numbers to be estimated. Age-standardised rates allow comparisons

between areas, excluding the effect of age structures. This is useful in the NM context with the older populations present. Any statistical testing undertaken is on the age-standardised rates, unless otherwise specified. Age standardisation is carried out to the 2013 New Zealand estimated resident population. If information quoted from other sources uses different age-standardised rates we note that – for example, the New Zealand Health Survey data is age-standardised to the WHO standard population.

Comparisons between rates are often presented as *rate ratios*. These are simple proportion where for example a rate of 1 represents the same rate, 1.2 represents a 1.2x or 20% higher rate, and 0.8 represents a rate 20% lower.

Due to the multiple testing format of the Profile, statistical significance is only noted at the 99% level. The word 'significant' is only used in the Profile to refer to statistically significant findings.

Māori

Previous health needs assessments for NMDHB have highlighted Māori inequities in health. The present work uses a Māori/non-Māori framework to analyse and present the data wherever possible. Where numbers are too small to calculate stable rates, or where local numbers were not available then national comparison rates were used as noted.

Pacific peoples

Pacific health is highlighted as an issue nationally. There are likely to be many issues for Pacific peoples living in NM, but the population numbers are too few (just over 2,000 in 2013) to allow specific quantitative analyses for this group separately. For the purposes of this report, Pacific are included in the 'non-Māori' population. A more qualitative analysis is recommended to assess health service planning needs for this group. A set of national resources on Pacific health are available which provide insights for developing services for Pacific people – these are noted in the References section.

Asian

As for the Pacific group, the Asian population numbers in NM are too small to allow meaningful quantitative analysis. National analyses (see References section) generally indicate a population group with similar or better health than those of European descent, with a few specific notable areas – such as diabetes and heart disease in Indian and other South Asian populations. For the purposes of this Profile peoples of Asian ethnicity are included in the 'non-Māori' population.

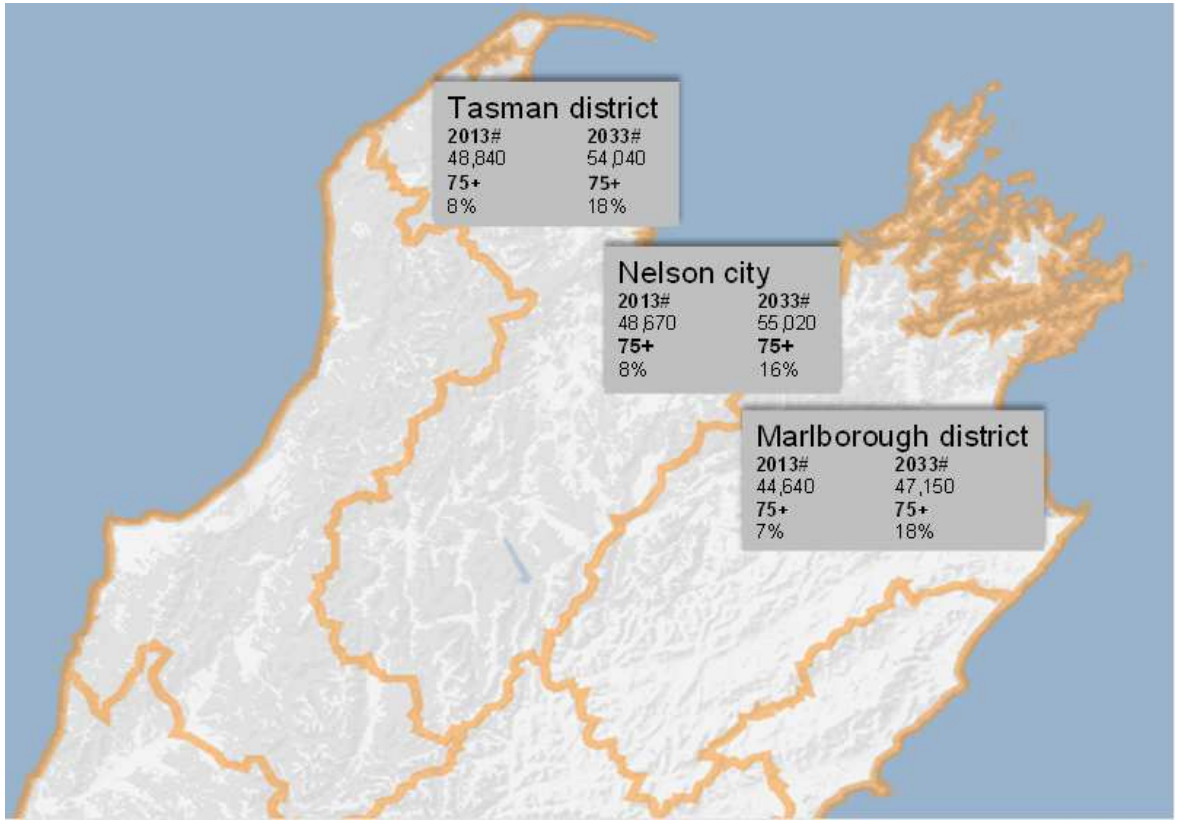
Former refugees

Nelson Marlborough has a noted and growing share of the national refugee resettlement programme. While these people are likely to have relatively high health needs, it is not possible to easily separately identify them in the national health data collections. A more qualitative analysis is recommended to assess health service planning needs for this group.

Further detail on the codes used for the indicators is covered in the appendix.

1.0 Nelson Marlborough population by locality

Locality map



Source: Statistics New Zealand Boundary maps

Geographic coverage

Nelson Marlborough DHB covers the top of the South Island, including Golden Bay, Nelson, Picton and Blenheim. NMDHB serves an estimated resident population of 144,500 in 2015 (2013, Statistics New Zealand estimate) with a catchment area that encompasses 3 territorial authorities ('TAs'). These include Nelson City (445 km^2), Tasman District (9,771 km^2) and Marlborough District (12,484 km^2). Throughout this report the NMDHB catchment will be referred to as Nelson Marlborough ('NM').

Geographic division

A locality analysis has been undertaken where possible in this report to highlight differences and similarities across NM. In conducting a locality based analysis the three TA areas have been used. Throughout this report Marlborough, Nelson and Tasman will be referred to as localities.

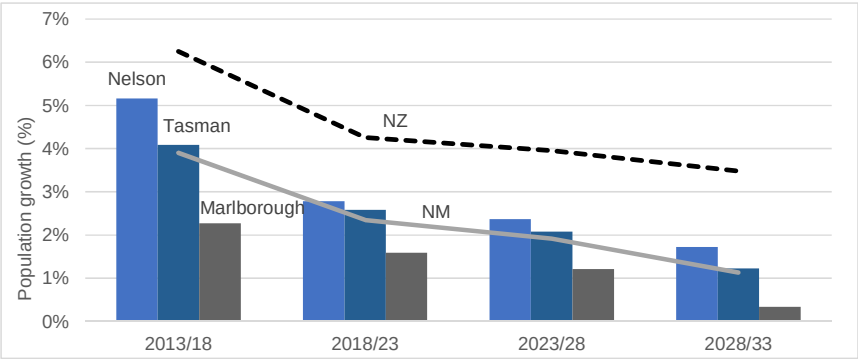
1.1 Population size and growth

The NM population is growing at a slower rate than the national population

Population size and growth 2013 to 2033

Area	2013	2033	2013-33 growth	2013-33 % growth	% growth pa
NM	142,150	156,200	14,100	9.0%	0.4%
NZ	4,442,215	5,338,400	896,200	16.8%	0.8%
Marlborough	44,640	47,200	2,500	5.3%	0.3%
Nelson	48,670	55,000	6,400	11.5%	0.5%
Tasman	48,840	54,000	5,200	9.6%	0.5%

Projected growth (%) in population by locality 2013 to 2033, NM and NZ



Percentage growth in 5-yearly groups

Aged 75+ population size and growth 2013 to 2033

Area	2013	2033	2013-33 growth	2013-33 % growth	% growth pa
NM	10,900	26,500	15,600	140%	4.5%
NZ	335,900	758,600	422,700	130%	4.2%
Marlborough	3,670	8,300	4,600	130%	4.2%
Nelson	3,790	8,600	4,800	130%	4.2%
Tasman	3,430	9,700	6,300	180%	5.3%

Source: Subnational population projections by census area unit, age and sex 2013-2043, Statistics New Zealand, 2015

Why is this important?

Awareness about the population size and projected growth in NM provides an indication of expected demand for health services in the future. This impacts health service facility and workforce planning as the DHB will need to consider how much more capacity will be required over the next 20 years and whether the appropriate workforce exists to meet projected demand.

How is it measured?

In New Zealand the *estimated resident population* (ERP) is used as the official population for planning purposes by the Ministry of Health and District Health Boards. It is calculated by Statistics New Zealand, based on the census counts (rather confusingly called the *usually resident population (URP)*) with additions for the estimated undercount in the census, and for people temporarily overseas at the time of the census. The recent 2013 Census has allowed up-to-date population estimates and projections – updated TA projections became available in Feb 2015.

Nelson Marlborough

At 142,150 people in 2013 NM makes up 3.2% of the New Zealand population. The NM population is growing at about half the rate of NZ, with 9% growth expected in the 20 years from 2013 to 2033, compared to 17% for NZ. By 2033 NM is projected to have an additional 14,000 residents living in its area.

At the locality level, Nelson is projecting the strongest population growth (11.5%), equating to an additional 6,350 residents by 2033. Tasman is projected to grow by 9.6%, in absolute terms an additional 5,200 residents by 2033. Marlborough is projecting the slowest growth (5.3%), equating to an additional 2,500 residents by 2033.

Growth is expected to be highest in the older populations. NM's 75+ population is projected to more than double, a slightly higher rate than for NZ as a whole. Tasman is projected to have the largest 75+ growth, and the largest percentage growth, nearly tripling by 2033. Care of the elderly will be in increasing proportion of the DHB's work.

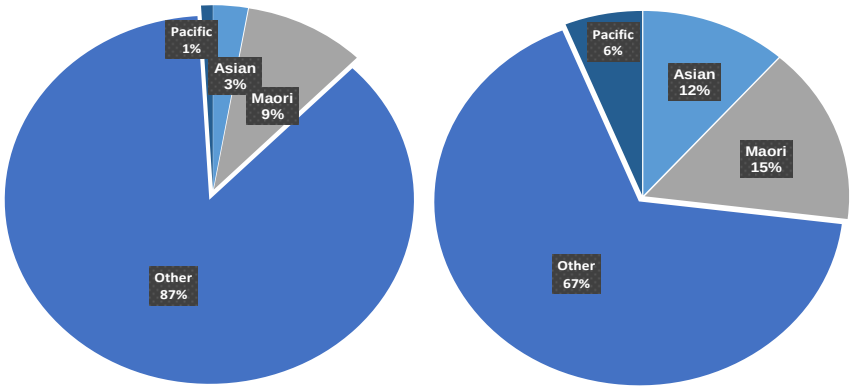
Within NM, Nelson is projecting the largest growth overall, and Tasman the highest age 75+ growth

1.2 Population ethnicity

NM population projections by ethnicity

NM ethnicity	ERP 2013	% 2013	ERP 2033	% 2033	2013-33 % growth	% growth pa
Asian	4,590	3%	9,400	6%	105%	3.6%
Māori	13,980	10%	19,000	12%	36%	1.5%
Other	121,440	85%	123,600	79%	2%	0.1%
Pacific	2,060	1%	4,100	3%	99%	3.5%
Māori	13,980	10%	19,000	12%	36%	1.5%
Non-Māori	128,090	90%	137,100	88%	7%	0.3%

Population by ethnicity, NM and NZ, ERP 2013



Net international migration by locality for NM, 2008 - 2013

Marlborough	-710
Nelson	210
Tasman	-850
NM	-1360

Source: Statistics New Zealand, Census 2013

Why is this important?

The ethnic composition of a population provides insight into the level of need and the service requirements to ensure access and outcomes are equitable. For example evidence has shown Māori and Pacific populations have poorer health outcomes than other population groups suggesting the need for additional targeted health service resources.

Ensuring services are sensitive to ethnic and cultural backgrounds that exist within the district is important for enhancing access and improving health outcomes.

Note that for the remainder of this report the NM population will be split into Māori and non-Māori. The non-Māori population will include the Asian, Other and Pacific populations. For further detail on the health of Pacific and Asian people specifically in NZ, see links in the reference section.

Estimated resident Māori population in NM, by locality, 2013

TLA	Maori	% total pop
Marlborough	5,310	12%
Nelson	4,830	10%
Tasman	3,830	8%
Total	13,970	10%

Minor variances in total Māori population between tables is explained by rounding errors

Nelson Marlborough

NM has a significantly lower proportion of Māori (10%) and Pacific (1%) people in comparison to the national average. Marlborough holds the largest number of Māori and Pacific people at 5,100 and 700 respectively. The majority of the population (87%) are considered 'Other' compared with 67% across New Zealand as a whole. The Other population is largely made up of Europeans with small numbers of people with Middle Eastern, Latin American and African origin. At the locality level, the Other population make up over 80% of Marlborough and Nelson, and ~90% of Tasman.

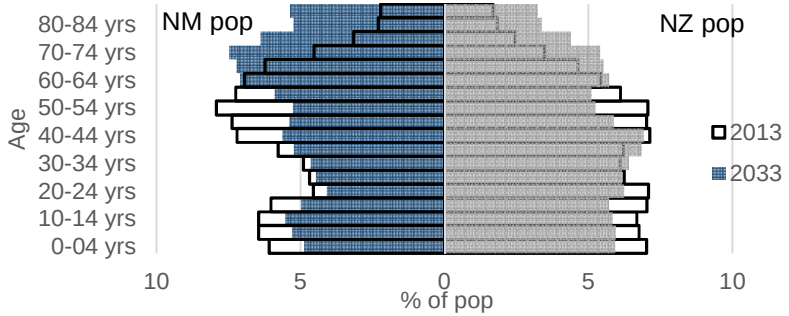
The Asian population in NM is 4,500 with just under half residing in Nelson (~2,000). This population accounts for the third largest ethnic group after Other and Māori, and is projecting the largest percentage growth by 2033 (105%).

International migration into NM between 2008 and 2013 has been limited - over this period more migrants left NM than arrived (1,360 fewer). Nelson was the only locality to have an increase in their total international migrant population (210 more).

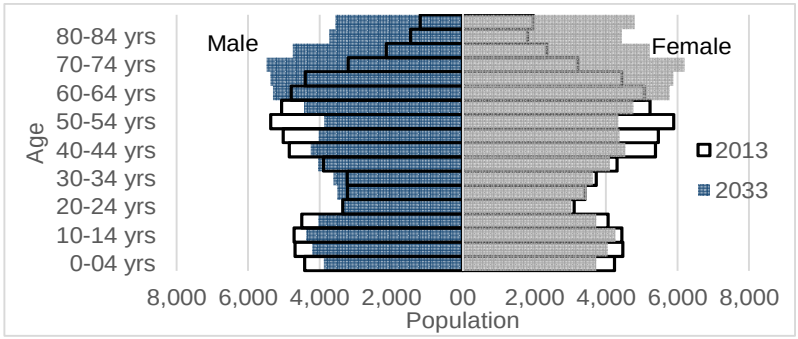
1.3 Population age structure

The NM population is older than the national average with 8% of the population being over 75 years compared with 6% across NZ

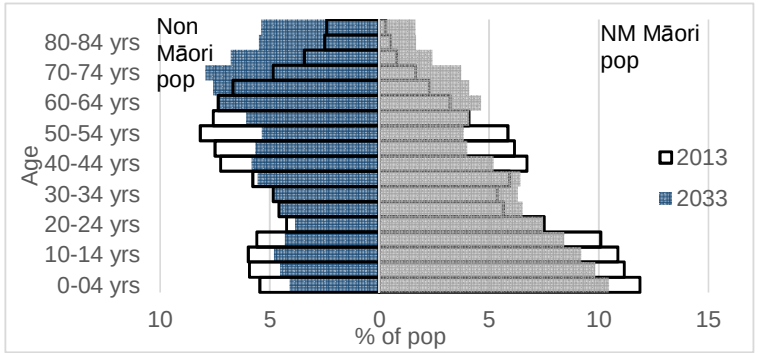
Age structure comparison for NM and NZ, % 2013 and 2033



Age structure by sex for NM, 2013 and 2033



Age structure comparison, NM non-Māori and Māori pop, % 2013 and 2033



Source: Statistics New Zealand projections Feb 2015

Why is this important?

The age structure of a population is another factor that provides insight into the expected level of need. Age groups considered more likely to utilise services are those under 5 years and those 75 years and over. For example, NM residents over 75 years made up 26% of medical, surgical and acute treatment and rehabilitation (AT&R) hospitalisations in 2013/14, with this age group only accounting for 8% of the NM population. With an average length of stay of almost 4 days, 1.5 times that of patients aged less than 75 years, patients over 75 years accounted for 40% of hospital bed days in the same period.

In the Māori population the onset of chronic disease is roughly 10 years earlier. Refer to *Section 5 Long term conditions* for further detail.

Understanding the age structure of the population and the implications of ageing on service utilisation is crucial to ensuring service sustainability.

The NM Māori population is younger than non-Māori at present, but growth in older ages is projected

Nelson Marlborough

The NM population has a fairly equal proportion of males (48%) and females (51%) and a reasonably similar age structure by sex, although female numbers tend to be greater in the older age groups.

The NM population is older than the New Zealand average with 8% being over 75 years compared with 6% across New Zealand. Projections suggest this figure will roughly double with ~17% of the NM population being over 75 years by 2033. This will extend the age difference, with the national average sitting at 11% of the population over 75 years by 2033.

The NM Māori population is young with just over half (52%) aged less than 24 years and only 6% aged over 65 years. This provides health service providers with the opportunity to positively impact Māori youth to promote healthier lifestyle routines, avoiding or delaying chronic disease and the consequential demand on health services.

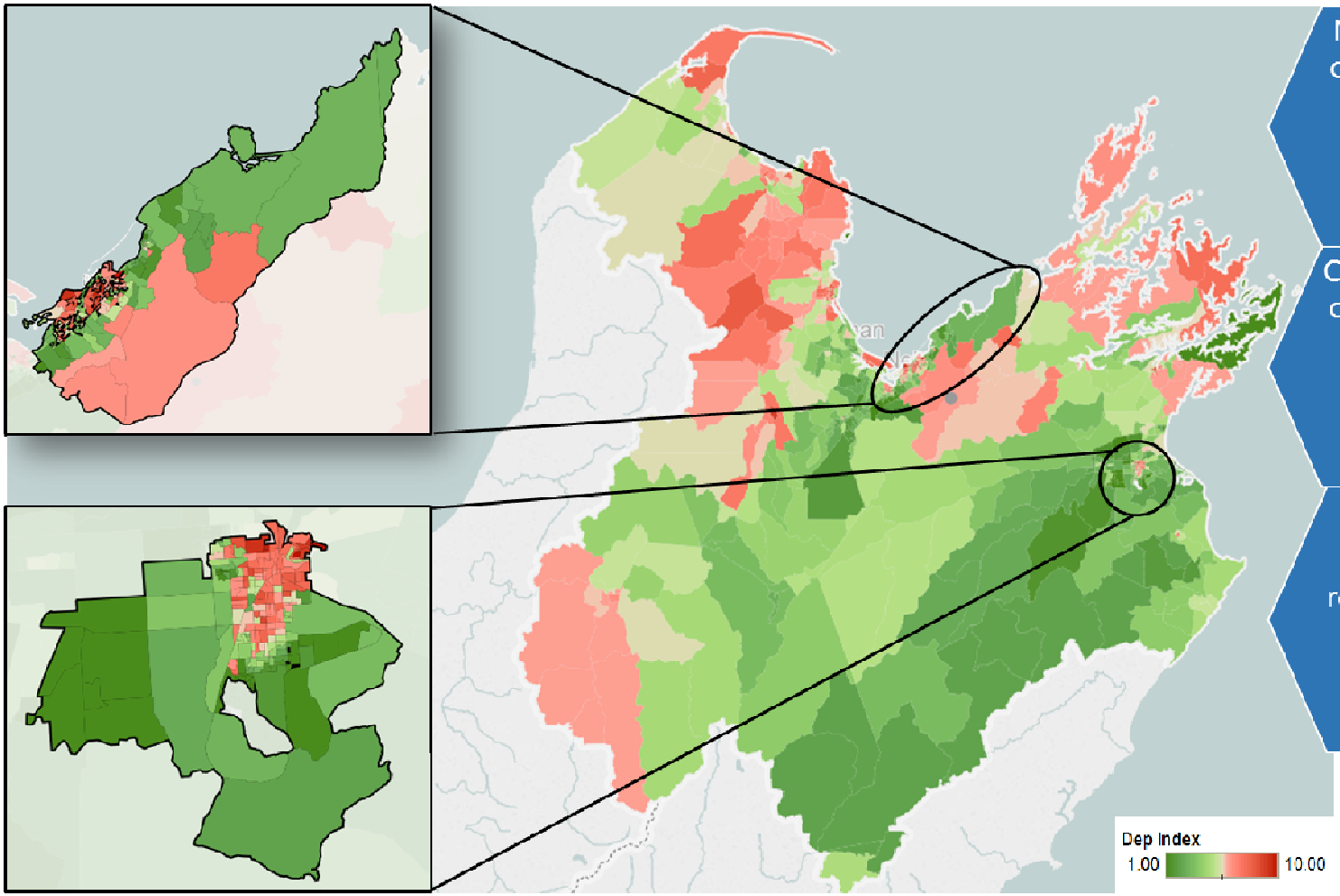
There is a clear exodus of residents around age 18 for tertiary education or travel. Trends of this nature are seen across NZ with more deprived youth continuing to reside locally, seeking employment from an earlier age.

See related: 7.9 Hospital demand forecasts

Section 2
Population health drivers

NM has pockets of deprivation, but is generally less deprived than the NZ average

Deprivation profile (NZ Dep13) for Nelson Marlborough, 2013



NM has a very low proportion of people residing in the most deprived areas of New Zealand when compared to the national average

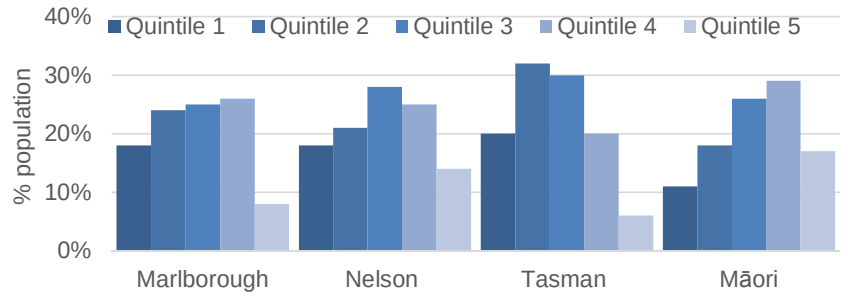
Only 8% of Marlborough, 14% of Nelson, and 5% of Tasman residents reside in decile 9 and 10 areas compared with the national average of 20%.

18% of Marlborough and Nelson and 19% of Tasman residents live in areas of least deprivation(decile 1 and 2) compared with national average of 20%.

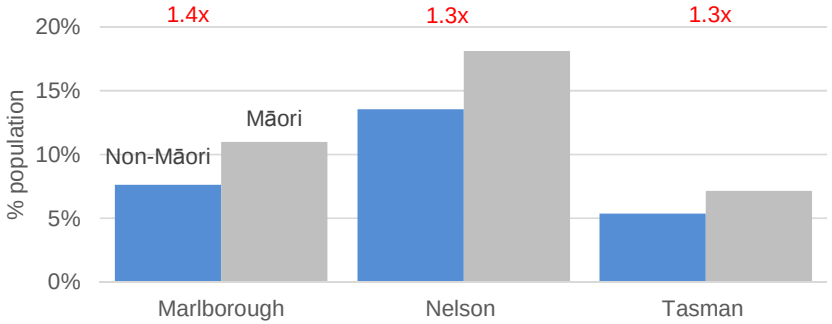
How is this measured?

The NZ Deprivation Index (NZDep2013) combines census data relating to income, home ownership, employment, qualifications, family structure, housing, access to transport and communication to derive a deprivation score for each meshblock (geographic areas with a population of 60-110) in NZ. Deprivation scores are then grouped into deciles, where 1 represents the areas with the least deprived scores, and 10 the areas with the most deprived scores. A value of 10 therefore indicates that a meshblock is in the most deprived 10% of areas in New Zealand. It is important to note that each index is based on data referring to the average socioeconomic circumstances of the whole population within a mesh block, not to individuals.

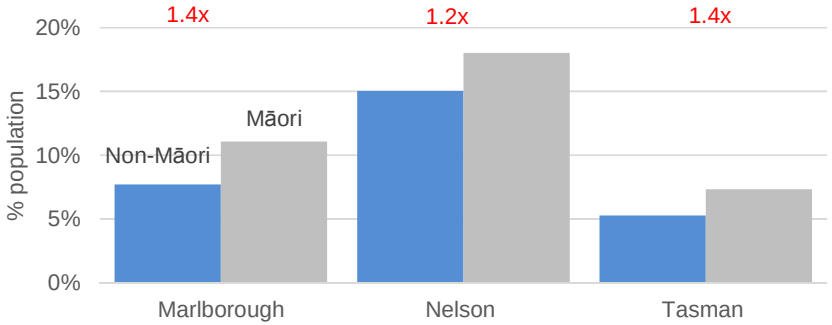
Mapped deprivation (NZDep13) for NM 2013



Percentage of Māori population residing in quintile 5 areas in NM



Percentage of children (0-19 years) residing in quintile 5 areas in NM



Source: Marlborough PHO and Nelson Bays PHO enrolment data

More Māori residents of NM live in areas of most deprivation than least deprivation. This opposite is true for non-Māori

Why is this important?

The socioeconomic status points to the broader determinants of health of a population, and provides further insight into the level of need that exists and the type of services required. The level of economic resources impacts families in a number of ways - for example their ability to afford healthy food - which influences the nutrition of children.

How is this measured?

For this analysis the NZDep13 deciles have been combined into quintiles, ranging from quintile 1 through to quintile 5. A score of 1 indicates that people are living in the least deprived 20% of New Zealand (ie, deciles 1 and 2) while a score of 5 indicates that people are living in the most deprived 20% of New Zealand (ie, deciles 9 and 10).

Proportions in least (1&2) and most (4&5) deprived areas by locality 2013

	Quintile 1 & 2	Quintile 4 & 5
Marlborough	42%	34%
Nelson	39%	39%
Tasman	52%	26%
Māori	29%	46%

Nelson Marlborough

Tasman is the least deprived of the localities, with 52% of residents living in the least deprived areas (quintiles 1 and 2) compared with 40% of New Zealand.

Nelson is the most deprived with 39% of residents living in quintile 1 and 2 areas, and 39% living in quintile 4 and 5 areas.

Comparing deprivation across ethnicities shows that the almost half of the Māori population (46%) reside in the 40% most deprived areas of NM. Māori residents are approximately 40% more likely to be living in the most deprived 20% of areas in NM as their non-Māori counterparts. This trend is consistent across children (0-19 years) of NM. Māori residents are therefore more likely to have higher health care needs associated with poorer living conditions.

In the Nelson locality approximately one fifth of Māori residents (children and adults) and ~15% of non-Māori residents live in quintile 5 areas. This is roughly 10% higher than in Marlborough or Tasman localities.

Nelson locality has the greatest level of deprivation when compared to Marlborough and Tasman

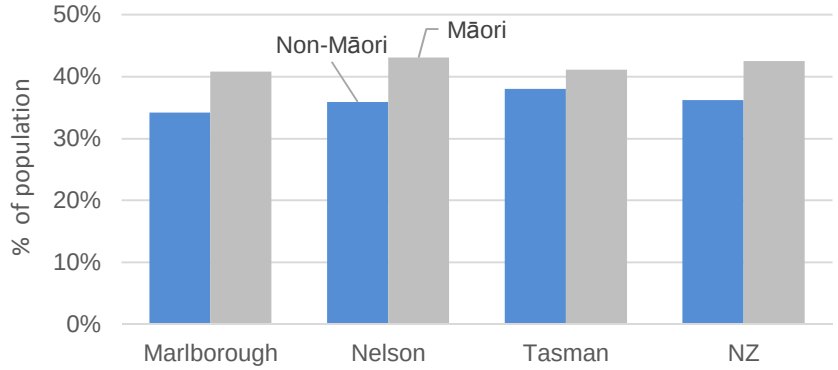
See related: 3 Population health outcomes

2.2 Income, education and employment

Median personal income aged 15+, 2013

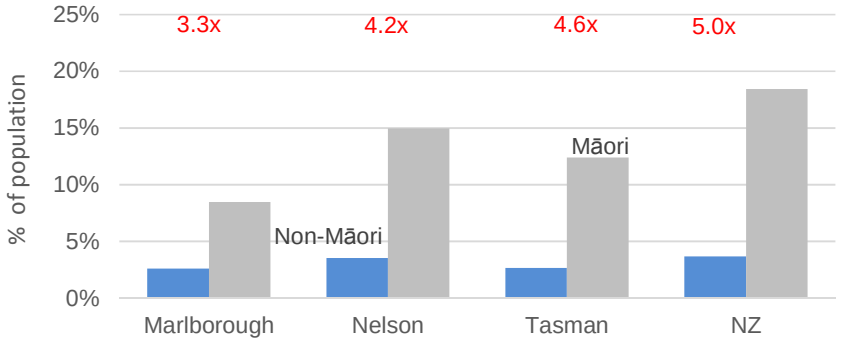
Area	Median personal income	Median household income
Marlborough	$27,900	$53,500
Nelson	$27,200	$54,200
Tasman	$25,700	$55,200
NM	$26,900	$54,300
NZ	$28,500	$63,800

Percentage aged 15+ earning $20,000 or less, by ethnicity, 2013



Percentage aged 15+ unemployed by ethnicity, 2013

Note ratios show difference between Māori and non-Māori



Source: 2013 Census regional summary tables

Māori residents of NM are roughly four times more likely to be unemployed than non-Māori, but are 50% more likely to be employed than Māori across NZ

Why is this important?

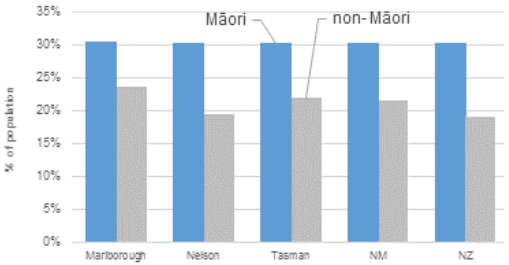
Looking more closely at the NZ deprivation score and its components enables decision makers to understand the underlying causes of deprivation and develop interventions to target these.

Economic factors such as income, occupation and education are powerful determinants of health directly, and also indirectly through health literacy (MOH 2015f).

How is this measured?

The NZ Census (2013) provides a range of data on income, education and employment.

Percentage of NM and NZ aged 15+ with no qualifications



Nelson Marlborough

The NM median annual income, both personal and household, is lower than the NZ average. The proportion of NM residents aged 15+ earning $20,000 or less per annum is on par with the NZ average at 36% and 37% respectively. On average Māori residents of NM are 16% more likely to be earning under $20,000 than Non-Māori. This is consistent with the NZ average.

Unemployment rates for non-Māori residents of NM are consistent with the New Zealand average at ~4%. The gap between employment rates of Māori and non-Māori in NM is large, with Māori residents being roughly four times more likely to be unemployed. However, Māori in NM are 50% more likely to be employed than Māori across NZ.

Approximately one third of Māori students (30%) in NM left school with no qualification and almost one quarter (22%) of non-Māori students in NM left school with no qualification – higher than the NZ average of 19%. NM residents are also less likely to have tertiary qualifications with 6% of Māori and 10% of non-Māori completing tertiary education compared with 7% and 12% across NZ.

NM residents are less likely to have tertiary qualification than NZ average

See related: 2.6 Regional economy, 3.1 Life expectancy, 11 Mental health

2.3 Housing and transport

Households in NM and across NZ with no heating, 2013

Area	No. of households with no heating	Total households	% of households with no heating
Marlborough	150	17,943	0.8%
Nelson	240	18,699	1.3%
Tasman	162	18,597	0.9%
NM	552	55,239	1.0%
NZ	44,829	1,561,929	2.9%

Residents in NM and NZ living in overcrowded dwellings, URP 2013

Area	Residents with 2+ additional bedrooms needed	Residents with 1 additional bedroom needed	Total	URP	% crowding
Marlborough	546	1,362	1,911	41,778	4.7%
Nelson	525	1,770	2,295	44,553	5.3%
Tasman	348	1,440	1,788	45,654	4.0%
NM	1,419	4,572	5,994	131,985	4.7%
NZ	129,123	269,169	398,295	4,127,475	10.1%

Households in NM and NZ without a motor vehicle, 2013

Area	Households with no motor vehicle	Total households	% households with no motor vehicle
Marlborough	1,071	17,673	6%
Nelson	1,281	18,543	7%
Tasman	732	18,264	4%
NM	3,084	54,480	6%
NZ	116,376	1,549,863	8%

Source: 2013 Census regional summary tables

Why is this important?

Poor quality housing, including poor physical living conditions, overcrowding and lack of heating constitutes a significant health risk particularly for children and elderly. Respiratory diseases and infections are key concerns for people living in cold damp houses.

Access to transport is pivotal to ensuring residents are able to participate in society, remain active, and access health care services when they need to and in a timely manner. Active transport can facilitate physical activity.

How is this measured?

The NZ Census (2013) provides data on a range of indicators related to housing, living conditions and private transport. Of particular interest for this report is:

- The number of households with no heating
- The number of residents living in overcrowded homes - measured using the Canadian National Occupancy Standard
- The number of motor vehicle per household.

Nelson Marlborough

Approximately 1% of NM residents are living in a home with no heating. This is significantly lower than the NZ average of almost 3%.

Rates of overcrowding in NM are half that of the NZ average with 5 in every 100 residents living in an overcrowded house. The rate is almost three times higher for Māori residents with 13% living in an overcrowded house.

Looking specifically at those residents in need of two or more bedrooms to meet the occupancy standards, the NZ average is almost three times higher at 3% of residents compared with 1% in NM.

Ownership of a motor vehicle in NM is common with only 6% of households not owning a motor vehicle compared with 8% across NZ.

Working with local Councils to improve housing stock will be an important preventive health approach. Likewise the provision of alternate transport options such as cycle ways are health promoting.

Of the localities, Nelson has the greatest level of overcrowding; Māori are 3 times more likely to live in an overcrowded house

See related: 5.5 & 5.6 COPD and Asthma, 4.4 Physical activity

2.4 Vulnerable children

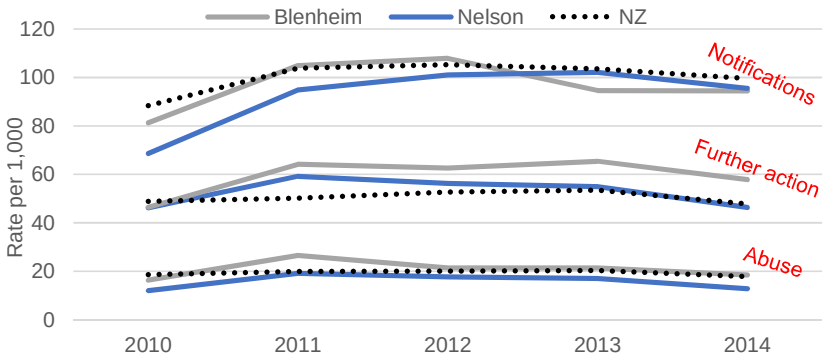
CYF cases for distinct children and young people by type for Nelson, Blenheim and NZ, 2014

Site	Notification	Further action	Substantiated abuse
Blenheim	756	463	148
Nelson	1,795	871	242
NZ	90,690	43,590	16,289

Rate per 1,000 0-14 year olds by type 2014

Site	Notifi-cations/ 1000	Further action/ 1000	Substan-tiated abuse/ 1000	Notifi-cation/ abuse ratio	Follow up/ abuse ratio
Blenheim	95	58	19	5	3
Nelson	95	46	13	7	4
NZ	100	48	18	6	3

Incidence rate per 1,000 by type for Nelson, Blenheim and NZ, 2010-14



Absolute numbers by type of abuse for NZ and NM (applied rate), 2014

Abuse type	National cases	National proportions	Applied to NM
Emotional	8,638	0.53	207
Physical	2,743	0.17	66
Sexual	1,103	0.07	26
Neglect	3,804	0.23	91
Total	16,289	1.00	390

Source: Child, Youth and Family key statistics, available from: http://www.cyf.govt.nz/about-us/key-statistics/

Why is this important?

Early childhood experiences have been proven to be a critical driver of health, wellbeing and development over an individual's life. The prevalence of child abuse in NM acts as an indicator for poor outcomes, and points to the need for health and community services to work together to minimise the risks for vulnerable children within the district.

How is this measured?

Child, Youth and Family (CYF) reports data annually by site on the number of distinct notifications received, further action taken and substantiated abuse identified for children and young people. The sites presented within NM include Nelson and Blenheim. In analysing this data the assumption has been made that Tasman residents receive CYF services from the Nelson site.

Notifications are 'reports of concern' from people worried about a child or family. Once a notification is received, an initial assessment of the child and family is conducted and a decision made around whether further action is warranted. Through this process evidence of child abuse is collected. Child abuse can be in the form of emotional, physical, sexual or neglect.

Nelson Marlborough

In 2014 the documented number of distinct notifications for children and young people in Nelson and Blenheim was lower than the NZ average (95 cf 100/1000). However, of the notifications, it was 20% more likely that those from Blenheim would warrant further action than the NZ average (58 cf 48/1000).

Between 2010 and 2014 the number of distinct notifications grew across NZ (13%) and at a faster rate in Blenheim (16%) and Nelson (39%). This could be due to increased awareness following the nationwide domestic violence campaigns, with greater uptake in NM. In Blenheim cases warranting *further action* rose 25% from 2010-2014 (an extra 11/1,000 residents), compared with no change in Nelson and 2% fewer cases across NZ. Across NM there was an increase in the reporting of substantiated abuse with Blenheim seeing 13% growth or 16 additional cases by 2014, Nelson 7% growth (16 additional cases) and NZ 4% decline (710 fewer cases).

If the type of abuse occurring in NM was similar to NZ, over half the cases would be emotional abuse and just under one quarter would be neglect. Although no NM ethnic-specific data is available, Māori children across the country have a significantly higher rate of abuse than non- Māori.

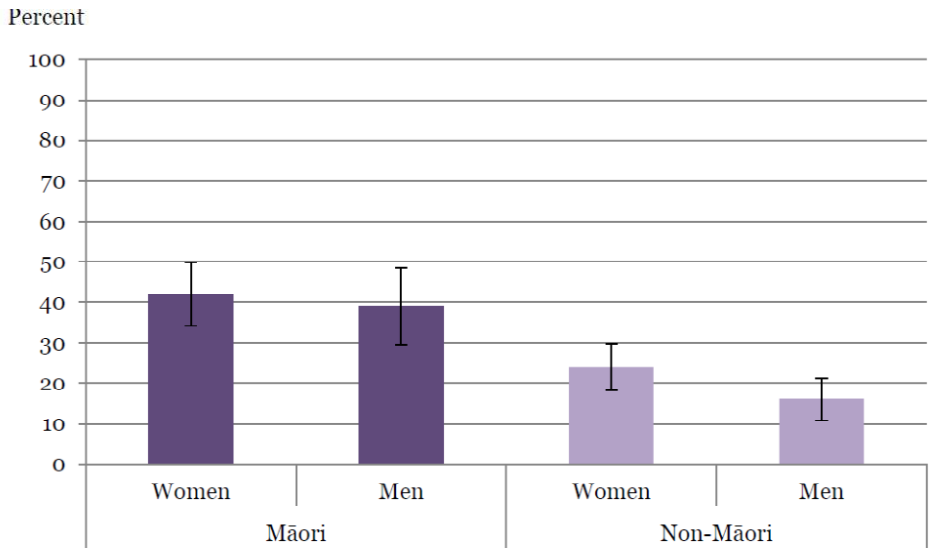
2.5 People on benefits

Means-tested benefit numbers as at March 2015

Area	Job seeker	Solo parent	Supported living	Other main benefit	Total	% Māori	% more than one year	Rate per 1,000 people
Marlborough	828	588	753	29	2,198	27%	73%	80
Nelson	1,426	833	1,010	23	3,292	19%	76%	105
Tasman	876	598	*	*	2,134	14%	76%	70
NM	3,130	2,019	1,763	52	7,624	20%	75%	86
NZ	116,893	70,373	93,580	3,414	284,260	35%	74%	96

Last column has rates per 1000 18-64 year olds

New Zealand Superannuation as the only source of income, advanced age, by sex and ethnic group



Graph Lilacs study; Māori aged 80-90, non- Māori aged 85.

Source: MSD benefit fact sheets; Lilacs Study (Kerse 2014)

Nelson Marlborough

There are approximately 12,300 NM residents receiving a means-tested benefit in 2015. Nelson has the highest rate of the three localities, and at 105 adults per 1,000 higher than the national average of 96. Overall NM had a lower rate than the New Zealand average.

In absolute terms, this equates to 5,100 Nelson residents receiving a benefit in 2015. If Nelson was able to reduce the number of residents on the benefit to the Marlborough rate, there would be 1,200 fewer residents on the benefit.

All people aged 65+ are eligible for New Zealand Superannuation (NZS). The Lilacs study looked at those aged 85 (80 - 90 for Māori) and found only 1% stated they were unable to make ends meet financially. However, for twice as many Māori as non-Māori in this group NZS was the only source of income.

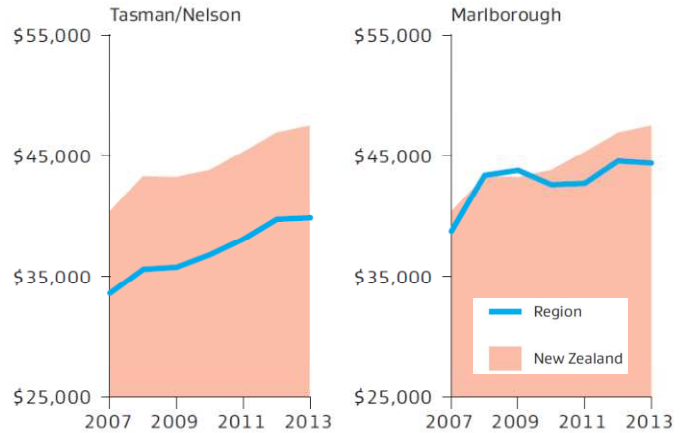
Poverty in NM is more likely to affect young children than any other group, with all the health consequences that flow from that.

A higher proportion of Nelson adults receive a means-tested benefit than the national average

See related: 2.1 Deprivation

2.6 Regional economy

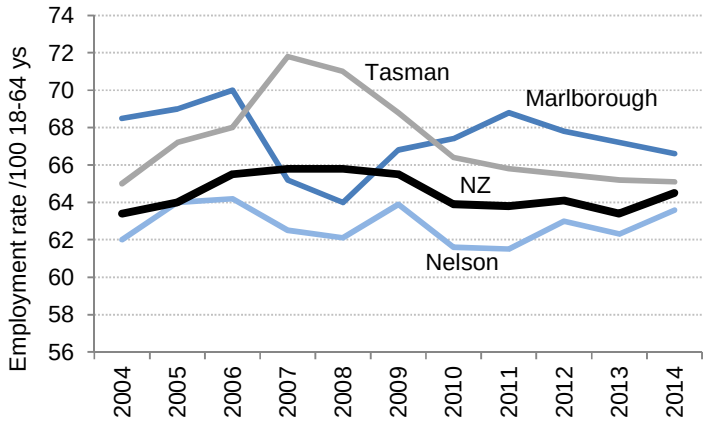
Regional GDP per capita, Tasman/Nelson, Marlborough and NZ, 2007-2013



Industry concentration - proportion of total NZ employment 2013

Industry type (selected)	Marlborough	Nelson	Tasman
Horticulture & viticulture	5%	0%	7%
Forestry and logging	3%	0%	4%
Fishing and aquaculture	9%	17%	4%
Manufacturing – food & beverage	4%	2%	1%

Total employment per 100 18-64 year olds, March year 2004-2014



Source: MBIE 2015. *.mbie.govt.nz/what-we-do/business-growth-agenda/regions*

Why is this important?

In addition to personal indicators such as education attained and income, the functioning of the overall regional economy and environment affects the health and well-being of the people living in the area. While not directly related to DHB services, the health sector has an important lobbying and advocacy role with the local Councils. The synergy of local agencies working together for the common good of the people they serve can be greater than is possible without such collaboration.

Measures of environmental health, biodiversity and climate change fall outside the bounds of this report, but perhaps form the greatest long-term threats to overall health and well-being for New Zealand.

How is this measured?

The Ministry of Business, Innovation and Employment (MBIE) maintains a regional economic activity data base. The data here is extracted from the interactive web reports available online.

Nelson Marlborough

NM drives 2.8% of the national GDP, less than the 3.2% it makes up of the country's population. Marlborough has a slightly lower per capita GDP than the NZ average ($44,400 in 2013 compared to $47,500), while Nelson/Tasman is considerably lower at $39,900.

NM is a major centre in the wine industry, with Marlborough having by far the highest volume production of any region in NZ. With over 23,000 hectares planted in vines Marlborough has 65% of New Zealand's wine-producing land. Tasman's 1,000 hectares of vines makes it the 6th largest wine-growing area. Aquaculture is also a major industry for the region, and is projected to continue to grow. With the economy particularly driven by primary industry (21% of GDP for Marlborough, 13% for Nelson/ Tasman), to increase GDP and employ-ment value-added products will be being sought.

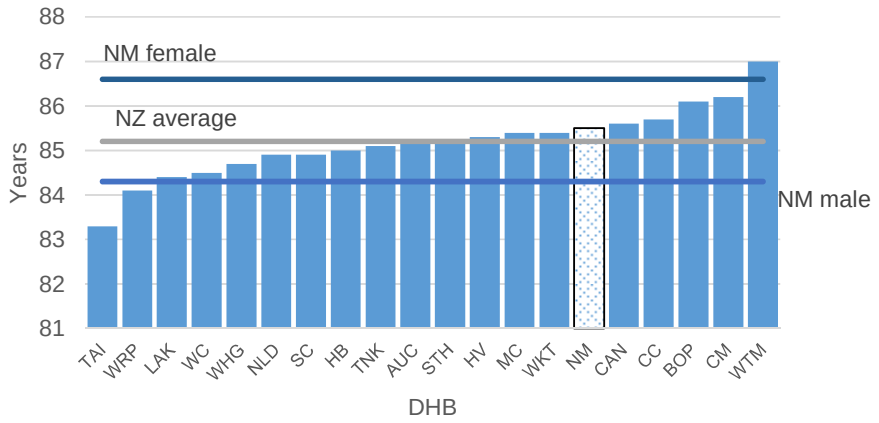
Employment rates in Tasman and Marlborough have tended to be above the NZ average, while Nelson lags slightly behind.

Employment rates in Marlborough and Tasman are good

See related: 2.1 Deprivation, 2.2 Income, education, and employment

Section 3
Population health outcomes

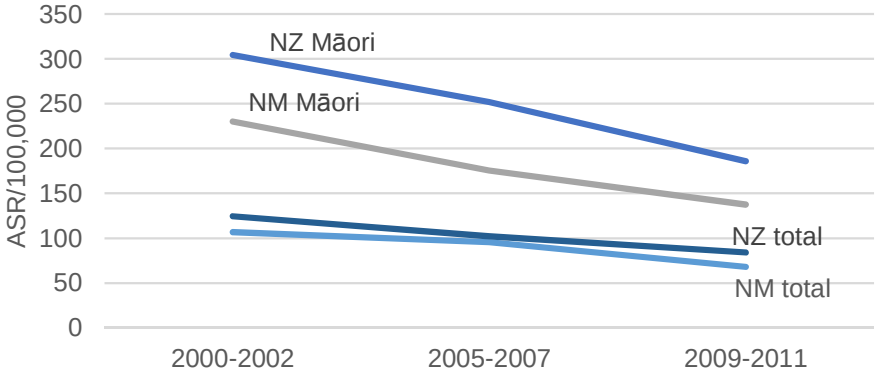
3.1 Life expectancy for residents of NM is longer than the NZ average. Māori residents die younger than non-Māori, and a significant gap in life expectancy still exists for males in comparison with females in NM



3.2 Overall mortality in NM is significantly lower than the NZ average rate. Overall mortality for Māori in NM is significantly lower than the NZ average Māori rate

3.3 Infant mortality in NM is roughly one third of the NZ average rate

3.4 NM has a lower amenable mortality ASR when compared with the NZ average, but large gaps still exist between males and females and Māori and non-Māori residents



Ischaemic heart disease is the leading cause of avoidable mortality in NM. Lung cancer is ranked second among Māori residents, while suicide is second for non- Māori (and third for Māori).

		Nelson Marlborough	New Zealand
Ethnicity	Rank	Condition	Condition
Māori	1	Ischaemic heart disease	Ischaemic heart disease
	2	Lung cancer	Lung cancer
	3	Suicide	Diabetes
	4	COPD	Motor vehicle accidents
	5	*	Suicide
Non-Māori	1	Ischaemic heart disease	Ischaemic heart disease
	2	Suicide	Suicide
	3	Motor vehicle accidents	Lung cancer
	4	Birth defects	Motor vehicle accidents
	5	Lung cancer	Colorectal cancer

3.5 Prevalence of dental caries in five year old children in NM is increasing, with 12 more children in every 100 presenting with tooth decay between 2011 and 2013 than the national average

3.6 Nine in 10 NM adults rate their health as good, very good or excellent but an estimated 11,000 adults in NM in 2013 would rate their health fair or poor. Māori and those living in more deprived areas are less likely to rate their health highly (rate ratio of 0.9 = 10% less likely)

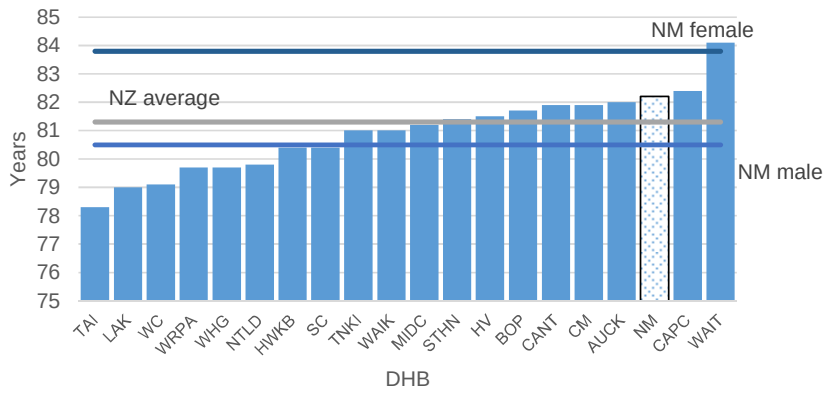
	2013	2006	Change
NM	**90.4%**	89.4%	1.0%
NZ	89.5%	89.6%	-0.1%

NZ	Rate ratio	
Men vs women	1.0	
Māori vs non-Māori	0.9	*
Most vs least deprived	0.9	*

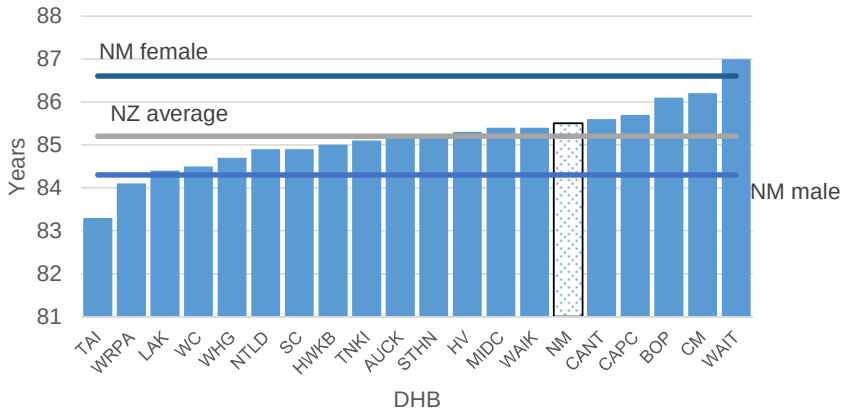
* significant difference

3.1 Life expectancy at birth and at age 65 years

Life expectancy rates at birth by DHB, 2010-12



Life expectancy rates at 65 years by DHB, 2010-12



Source: Health Quality and Safety Commission. Atlas of Healthcare Variation, available from: www.hqsc.govt.nz/atlas /demography/

Why is this important?

Life expectancy is a summary indicator of long-term health outcomes. It provide useful information on current mortality across different age groups and allows comparisons of groups with different population structures.

Life expectancy at birth is the average number of years newborns would be expected to live if current mortality rates remain unchanged through their entire lifetimes. Life expectancy at 65 years is the average number of years individuals who have survived to 65 would be expected to live if current mortality rates remain unchanged throughout the rest of their lifetimes.

How is this measured?

Life expectancy rates are calculated based on mortality rates of the population at each age. To minimise annual fluctuations, mortality measures are calculated for a three year period.

Māori residents die younger than non-Māori, and a gap in life expectancy still exists for males in comparison with females in NM

Nelson Marlborough

Life expectancy at birth for residents of NM was 82.2 years for 2010 to 2012, one year higher than the New Zealand average of 81.2 years. Males in NM continue to lag females with a life expectancy at birth 3.3 years lower, once again slightly lower than the national difference of 3.7 years.

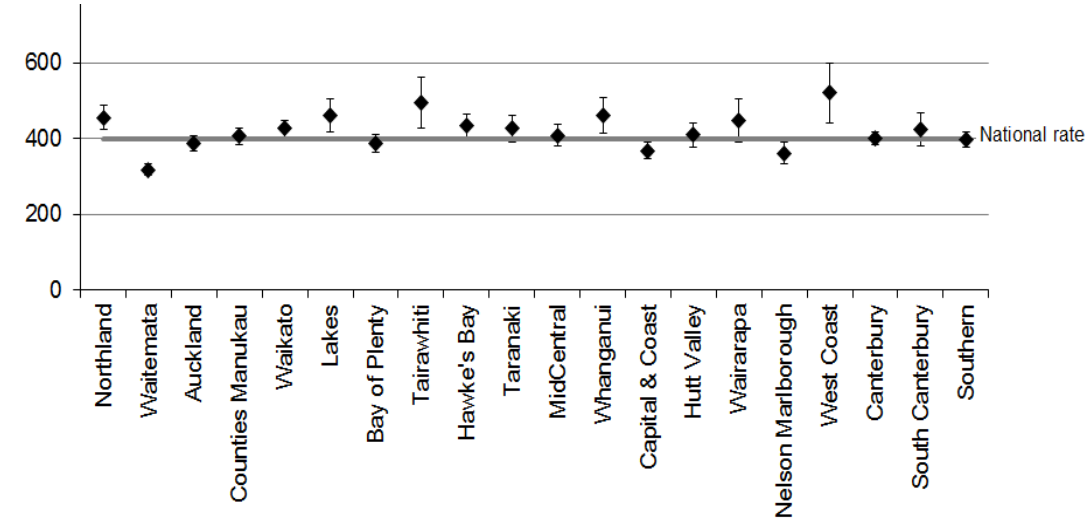
Numbers of Māori in NM are too small to calculate stable life expectancy figures, but if Māori living in NM had a life expectancy similar to that of Māori nationally there would be a 7.4 year shortfall for Māori males, and a 7.2 year shortfall for Māori females.

NM residents have a life expectancy at 65 of 85.5 years, slightly higher than the NZ average of 85.2 years. The longer life expectancy at 65 years than at birth reflects the effect of early mortality on overall life expectancy. The male shortfall of life expectancy at birth is still apparent at age 65, with a 2.4 year gap for New Zealand males compared with females, and 2.3 years for NM. If Māori living in NM had a life expectancy at age 65 similar to that of Māori nationally, there would be a 3.8 year shortfall for Māori males, and a 4.7 year shortfall for Māori females.

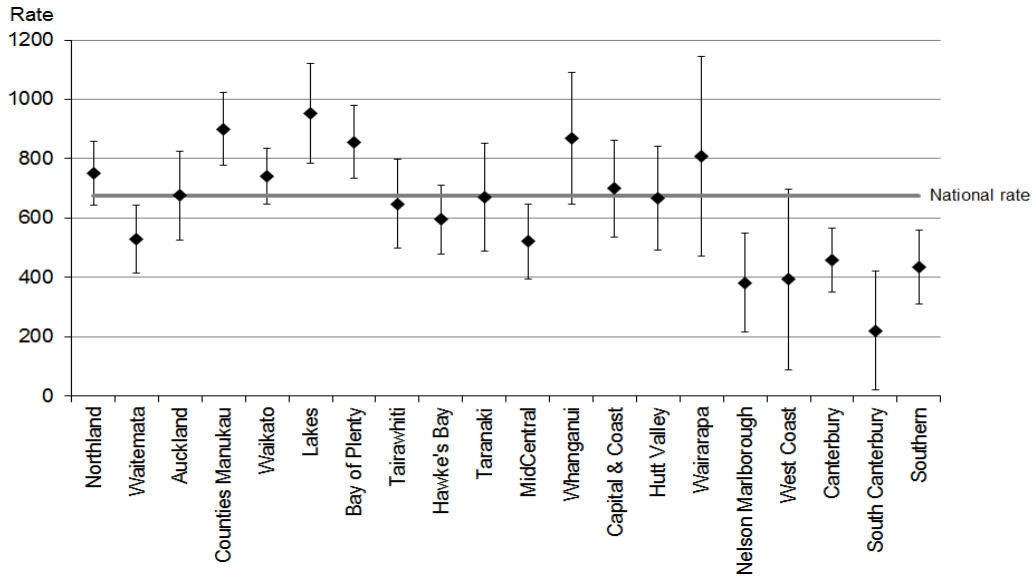
See related: 2 Population health drivers, 3.2 Mortality, 4 Risk factors

3.2 Overall Mortality

Total mortality by DHB, 2011 (ASR/100,000)



Total mortality Māori population by DHB, 2011 (ASR/100,000)



Source: MOH 2014d.Age-standardised to WHO standard population, 99% CI.

NM has a lower overall mortality than the NZ average.

Nelson Marlborough

NM is one of three DHB areas with a statistically significant lower rate of age-standardised mortality (MOH 2014d). For 2011, the latest reported year, NM had 1089 deaths, giving an age-standardised mortality rate of 350 per 100,000 residents when compared with the NZ average of 400. The Māori population of NM had a statistically significant lower rate of mortality than the NZ Māori average - a rate more in keeping with the overall NZ mortality rate.

Over the last 20 years the number of deaths has risen only slowly despite large increases in population and ageing. Adjusting for age there has been a remarkable 35% fall in mortality rates since 1991, with the fall higher in males, largely through reduced smoking rates. Males die at a younger age than females leading to a 35% higher age-standardised mortality rate.

Mortality ASR/100,000, all New Zealand

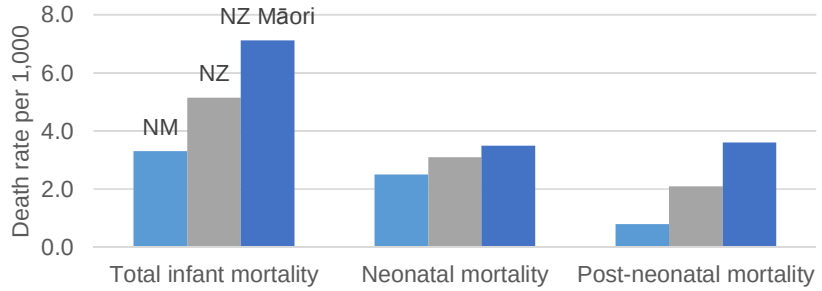
	Male	Fe-male	Total	ratio M:F
1991	775	497	620	1.56
2001	607	402	493	1.51
2011	464	343	400	1.35
% fall 1991-2011	40%	31%	35%	

NM Māori have a lower mortality than the NZ Māori average.

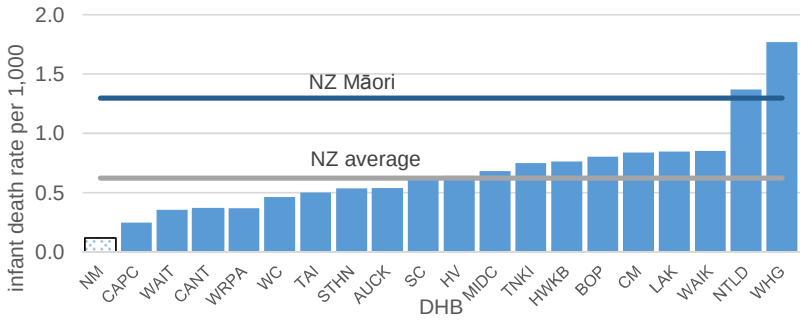
See related: 3.1 Life expectancy, 4.1 Smoking, 9.4 End of life care

3.3 Infant mortality

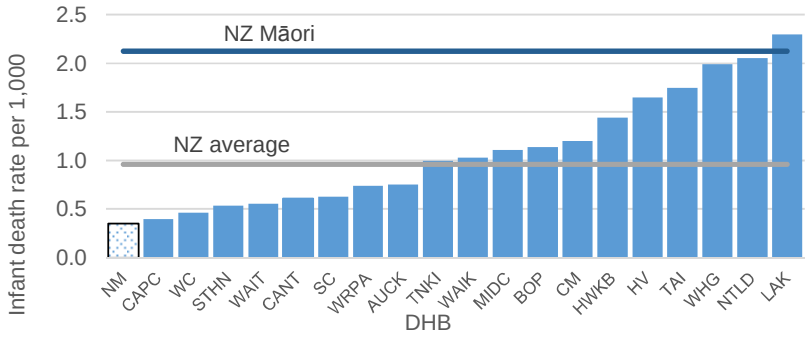
Total infant, neonatal and post neonatal mortality, NM, NZ and NZ Māori, 2007-2011



SIDS rates by DHB, 2007-2011



SUDI rates by DHB, 2007-2011



Source: Foetal and Infant Deaths 2011. Ministry of Health

Total infant mortality in NM is roughly one third of the NZ average rate

Why is this important?

Infant mortality is a direct measure of infant health, but is also an indicator of the social wellbeing of an area and is used as a broad measure of population health.

How is this measured?

The Ministry of Health releases mortality data classifying the underlying causes of death for all deaths registered in NZ. Particularly, data is released on total infant deaths (before first year of life), neonatal deaths (before 28 days of age), post neonatal deaths (between 28 days and 1 year old), sudden infant death syndrome (SIDS) and sudden unexpected death in infancy (SUDI).

SIDS includes all deaths with ICD-10 code R95 (sudden infant death syndrome) recorded either as the underlying cause of death or as a contributing cause. **SUDI** includes deaths with SIDS as well as other unknown causes and suffocation deaths. Sleeping position, parental smoking and bed-sharing are major risk factors for SIDS and SUDI.

NM has the lowest rate of SIDS and SUDI of any DHB in NZ

Nelson Marlborough

Total Infant mortality in NM is lower than the NZ average at 3.3 and 5.1 per 1,000 births respectively.

Due to the small number of Māori residing in NM stable rates for local Māori infant deaths could not be calculated. However if we were to assume the infant death rate of Māori in NM was at a similar proportion to the NZ average then roughly two more Māori babies per 1,000 births would die before reaching 1 year of age compared with non-Māori residents of NM.

Rates of SIDs and SUDI were also approximately twice as high in Māori as non-Māori across NZ.

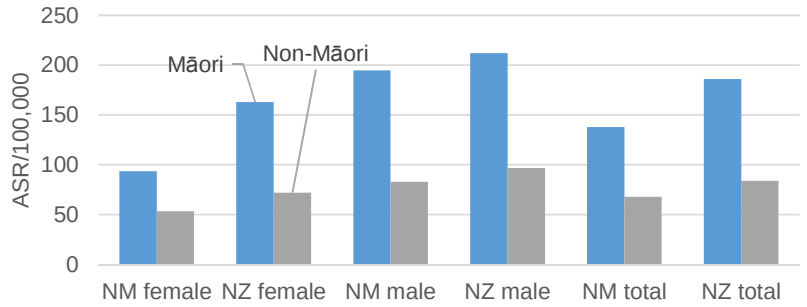
Between 2007 and 2011, infants of NM had the lowest rates of SIDS and SUDI per 1,000 births than any other district in NZ. By way of comparison the NZ average rate of SIDS was approximately five times higher than NM and almost 3 times higher for SUDI.

Overall child and youth mortality (0-24 years) is 30 per 100,000 (2009/13 combined) in NM, lower than the NZ average of 40. NMDHB was the 4th lowest DHB for 0-24 mortality.

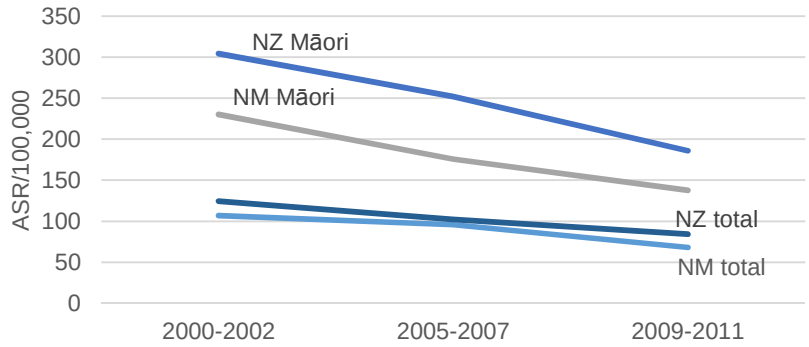
See related: 4.1 Smoking

3.4 Amenable mortality

Amenable mortality in NM, 0-74 year olds, 2009-2011 (ASR/100,000)



Amenable mortality in NM, 0-74 year olds, 2000-2011 (ASR/100,000)



Leading causes of amenable mortality, 0-74 years, 2006-2008

		Nelson Marlborough	New Zealand
Ethnicity	Rank	Condition	Condition
Māori	1	Ischaemic heart disease	Ischaemic heart disease
	2	Lung cancer	Lung cancer
	3	Suicide	Diabetes
	4	COPD	Motor vehicle accidents
	5	*	Suicide
Non-Māori	1	Ischaemic heart disease	Ischaemic heart disease
	2	Suicide	Suicide
	3	Motor vehicle accidents	Lung cancer
	4	Birth defects	Motor vehicle accidents
	5	Lung cancer	Colorectal cancer

* Leading causes are only listed where the number of deaths is 5 or greater. An asterisk (*) indicates insufficient numbers. COPD = chronic obstructive pulmonary disease. *Source: Borman 2015.*

NM has a lower amenable mortality than the NZ average. Males are higher than females, Māori are higher than non- Māori

Why is this important?

Amenable mortality refers to deaths that might have been prevented if health promotion had been more effective, health services had been more effective or if people had accessed services earlier (either in primary care or in hospital). Amenable mortality, also called avoidable mortality, is often used to portray the overall performance of health services in a region.

How is this measured?

Amenable mortality rates are measured by looking at deaths that occurred from a standard set of causes of death (see Appendix) for individuals between the ages of 0-74 years. In calculating the rate for NM age-standardised rates (ASR) were used, where the age structure of the NM residents was standardised to the age structure of NZ, allowing comparisons to be made between the two areas and across ethnicities.

Coronary heart disease is the leading cause of avoidable mortality in NM. Lung cancer is second highest for Māori, suicide is second for non-Māori

Nelson Marlborough

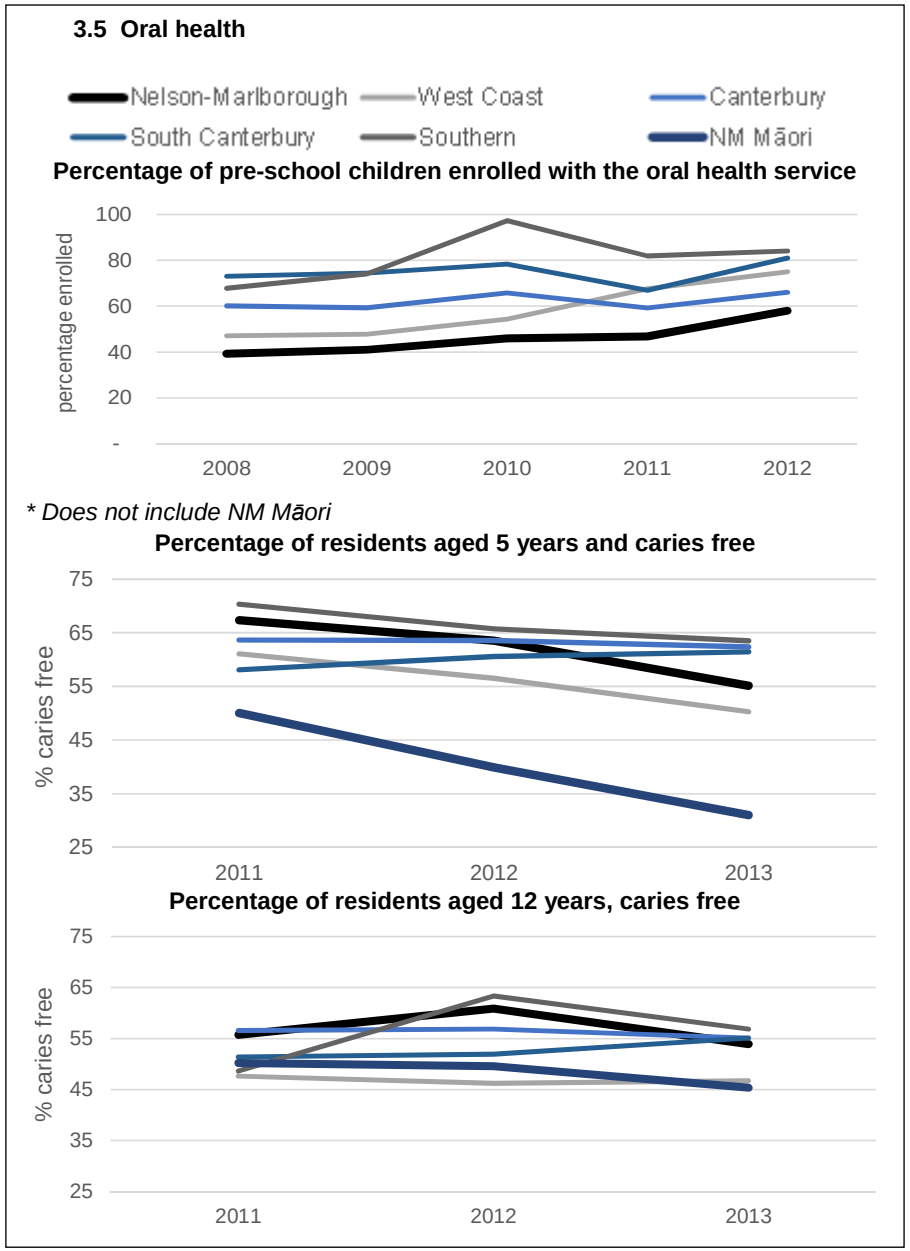
Between 2009 and 2011, NM had lower amenable mortality rates per 100,000 residents when compared with the NZ average. This was consistent across the three localities, equating to a rate 16 per 100,000 fewer than NZ, although not statistically significant. The Māori population of NM also has lower rates of amenable mortality than the NZ Māori average (48 per 100,000 fewer).

A large gap in rates of amenable mortality still exists between males and females of NM (30 per 100,000), and this is even larger for Māori (100 per 100,000). Māori residents have 70 more deaths per 100,000 people than the total NM population. However Māori in NM have almost 50 fewer deaths per 100,000 than Māori across NZ.

Ischaemic heart disease (also termed coronary heart disease) was the leading cause of amenable mortality for NM residents aged 0-74. For Māori residents this is followed by lung cancer, while Lung cancer is fifth for non-Māori, indicating the different past smoking rates. Suicide ranks in third position for Māori, second for non- Māori – see section 11.5 for more on suicide.

See related: 3.1 Life expectancy, 4.1 Smoking, 5.2 CHD, 5.3 Cancer

3.5 Oral health



Source: NMDHB Public Health (Norrish 2014d)

Prevalence of dental caries in five year old children is increasing, with 12 more children in every 100 presenting with tooth decay between 2011 and 2013

Why is this important?

Oral health is an important indicator of population health. The prevalence of tooth decay and gum disease gives insight into effectiveness of public health efforts (e.g. water fluoridisation), oral hygiene awareness and access to dental care.

While this page concentrates on child oral health, it is noted that 1% of ED presentations in NM are for dental caries – about 10 per week (Norrish 2015). The highest rates were in the 25-39 year age group, and for Māori.

How is it measured?

The DHBs collect data on dental caries and a number of other oral health indicators from their child dental providers. The Ministry of Health collates and publishes these figures – data shown is from NMDHB returns for the Ministry of Health.

Māori children in NM have a significantly higher number of dental caries than non-Māori with 70% of five year olds having dental caries

Nelson Marlborough

Between 2008 and 2012 NM had the lowest percentage of pre-school children enrolled with oral health services, averaging 46% compared with 81% in Southern DHBs overall. This equates to 35 fewer pre-school children in every 100 that made contact with oral health services in NM.

Of the 5 Southern DHBs, NM witnessed the steepest growth in dental caries in children aged 5 years old. In 2013, 12 more children presented with dental caries per 100 than in 2011. This brought the number of children aged 5 years old with dental caries to 45 in every 100, second highest behind West Coast.

Māori children aged 5 years old had a 17% higher prevalence of dental caries than non-Māori in 2011. By 2013 this gap grew to 24% with only 31% of NM Māori children being caries-free.

The picture improves slightly for NM in children aged 12 years old, particularly for Māori children with 50% having no dental caries in 2011, compared with 55% of non- Māori. However, by 2013 rates of dental caries increased again with only 45% of Māori having no dental caries. Increasing fluoride coverage in the water supply is needed.

3.5 Adults with excellent, very good or good self-rated health

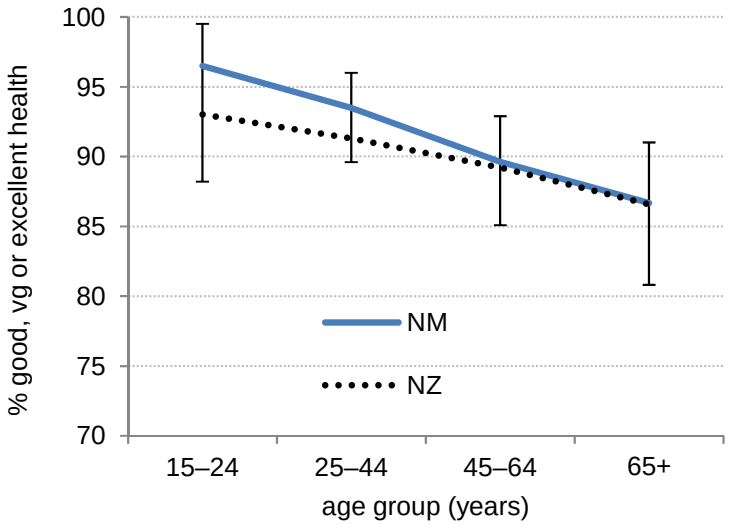
	2014	2006	Change
NM	**91.0%**	90.9%	0.1%
NZ	90.1%	89.6%	0.5%

NZ	Rate ratio	
Men vs women	1.0	
Māori vs non-Māori	0.9	*
Most vs least deprived	0.9	*

* significant difference

An estimated 10,500 adults in NM in 2014 would rate their health fair or poor

Age distribution – excellent, very good or good self-rated health NM and NZ 2011/14



Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

A deceptively simple question "*In general would you say your health was excellent, very good, good, fair or poor*" has been found to be a powerful predictor of future ill health, health care use and even mortality (MOH, 2008a). It has been used extensively internationally, and provides an alternative to the more traditional measures of ill-health such as hospitalisation rates. It can place more emphasis on quality of life and well-being.

How is it measured?

The question is asked in the New Zealand Health Survey (MOH 2014).

Note the second table down refers to all New Zealand data – the Survey does not have enough responses from NM to allow stable rates to be calculated. It is assumed likely that the NM differences will be similar to the overall national differences shown here. The rate ratios are calculated on age-standardised rates, with the Māori ratio also sex-standardised, and the deprivation one age, sex and ethnicity standardised.

Nelson Marlborough

Nelson Marlborough residents were slightly more likely to rate their health as excellent, very good or good in the 2012/14 period than they were in 2006/07. For 2011/14 91.0% of adults so identified, similar to the national rate of 90.1%. An estimated 10,500 people living in NM would rate their health as fair or poor in 2014.

Māori were less likely than non-Māori to rate their health highly – the difference was significant at the national level. Likewise people living in the 20% most deprived areas rated their health poorer than people living in the 20% least deprived areas.

Younger adults are more likely to rate their health higher than older adults – but still a remarkable 87%% of 65+ year olds would rate their health highly. There was no difference by age group between NM and NZ.

See related: 3.1 Life expectancy, 4.1 Smoking

Section 4
Health risk factors

4. Population health risk factors

Indicator for adults aged 15 years and over	2013 or 2014 prevalence NM	NZ	Difference - p-value, yellow = sig diff
Daily smoking (2013)	12.8	13.7	NS
Year 10 regular smoking (2014)	6.4	6.1	NS
	Age-std prevalence (%), 2011-14 NM	NZ	
Hazardous drinking (8+ on AUDIT tool)	13.1	17.1	0.00
Physically active (met guideline in past 7 days)	70.7	53.1	0.00
Meets vegetable guideline (3+ servings per day)	86.7	64.6	0.00
Meets fruit guidelines (2+ servings per day)	62.5	56.6	0.03
Adult obesity (BMI 30+)	25.5	28.7	0.02
Child obesity (Coles cutoff)	7.8	10.4	0.18
Medicated high blood pressure	10.1	11.6	0.09

Note that figures in the lower half of the table are age-standardised, allowing comparisons to be made excluding differences in the population age structure. For the rest of the section results are presented as actual rates, allowing population counts to be derived. Any statistical testing is done on the age-standardised rates.

Source:2013 Census, NZ Health Survey 2011-14

Why is this important?

The environment in which we live and work, and the lifestyle choices afforded by that environment play a key part in our health. Over the past 40 years cardio-vascular mortality rates have fallen 90% from the peak of the epidemic, in the main driven by reductions in tobacco smoking and improvements in diet, particularly the dramatic fall in saturated fat consumption in New Zealand. While large gains have been made in some areas, there are still major improvements remaining.

How is it measured?

The main risk factors are explored in further detail in this section. Population risk factor data used here comes from the 2013 Census for smoking, and from the New Zealand Health Survey. This Ministry of Health-funded survey has a continuous rolling methodology, allowing large samples to build up over time. For this report the 2011/14 cycles represent 38,814 adults surveyed nationally, and **1275** for NM – and for children 13,742 nationally and **386** for NM. Survey data is not available at a locality level.

Nelson Marlborough

Overall NM adults do better than their counterparts elsewhere in New Zealand. They smoke less, have a less hazardous pattern of use for alcohol, do more physical activity and eat more vegetable servings.

Despite this advantage, many NM residents would benefit from an improved environment supporting better behaviour outcomes:

- 14,800 could stop smoking
- 12,100 could reduce their hazardous drinking
- 31,700 would benefit from reducing weight
- 38,000 would benefit from increasing physical activity.

While many risk factors are stable or trending down, a particular concern is with overweight (BMI 25-29) and obesity (BMI 30+) which continue to rise. Only one-third of NM adults are at a normal weight (BMI 20-25).

The largest concern is obesity which continues to increase in NM.

Māori and young persons' smoking rates are high
14,800 adults in NM smoke daily, losing 10 years of life expectancy

4.1 Adults who are daily smokers

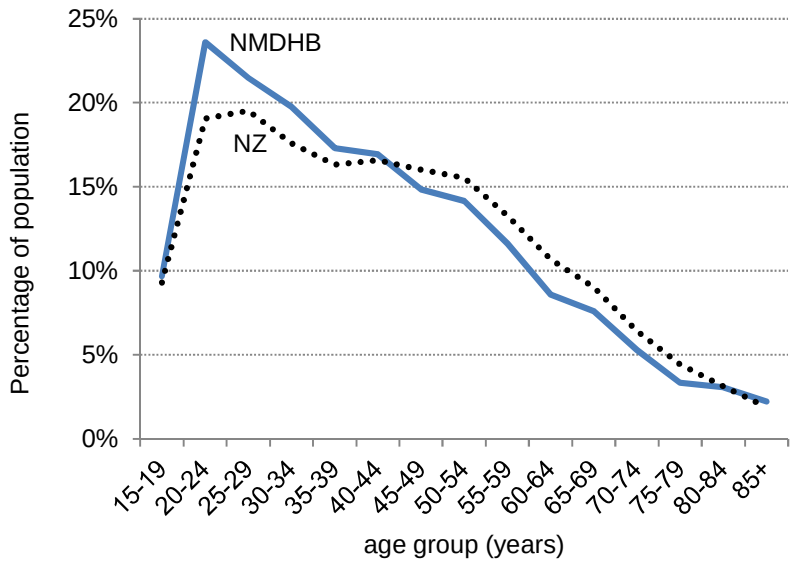
	2013	2006	Change
NM	**12.8%**	17.9%	-5.0%
NZ	13.7%	18.9%	-5.2%
Marlborough	14.0%	18.5%	-4.5%
Nelson	12.7%	18.2%	-5.5%
Tasman	11.9%	16.8%	-4.9%

An estimated 14,800 daily smokers were living in NM in 2013

NZ	Rate ratio	
Men vs women	1.2	*
Māori vs non-Māori	2.7	*
Most vs least deprived	3.5	*

* significant difference

Age distribution - daily smoking NM and NZ 2013 Census



Source: Census 2006, 2013

Why is this important?

Smoking remains the leading modifiable risk to health in New Zealand, accounting for 9% of all illness, disability and premature mortality (MOH, 2013). Smoking harms nearly every organ and system in the body. It is the main cause of lung cancer and chronic obstructive pulmonary disease ('COPD'). It is also a major cause of heart disease, stroke and other cancers.

The proportion of smokers among adults in New Zealand has shown a marked decline over the past 25 years from 30.0% in 1985 to 15.5% daily smoking in 2013/14. Much of this decline can be attributed to policies aimed at reducing tobacco consumption through public awareness campaigns, advertising bans and increased taxation (OECD, 2013). With the highly cost-effective and even cost-saving interventions available, high emphasis on reducing smoking rates further is warranted (Vos et al, 2010). Up to 10 years of life expectancy per person could be gained if smokers gave up smoking early (Jha et al, 2013).

Nelson Marlborough

Data on tobacco smoking is available from the 2006 and 2013 Censuses. Daily smoking levels have decreased in Nelson Marlborough since 2006. In 2013 12.8% of adults were daily smokers, slightly lower than the national rate of 13.7%. An estimated 14,800 people living in NM smoked daily in 2013.

One in 10 youth (those aged 15–19 years) smoked cigarettes daily, while the age group 20-24 had the highest rate (24%), well above the New Zealand rate of 19%. However, rates for youth are falling, in line with trends observed in the largest survey of youth smoking in New Zealand, the ASH Year 10 Snapshot Survey (see 4.1.1).

Māori adults were much more likely to be current smokers than non-Māori, with the national level figures revealing a 2.7 fold increased risk, while deprivation shows an even stronger gradient, with a 3.5 fold difference between the 20% most deprived and 20% least deprived after adjusting for age, sex and ethnicity.

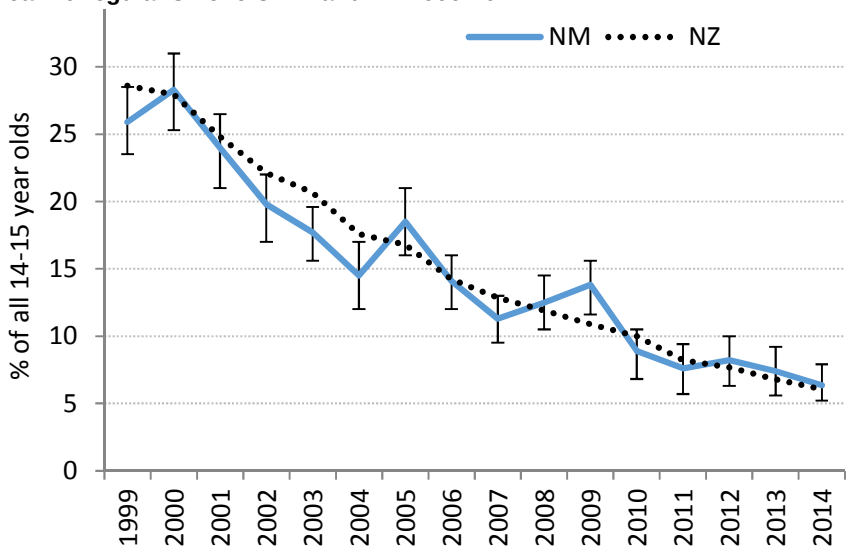
If the 2,300 people aged 15-24 currently smoking in NM stopped smoking they would gain 23,000 life years, the equivalent of around 300 lives

See related: 5.2 CHD, 5.4 Cancer, 5.5 COPD

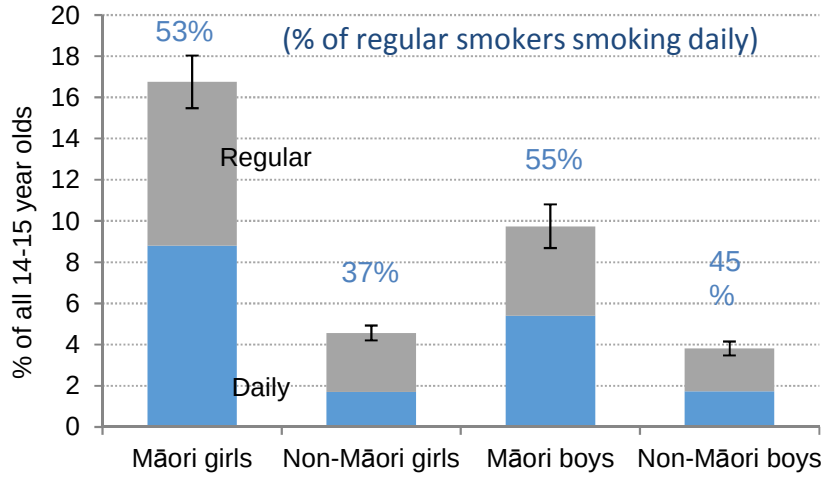
Four young people in NM still initiate smoking every week.
Māori are twice as likely to smoke in Year 10 as non- Māori

4.1.1 Teen smokers

Year 10 regular smokers NM and NZ 1999-2014



Year 10 smokers by ethnicity, NZ 2014



Source: ASH Year 10 surveys 1999 – 2014.

Why is this important?

The average age for smoking initiation among young people in New Zealand is 13.4 years, and the majority of adult smokers started smoking in adolescence (MOH, 2010). Those who do not smoke before the age of 20 are significantly less likely to start as adults (Scragg et al 2010).

Avoiding people getting the initial addiction to tobacco will be key to reaching a smokefree Aoteoroa-New Zealand.

In the 2009 NZ Tobacco Use Survey, for smokers aged 15–19 years the most common way of sourcing tobacco was to buy it themselves (79%), friends (28%) or family (23%) – nb. multiple sources possible.

How is it measured?

The Year 10 ASH Smoking Survey monitors smoking in 14 - 15 year old students. It samples around half the secondary schools in New Zealand, covering 25,000+ students each year. The smoking behaviour of 14 - 15 year old secondary school students and trends are captured in a robust and standardised way. The Survey defines 'regular' smokers as those who smoke daily, weekly or monthly.

Nelson Marlborough

Data is available from 1999, showing regular tobacco smoking for 14 - 15 year olds in NM has fallen steadily in line with the NZ rate. In 2014 2.6% were daily smokers, lower than the national rate of 2.8%. For regular smokers the figure was 6.4%, slightly higher than the national average (6.1%). In both cases the difference from the national rate was within the 95% confidence intervals. An estimated 380 14-15 year olds living in NM smoked regularly in 2013. If these young people were considered to have initiated smoking in this year or the previous one, then around four per week initiated smoking (= 380/2/52).

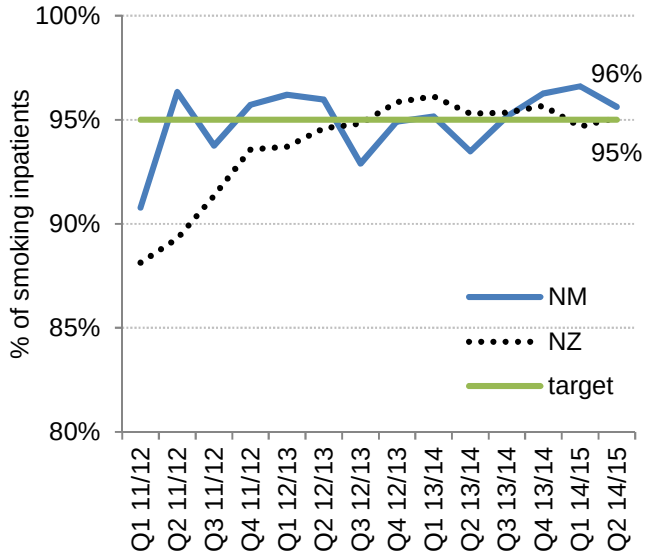
Māori Year 10 students were much more likely to be regular smokers than non-Māori, with the national level figures revealing a 1.9 fold increased risk of being a regular smoker. Based on the national rates there were roughly 120 14-15 year old Māori regular smokers in NM. Māori regular smokers were more likely to be daily smokers than others.

The gap between girls and boys has been closing, but in 2014 girls in Year 10 were still 41% more likely to be regular smokers than boys – 7.1% compared with 5.0%.

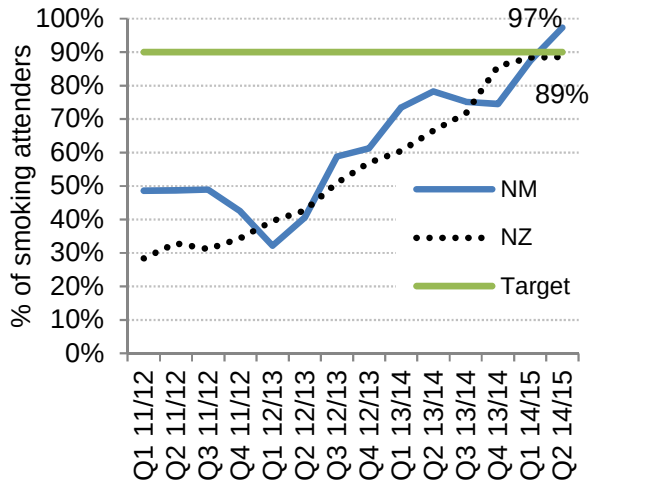
See related: 4.1 Smoking

4.1.2 Health Target smoking cessation

Brief advice offered in hospital NM and NZ 2012-2014



Brief advice offered in primary care NM and NZ 2012-2014



Source: MOH Health Targets, cited 25 Mar 2015

Why is this important?

Smoking kills an estimated 5000 people in NZ every year, and smoking-related diseases are a major cause of hospitalisations and ill-health (MOH, 2013). Many smokers state when asked that they want to quit, and there are simple and effective interventions that can be routinely provided in both primary and secondary care. There is good evidence that brief advice can prompt quit attempts and long-term quit success – in NZ an estimated 66% of respondents reported making a quit attempt following brief advice (Wyllie, 2012).

How is it measured?

"*This target is designed to prompt providers to routinely ask about smoking status as a clinical 'vital sign' and then to provide brief advice and offer quit support to current smokers*." (MOH 2015). Returns from hospitals and PHOs are reported by the Ministry of Health quarterly.

Effective pharmaceutical cessation therapies are fully subsidised, in particular nicotine replacement therapy (NRT), and telephone or face-to-face support are offered through Quitline.

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Nelson Marlborough

Rates of brief advice offered to known smokers in hospital in NM are very high – 96% in the second quarter of 2014/15 (Oct-Dec 2014), above the NZ average of 95%, and the target at 95%. NM has been largely over the Target for the past 3 years.

Māori in-hospital intervention rates have been reported separately since Q2 2012/13. NM has been above the Target 95%, and was on 98% for Q2 2014/15 compared to the national average of 96% for Māori patients. This is a good result; maintaining it will be particularly important for Māori smokers as they come in contact with the health system.

For brief advice offered to known smokers in primary care NM has again paralleled the NZ growth, reaching the Target 90% in quarter 1 of 2014/15. For Q2 2014/15 NM was at 97%, with both PHOs doing well – Kimi Hauora Wairau at 96% and Nelson Bays Health at 99% of known smokers offered brief advice at least once in the last 15 months.

See related: 4.1 Smoking

4.2 Adults who are hazardous alcohol users

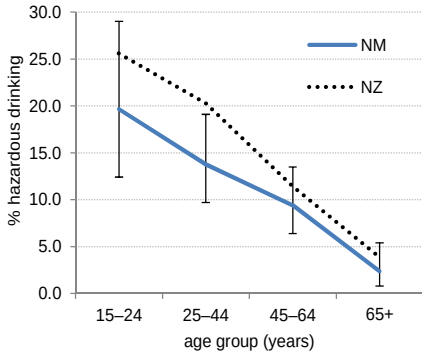
	2014	2006	change
NM	**10.5%***	14.1%	-3.6%
NZ	15.5%	18.0%	-2.5%

NZ	Rate ratio	
Men vs women	2.0	*
Māori vs non-Māori	1.9	*
Most vs least deprived	1.4	*

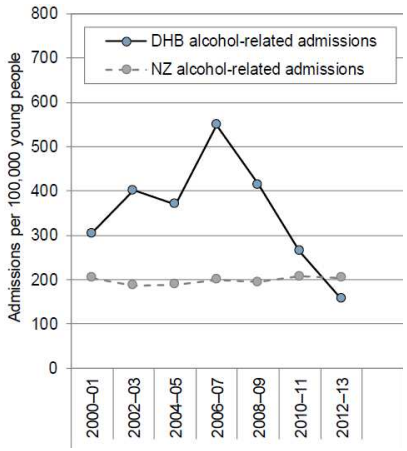
* significant difference

An estimated 12,000 adults in NM in 2014 were hazardous alcohol drinkers

Age distribution – hazardous drinking NM and NZ 2011/14



Alcohol-related hospitalisations ages 15-24 years, 2000-2013 NM and NZ



from Simpson et al, 2014, p319

Source: NZ Health Survey 2006/07 and 2011/14; Simpson et al 2014

Why is this important?

Alcohol misuse is a major risk factor for conditions such as liver disease, pancreatitis, diabetes and some types of cancer, and contributes to motor vehicle accidents, falls, burns and suicide (MOH 2013). Alcohol is associated with social and emotional harms such as family violence, and can lead to community dysfunction and incarceration. Foetal alcohol spectrum disorders may occur when mothers have consumed alcohol during pregnancy. Cost-effective or even cost-saving interventions are available.

How is it measured?

Data on population alcohol consumption comes from the NZ Health Survey (MOH 2014). Alcohol consumption is self-reported in the Survey, and as such is likely to underestimate the amount of alcohol actually consumed. Hazardous drinking is defined as an established drinking pattern that carries a risk of harming physical or mental health or having harmful social effects to the drinker or others. This is determined through a 10-question Alcohol Use Disorders Identification Test (AUDIT), include a score of 8 or more is defined as hazardous drinking.

Nelson Marlborough

From the NZ Health Survey responses, the rate of hazardous alcohol drinking has decreased in NM since 2006/07. For 2011/14 10.5% of adults were identified as hazardous drinkers, significantly lower than the national rate of 15.5%. Both NM and NZ had seen a fall from 2006/07 to 2011/13, but the NM fall was larger. However, an estimated 12,000 people living in NM were still drinking in a harmful way in 2014.

Hazardous drinking patterns were more common among men and Māori - twice the rate of women and non-Māori respectively.

Younger adults are much more likely to be hazardous drinkers than older adults – 20% of 15-24 year olds in NM or ~3000 people, compared with 25% for NZ. Nationally 50% of drinkers had drunk to intoxication at least once in the past year. This reached 80% in the 20-24 age group (MOH 2015a). The alcohol-related hospitalisation rate for 15-24 year olds in NM has recently reduced, having been much higher than the NZ average throughout the past decade (Simpson et al 2014).

Young adults aged 15-24 make up one-third of the hazardous drinkers in Nelson Marlborough. 20% drink alcohol in a hazardous way

See related: 5.9 Injury, 8.4 ED attendances

4.3 Adults who are obese (BMI 30+)

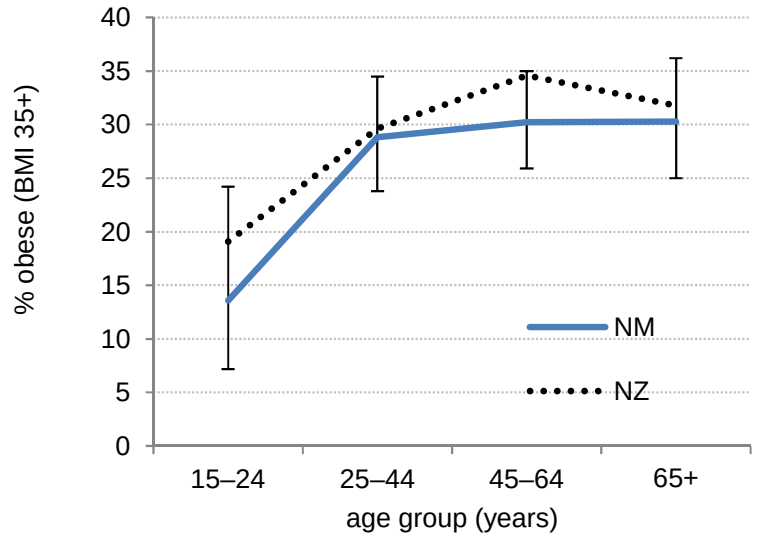
	2014	2006	change
NM	**27.5%**	27.5%	0.0%
NZ	29.7%	26.5%	3.2%

NZ	rate ratio	
Men vs women	1.0	
Māori vs non-Māori	1.8	*
Most vs least deprived	1.8	*

* significant difference

An estimated 31,700 adults in NM were obese in 2014

Age distribution – obesity (BMI 30+) NM and NZ 2011/14



BMI < 18 – underweight, 18-24.9 normal weight, 25-29.9 overweight, 30+ obese; where BMI = weight (kg) divided by height (m) squared.

Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

At a population level there is a strong association between BMI and health risk. Excess weight is linked to the occurrence of chronic diseases such as type 2 diabetes and cardiovascular diseases. The NZ Burden of Disease study placed obesity as the second leading cause of health loss behind smoking, accounting for 8% of all illness, disability and premature mortality (MOH 2013). Obesity carries health risk independent from and additive to poor nutrition and lack of physical activity.

How is it measured?

Data on population height and weight is collected by the NZ Health Survey (MOH 2014). Height and weight are directly measured, allowing an accurate body mass index to be measured (kg/m^2). Obesity is defined as a BMI of 30 or more where normal is 18-24.9. At 30+ the risk of harmful health effects starts to rise significantly.

The rate of obesity growth has slowed, but only one-third of adults in NM are at a healthy weight

Nelson Marlborough

The rate of obesity in NM is slightly lower than the NZ average at nearly 28% of all adults. The rate has risen steadily over the past twenty years, though the past 5 years may have seen a halt to the rise. An estimated 31,700 people living in NM were obese in 2014 and risking health harm.

Obesity was just as common among men as women, but Māori had rate of obesity a little under twice that of non-Māori nationally (unadjusted prevalence of 40% and 27% respectively). Māori adults in NM had a similar 40% obesity rate to the NZ average (Cunningham et al 2014).

Younger adults are less likely to be obese (14%) than older adults – just under one in three 45-64 year olds in NM were obese, 5% below the NZ rate (30% cf 35%).

A further 37% of the population would be considered overweight – having a BMI from 25-29 (data not shown). When combined with the obese population, two-thirds of all adults in NM are overweight or obese – meaning that only one in three would be considered to be at a healthy weight.

See related: 5.1 Diabetes

4.3.1 Child obesity

2-14 year olds obese, NZ Health Survey

	2011/14	2006	Change
NM	**7.8%**	NA	-
NZ	10.4	8.3%	2.1%*

An estimated 1800 children in NM in 2014 were obese

NZ	Rate ratio	
Boy vs girl	1.1	
Māori vs non-Māori	2.2	*
Most vs least deprived	3.0	*

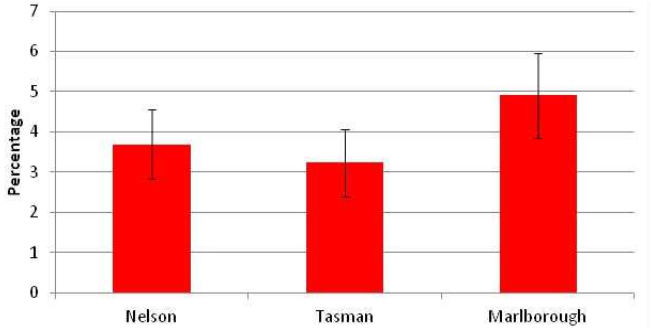
* significant difference

Usually watched 2+ hours of television each day (2–14 years)

	2011/14	Boys	Girls
NM	**48.9%**	51.7%	45.7%
NZ	51.6%	51.2%	51.9%*

NZ	Rate ratio	
Boy vs girl	1.04	
Māori vs non-Māori	1.3	*
Most vs least deprived	1.3	*

B4 Schools Check – percentage of 4 year olds obese 2010-2013



Source: NZ Health Survey 2006/07 and 2011/14, B4SC – Norrish, 2014

Why is this important?

The impact of overweight and obesity on a child's health is discussed in detail in a recent NZ Child and Youth Epidemiology Service report for NM (Craig et al, 2013, pp 261-332). Childhood obesity carries significant physical and mental health risks both in the short term and the long term. Short term associations include asthma, sleep apnoea, joint problems, bullying and low self-esteem. Long-term adulthood obesity is associated with increased risks of diabetes and CVD in adulthood, with raised premature mortality.

How is it measured?

Data on population height and weight is collected by the New Zealand Health Survey (MOH, 2014). Height and weight are directly measured, allowing an accurate body mass index to be measured (kg/m^2). Obesity is defined based on age-adjusted weight norms (MOH, 2008a, p105). The Survey also collects information on fizzy drinks – a major source of unneeded sugar 'empty calories', and television watching – a marker of increased sedentary time. The Before Schools health check ('B4SC') includes measures height and weight of 4 year olds – 83% of NM children were covered (Norrish, 2014).

Nelson Marlborough

Based on the NZ Health Survey an estimated 7.8% of 2-14 year olds in NM were obese. While this is less than the NZ rate of 10.4% (not significantly so), it still means an estimated 1,800 children in NM are obese. Further information comes from the B4SC, where 3 - 5% of NM 4 year olds were considered obese (3.9% overall), with a further 16 - 20% overweight (17.2%). This equates to around 70 obese 4 year olds in NM, with a further 300 overweight.

For NZ for 2011/14 Māori children (17%) had over twice the rate of obesity as non-Māori (8%), while those living in the most deprived 20% of areas had triple the obesity rate. B4SC data for NM showed similar ethnicity and deprivation trends.

NM children were similar to the national average for sedentary behaviour, with over half averaging 2+ hours a day in front of the TV (MOH, 2014). Also noted, nearly 1 in 5 children aged 2-14 in NZ drink 3+ fizzy drinks per week (19%). NMDHB has a sugar and sweetened beverages policy and is working with Councils to have sugar beverage policies for their premises.

One in five NM 4 year olds are overweight or obese

See related: 5.1 Diabetes

4.3.2 Adults aged 15-64 who are morbidly obese

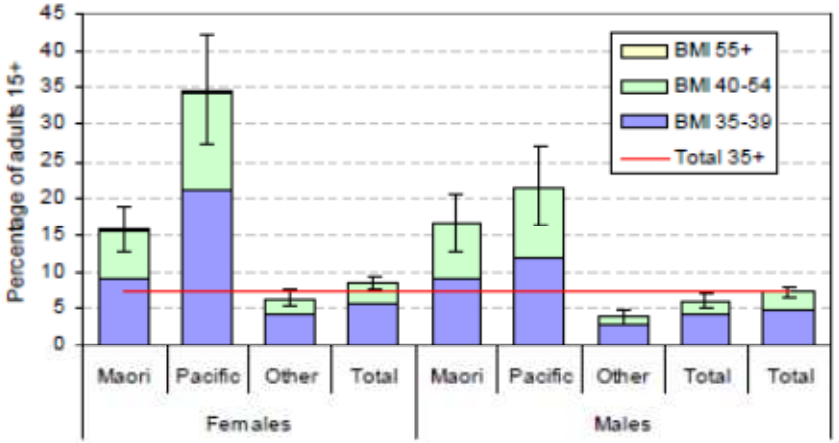
	2006/7	2002/3	Change
NM	**6.7%**	5.2%	1.5%
NZ	8.2%	6.3%	1.9%

NZ	Rate ratio	
Men vs women	0.6	*
Māori vs non-Māori	1.9	*

* significant difference

An estimated 6,000 adults in NM were morbidly obese in 2007

Morbid obesity by ethnicity and gender, NZ 2006/07



From MOH 2008, p25

Nelson Marlborough synthetic estimates, ages 15-64, 2006/07

	BMI 35-39 w co-morbidities	BMI 40-54	BMI 55+	Total
Male	1,450	600	50	2,100
Female	2,150	1,700	50	3,900
Total	3,600	2,300	100	6,000

Source: MOH 2008

Why is this important?

The health risks associated with obesity noted in Section 4.3 become greater exponentially as excess weight rises. Once a person is over 40 BMI it can become very difficult for them to lose weight, and chronic diseases such as type 2 diabetes, sleep apnoea and cardiovascular disease become highly likely. The risk of death doubles for individuals with morbid obesity and their life expectation is reduced by between 5 and 20 years compared with the lean population (MOH, 2008). Increased rates of prejudice and stigmatisation occur, as well as social isolation and depression amongst obese and morbidly obese groups.

How is it measured?

Synthetic estimates were derived from the 2002/03 and 2006/07 New Zealand Health Survey of the number of people in each DHB area suffering from morbid obesity and who might benefit from bariatric surgery (weight-loss surgery such as gastric banding) (MOH, 2008). Morbid obesity was defined as a BMI of 40 or more, or a BMI from 35-39 with obesity-related comorbidities such as diabetes.

Nelson Marlborough

The rate of morbid obesity (BMI 40+) in NM at 6.7% of those aged 15-64 is a little less than the New Zealand rate of 8.2%. The rate has been rising steadily in step with overall obesity rates. An estimated 6,000 people living in NM were morbidly obese in 2007 – unfortunately no more recent estimate is available. The number is likely to have climbed significantly over the past 5 years. Morbid obesity was 1.7 times more common among women as men, and Māori adults had twice the rate of morbid obesity as non-Māori.

While lifestyle modification is the main treatment option for morbid obesity, bariatric surgery is often considered. If 0.5-1% of cases were operated on each year (a rate considered cost-effective – MOH, 2008), one would expect 30-60 cases per year for NM residents. From 2011/12 to 2013/14 eight cases were publicly-funded, a rate of 0.04%. The proportion (with 420 procedures/year) was 0.18% for NZ, four times higher. NM is part of a whole of South Island approach to bariatric surgery – so rates may improve in future.

While the rate of growth for obesity is slowing, morbid obesity continues to rise

See related: 5.1 Diabetes

4.4 Adults who are physically active

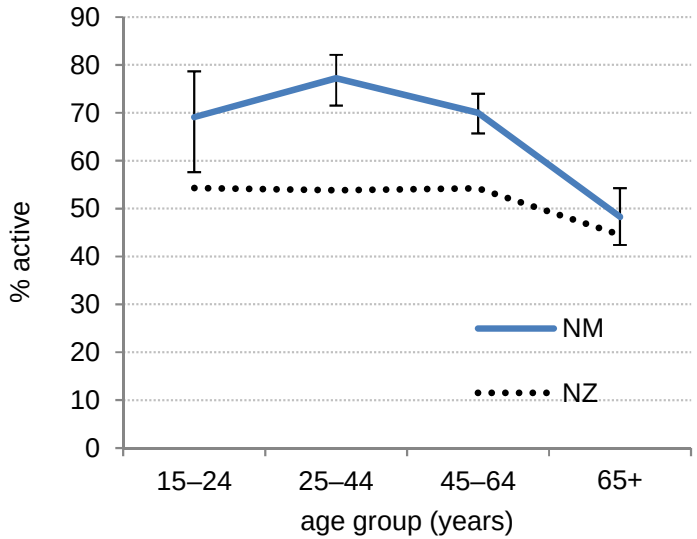
	2014	2006	Change
NM	**67.1%***	53.8%	13.3%
NZ	52.4%	52.0%	0.4%

NZ	Rate ratio	
Men vs women	1.1	
Māori vs non-Māori	1.0	
Most vs least deprived	0.8	*

* significant difference

An estimated 38,000 adults in NM in 2014 had low activity levels

Age distribution – physically active NM and NZ 2011/14



Adults who were physically active for at least 30 minutes on five or more days in the last week

Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

Regular physical activity can be protective against the development of health conditions such as obesity, diabetes, heart disease and hypertension, and also mental health conditions such as depression and anxiety. It is also important for maintaining a healthy weight and preventing and reducing obesity. Low physical activity accounts for about 4% of all illness, disability and premature mortality in NZ (MOH, 2013).

How is it measured?

Data on population physical activity comes from the New Zealand Health Survey (MOH, 2014). An adequate level of physical activity is thought to require 150 minutes weekly of moderate intensity (eg, brisk walking), which equates to 30 minutes of activity five-times a week or some variation thereof - but any level of activity is better than none at all. Physical activity includes deliberate exercise (eg, running and sports); activities of daily living (eg, housework); work-related activity; and active transport. Activity is self-reported in the Survey, and as such is likely to overestimate the amount performed.

38,000 NM adults are at increased health risk due to low activity

Nelson Marlborough

People living in NM reported a higher rate of physical activity than the rest of the country – 67% compared with 52%, a significant difference. The reported activity rate has risen markedly in NM since 2006/07, while it has hardly changed for NZ. An estimated 38,000 adults living in NM had activity levels that were too low in 2014.

Physical activity rates did not vary markedly between men and women. Māori had similar rates to non-Māori.

Younger adults in NM were less likely to be active than older adults – 69% of 15-24 year olds, compared with 77% for 25-44 and 70% for 45-64 year olds. The latter two age groups had significantly higher rates than their NZ counterparts.

The Te Hoe Nuku Roa survey of Māori in NM (Cunningham et al 2014) asked about barriers to increasing physical activity. These included lack of time (34% noted), health problems (29%), road safety (19%), cost (19%), poor footpaths (12%) and not enough cycle paths (12%). Councils will play a key role in promoting good environments for physical activity, and active transport options.

See related: 5.2 CHD, 2.3 Housing and transport

4.5 Adult nutrition – intake of vegetables and fruit

3+ vegetables	2014	2006	Change
NM	**88.6%***	70.6%	18.0%
NZ	66.30%	63.9%	2.1%

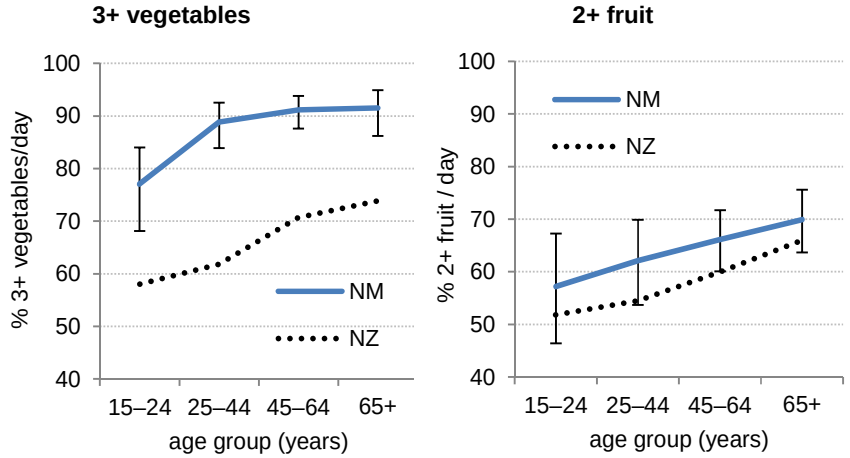
2+ fruit	2014	2006	Change
NM	**64.6%**	62.2%	2.4%
NZ	57.8%	59.9%	-2.1%

NZ	Vegetable rate ratio	Fruit rate ratio
Men vs women	0.9*	0.8*
Māori vs non-Māori	1.0	0.8*
Most vs least deprived	0.8*	0.8*

* significant difference

An estimated 13,100 adults in NM in 2014 had low vegetable intake, and 41,000 a low fruit intake

Age distribution – NM and NZ 2011/14



Adults who ate on average three or more servings of vegetables per day; and adults who ate on average two or more servings of fruit per day in the last week. Includes all fresh, frozen and canned vegetables/fruit, but not juices.

Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

Fruit and vegetables are an important part of the human diet, packed with valuable nutrients, fibre and essential vitamins and minerals. An adequate intake of fruit and vegetables helps to protect against major diseases like heart disease, stroke, high blood pressure and some cancers. Ministry of Health nutrition guidelines recommend eating at least three servings of vegetables and at least two servings of fruit per day for good health. More is better!

Given the complexity of measuring total diet quality the fruit and vegetable intake can provide a useful indicator for overall dietary choices.

How is it measured?

Data on vegetable and fruit consumption comes from the New Zealand Health Survey (MOH, 2014). Consumption is self-reported in the Survey, and as such may over-estimate the amount actually consumed. A serving is defined as a medium piece of fruit, two small pieces, half a cup of cooked vegetables or one cup of salad vegetables, and excludes juices or dried fruit.

Nelson Marlborough

The reported intake of vegetables is significantly higher in NM than in NZ as a whole – 88.6% compared with 70.6%. Fruit intake was slightly higher – 64.6% compared with 62.2%. NM results have improved more than NZ since 2006/07 for both fruit and vegetables. For 2011/14 only 11% of adults noted having less than three servings of vegetables per day, while 35% had insufficient fruit. This would represent an estimated 13,100 people living in NM in 2013 with low vegetable intake, and 41,000 with low fruit intake. Intake of vegetables was significantly higher for NM residents compared to NZ at each age group.

Men had poorer nutrition patterns than women, being less likely to eat sufficient vegetables or sufficient fruit.

Māori did not vary from non-Māori in vegetable intake, but the percentage of Māori adults who ate at least two servings of fruit per day nationally declined from 55% in 2006/07 to 47% in 2013/14 (MOH, 2014). NM Māori dietary choices were similar to that seen nationally (Cunningham et al 2014).

41,000 adults in Nelson Marlborough are eating no fruit, or only one piece per day

See related: 5.2 CHD

4.6 Adults diagnosed with high blood pressure and currently taking medication for this

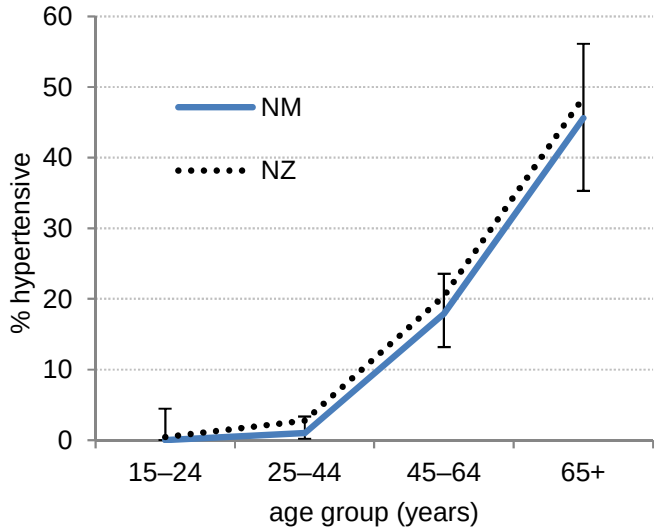
	2014	2006	Change
NM	**16.9%**	13.1%	3.8%
NZ	15.9%	13.8%	2.1%

NZ	Rate ratio	
Men vs women	1.0	
Māori vs non-Māori	1.4	*
Most vs least deprived	1.4	*

* significant difference

An estimated 19,400 adults in NM in 2014 had medicated high blood pressure

Age distribution – medicated high blood pressure NM and NZ 2011/14



Adults who stated they had high blood pressure and were currently taking medication for this condition

Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

High blood pressure (also called hypertension) can damage the heart and kidneys. It can also lead to ischaemic heart disease, stroke and kidney (renal) failure. Linked to lack of exercise, smoking, diet and obesity, high blood pressure accounted for 6% of illness, disability and premature mortality in NZ (MOH, 2013).

How is it measured?

Data on high blood pressure comes from the New Zealand Health Survey (MOH, 2014). Self-reported information on whether a diagnosis of high blood pressure has been given, and whether any medication is being given for it is collected. This indicator reports just those receiving medication. The Survey has recently switched to directly measuring blood pressure, with a separate report expected in 2015. That will provide much better population risk figures.

Rates of treatment for high blood pressure are increasing in NM

Nelson Marlborough

People living in Nelson Marlborough report a slightly higher rate of medicated high blood pressure than the rest of the country – 16.9% compared with 15.9%. However this does reflect the older age structure of NM – age-standardising shows if anything NM has a lower medicated hypertension rate – note for example the NM line in the graph lies under the NZ line across the age range.

The reported rates have risen by ~4% in NM and 2% in NZ since 2006/07. This may reflect an increased emphasis on treatment through primary care and the 'Better diabetes and cardiovascular services' Health Target rather than any underlying increase in prevalence.

An estimated 19,400 adults living in NM were receiving medication for high blood pressure in 2014. Nearly half of all adults aged 65+ were so treated. Rates did not vary between men and women. Māori had a higher rate nationally, age-standardised, than non-Māori, and people living in more deprived areas were more likely to have medicated hypertension. Māori in NM had an estimated 18% hypertension rate in 2012 consistent with the 1.4 rate ratio (Cunningham et al 2014).

See related: 5.2 CHD, 5.3 Stroke

Section 5

Long term conditions

5. Long term conditions
Age-standardised prevalence 2011-2013

Indicator for adults aged 15 years and over	Age-std prevalence (%), 2011-14 NM	NZ	Difference - p-value, yellow = sig diff
Diagnosed coronary heart disease	3.7	3.6	0.86
Diagnosed stroke	1.7	1.4	0.44
Diagnosed diabetes	3.1	4.4	0.00
Medicated asthma	10.7	11.1	0.78
Diagnosed arthritis	13.2	11.4	0.11
Chronic pain	20.8	15.0	0.00

Note that figures in the table are age-standardised, allowing comparisons to be made excluding differences in the population age structure. For the rest of the section results are presented as actual rates, unless stated, allowing population counts to be derived. Any statistical testing is done on the age-standardised rates.

Age- standardised mortality per 100,000 population, 2009-2011

Condition (age range)	NM	NZ	Change pa
Coronary heart disease (25+)	105	114	-4.6%
Stroke (15+)	50	50	-4.3%
Cancer (all ages)	106	121	-2.2%
Lung (25+)	33	41	-2.2%
Colorectal (25+)	30	29	-3.5%
Melanoma (25+)	10	11	-1.1%
COPD (65+)	159	203	-3.8%
Unintentional injury (all ages)	23	24	-1.8%

Change per annum is for the period 2001 to 2011

Source: NZ Health Survey 2011/14, Mortality data - Borman, 2015

Why is this important?

Conditions such as diabetes, cardio-vascular and cerebrovascular disease, cancer and respiratory disease are largely avoidable yet still account for 80% of early deaths. These conditions continue to have a disproportionate effect on Māori and people on low incomes, with Māori sustaining greater health loss in most condition groups. Health loss in this context is defined as the difference between the population's current state of health and that of an ideal population in which everyone experiences long lives free from ill health or disability.

How is it measured?

Self-reported prevalence data is available for some conditions through the New Zealand Health Survey. It can also be possible to use health utilisation data to estimate disease prevalence – for example, the New Zealand-Aotearoa Health Tracker has estimated gout and diabetes prevalence (Jo 2015, Winnard 2012). Hospitalisation and mortality data can illustrate the impact caused by each condition, as can burden of disease studies (MOH, 2013).

The largest concern is growth in diabetes through increasing obesity

Nelson Marlborough

The pattern of NM adults having better risk factor profiles than their counterparts elsewhere in New Zealand translates through to their long term conditions, with prevalence and rates of hospitalisation generally lower than the national average. This still leaves many people with health conditions affecting them and their whanau. Māori in NM tend to fare better than the NZ average, but still face a health deficit compared to the other residents of NM.

For people in NM:

- 6,000+ have diabetes
- 7,000+ have coronary heart disease
- 2,800 have had a stroke
- 770 are registered with a new cancer
- 15,000+ have medicated asthma
- 23,000 have arthritis, of whom 2,700 have gout
- 29,000 have chronic pain
- 3,300 have injuries serious enough to be hospitalised each year
- 6,800 have falls generating an ACC claim each year, 850 are hospitalised.

6000+ people in NM have diabetes. Māori are at twice the risk as non- Māori.

5.1. Prevalence of diabetes

NZ Health Survey

% Adults	2014	2006	Change
NM	**5.2%**	3.8%	1.4%
NZ	5.6%	5.1%	0.5%

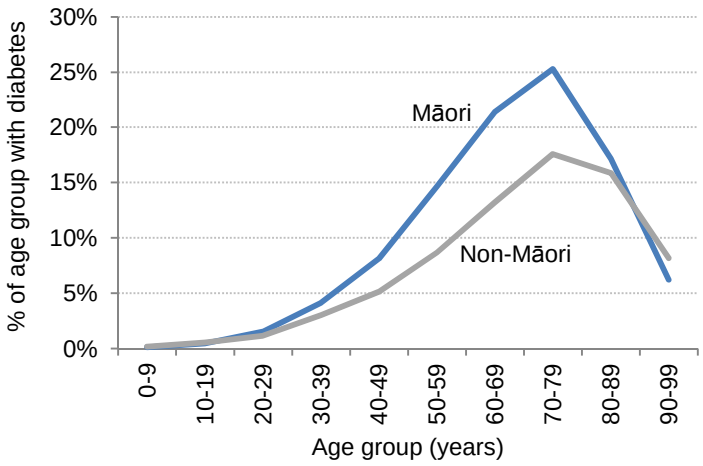
There were over 6,000 people in NM in 2014 with diabetes.

NZ	Rate ratio	
Men vs women	1.4	*
Māori vs non-Māori	2.0	*
Most vs least deprived	1.7	*

* significant difference

Virtual diabetes register Dec 2013 (non-standardised)

	Māori	Non-Māori	Total
NM	456	5,805	6,261
NM % adults	4.9%	5.4%	5.4%
NZ % adults	7.4%	6.7%	6.8%



Source: NZ Health Survey 2006/07 and 2011/14, MOH 2014a

Why is this important?

Diabetes is a major contributor to the loss of health in New Zealand. There are two main types of diabetes (with some crossover). Type 1 is caused by the destruction of insulin producing cells in the pancreas, usually develops in childhood and requires daily insulin injections in order to sustain life. Type 2 diabetes is caused by the body's tissues becoming resistant to the action of insulin and usually develops in adulthood. The prevalence of Type 2 has been increasing, and makes up more than 90% of today's diabetes burden. The increasing obesity rate is the single largest driver of the increase, along with physical inactivity. Type 2 diabetes can be prevented through diet and weight control; there is a growing body of evidence to suggest that it can be managed or completely reversed with significant weight loss.

How is it measured?

Self-reported prevalence data from the New Zealand Health Survey, and from the virtual diabetes register ('VDR'), a combining of health utilisation data sets (MOH, 2014a; Jo & Drury, 2015).

Numbers of people with diabetes are growing through increasing overweight and obesity

Nelson Marlborough

One in twenty adults in NM have diabetes (5.2% self-reported in NZ Health Survey, 5.4% recorded in VDR), slightly less than the national average. This equates to over 6000 people with diabetes.

Nationally Māori had twice the prevalence rate of diabetes, age-standardised, to non-Māori. Māori rates were higher at each group, peaking at 25% by age 70-79. NZ Health Survey data (2011/14) shows no significant difference in the prevalence of diabetes between Māori and non-Māori (unstandardised).

Diabetes is a major factor in the excess burden of disease among Māori. Health loss attributed to diabetes for Māori people is at least 2.5 times higher than non-Māori with diabetes ranking as the fourth leading specific condition causing health loss to Māori (MOH, 2013). The onset of diabetes occurs earlier among Māori.

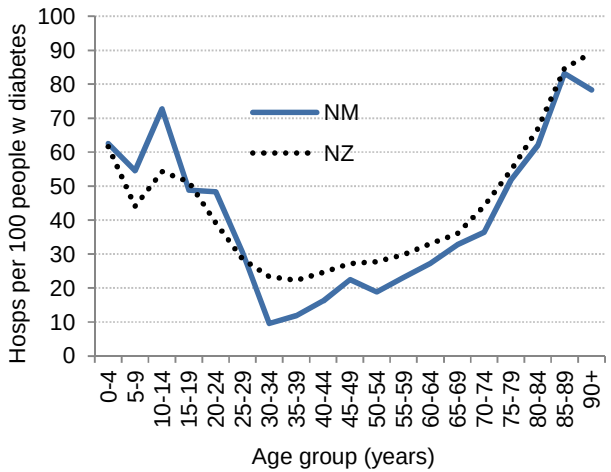
Men had a 40% higher prevalence than women, and those living in more deprived areas had a 70% higher prevalence of diabetes than those living in the least deprived 20% of areas (standardising for age gender and ethnicity).

See related: 4.3 Obesity, 5.2 CHD

People with diabetes are high hospital users, with rates rising at 7% per year

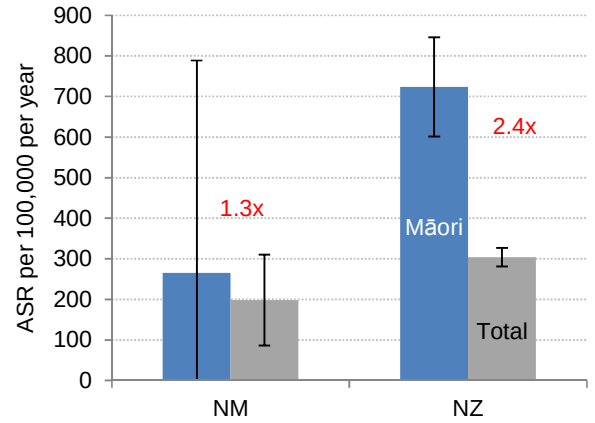
5.1.1. Hospitalisations for diabetes

Hospitalisation rate for people with diabetes by age, 2013



Age-standardised rate (ASR) per 100,000 population of hospitalisation with principal diagnosis of diabetes, 2000-2002 to 2011-2013

	2000-02	2005-07	2011-13	% change pa
NM	96	141	198	6.8%
NZ	149	229	304	6.7%



Source: HPCG analysis of NMDS, Borman, 2015

Why is this important?

People with diabetes are frequent users of public hospitals, either for their diabetes directly, or for complications such as cardiovascular disease, renal failure, blood vessel disorders and eye disease. Hospitalisation rates can be used as a marker of serious disease for health systems with good access to secondary care.

The annual per person direct additional cost to the public health system of diabetes has been estimated at $4080 based on 2009 expenditure by all DHBs in the Northern region (Chan 2010). This is mainly type 2 diabetes, much of which is preventable through actions to reduce overweight and obesity.

Diabetes complications include heart disease, renal failure, blood vessel disorders and eye disease

Nelson Marlborough

Hospitalisation rates for people with diabetes in NM have a similar age profile to the national average - initial high rate in the small number of children with diabetes, then a drop in the 25-54 age groups, before a steady climb thereafter. By the age of 75 the equivalent of half the people with diabetes have a public hospital admission each year.

The rate of hospitalisation has been climbing steeply over the past 10 years. Looking specifically at diabetes as a principal diagnosis (ie, ignoring the complications and co-morbidities) there is a 6.8% annual increase in the rate of diabetes hospitalisations in NM. This has seen the rates double in the past 10 years, climbing at a similar rate to that seen for NZ, as a whole. NM does have a (non-significant) lower rate of hospitalisation for diabetes as a principal diagnosis than the NZ average.

Nationally Māori had 2.4 times the rate of hospitalisation as the total, age-standardised, similar to the difference in prevalence rates. Māori in NM did not have diabetes hospitalisation rates that differed significantly from the NM total, or to Māori nationally.

See related: 4.3 Obesity, 5.2 CHD

6,000+ people in NM have coronary heart disease

5.2. Prevalence of coronary heart disease

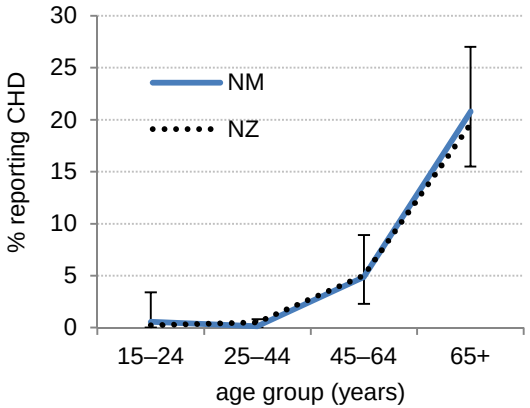
There were an estimated 6,300 people in NM in 2014 with diagnosed CHD.

NZ Health Survey

% Adults	2011/14	2006/07	change
NM	**5.5%**	6.2%	-0.7%
NZ	5.2%	5.3%	-0.1%

NZ	rate ratio	
Men vs women	1.8	*
Māori vs non-Māori	1.6	
Most vs least deprived	1.5	

* significant difference



Mortality ASR per 100,000 for CHD, age 25+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% change pa
NM	176	141	105	-4.6%
NZ	183	146	114	-4.2%

Hospitalisation ASR per 1000 for CHD, age 25+, 2000-02 to 2011-13

	2000-02	2005-07	2011-13	% change pa
NM	9.6	8.0	6.7	-3.2%
NZ	10.1	8.1	6.2	-4.3%

Source: NZ Health Survey 2006/07 and 2011/14, Borman 2015

Why is this important?

Coronary heart disease ('CHD'), also termed ischaemic heart disease, covers angina and heart attacks. While the mortality rate for CHD has fallen nearly 90% since its peak around 1970, the New Zealand Burden of Disease report found it remains the single leading cause of health loss in NZ in 2006 accounting for 9.3% of Disability Adjusted Life Years ('DALYs') (MOH, 2013). This was almost twice the burden of the second ranked cause of health loss. A similar situation exists for Māori, with CHD being responsible for 8.8% of total DALYs.

How is it measured?

The New Zealand Health Survey uses a self-reported history of admission to hospital or a diagnosis of angina to give an estimate for the prevalence of CHD. Mortality and hospitalisation rates have been calculated by Centre of Public Health Research for the past 11 years (Borman, 2015).

Nelson Marlborough

In NM 5.5% of adults report having CHD, slightly more than the national average. This equates to an estimated 6,300 people with CHD. Prevalence rates climb steeply with age at a similar rate to that seen for NZ as a whole.

Nationally men have a prevalence rate significantly higher than females (1.8 times). Rates for Māori were 1.6 times higher, age-standardised, than non-Māori, but this did not reach statistical significance.

People living in more deprived areas had a 50% higher prevalence of CHD than those living in the least deprived 20% of areas (standardising for age, gender and ethnicity).

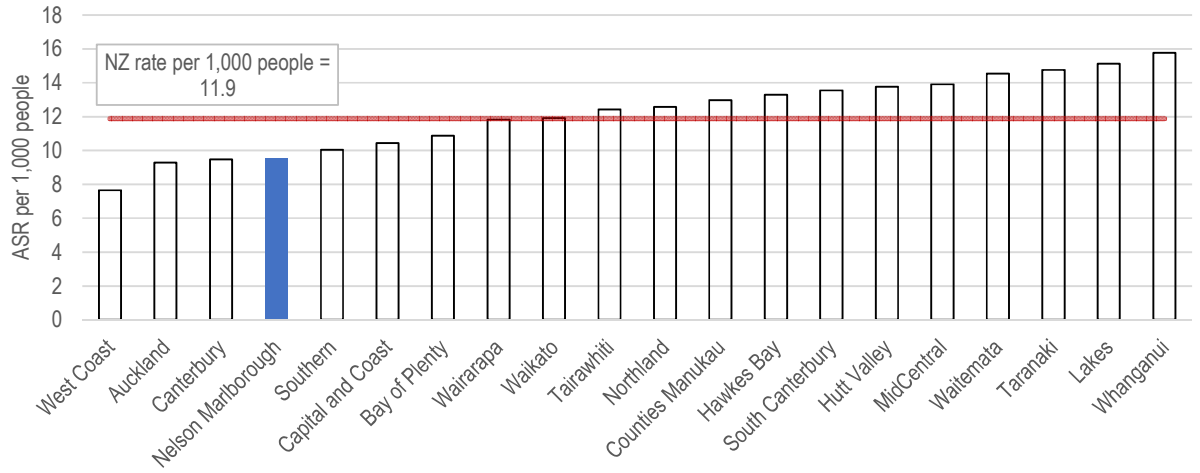
Over the last 10 years the mortality rate for CHD in those aged 25+ has fallen on average 4.6% per year for NM, a rate slightly higher than the fall nationally. Rates of hospitalisation have fallen 3.2% per year.

While numbers are falling, CHD remains the single largest cause of health loss for NM people

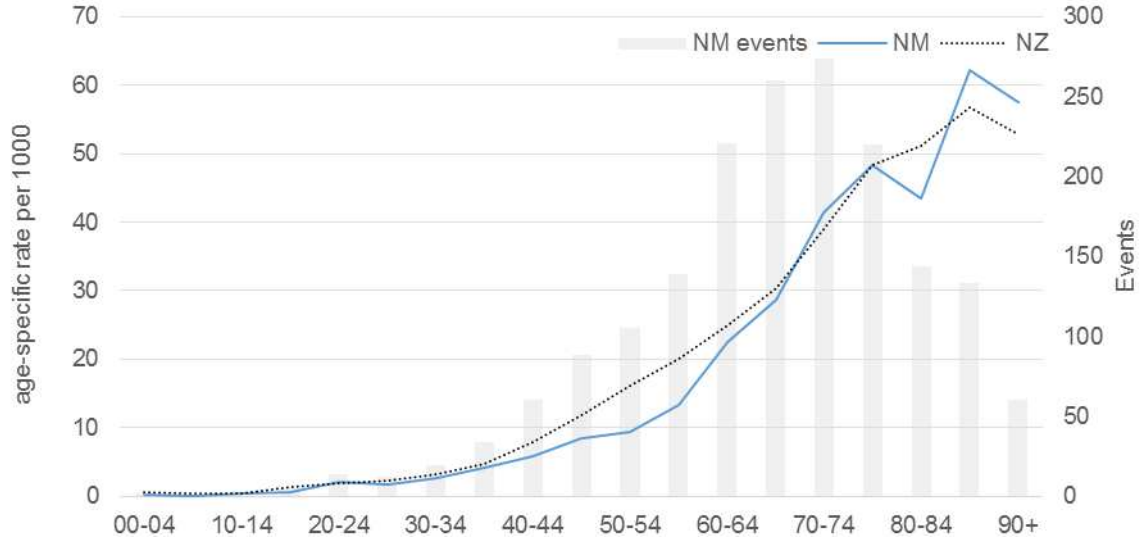
See related: 4.1 Smoking, 4.6 Hypertension, 5.1 Diabetes, 5.3 Stroke

5.2. Hospitalisations for coronary heart disease

DHB comparison, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of CHD hospitalisation compared with NZ 2013/14



Note: bars show actual numbers of events on right axis

Source: NMDS, HPCG analysis

Nelson Marlborough

In NM 10.3 adults per 1000 per year are admitted to a public hospital with a principal diagnosis of CHD, the fourth lowest of the DHBs and less than the national average of 11.9 per 1000.

Hospitalisation rates climb steeply with age at a similar rate to that seen for NZ as a whole. Volumes peak at the 60 to 79 age range, with the equivalent of 3.2% of all people of that age being admitted to hospital each year (assuming each hospitalisation was for a different person).

Rates of hospitalisation for Māori in NM by age were higher than non-Māori but not as much as nationally (data not shown). No significant differences were seen in CHD mortality or hospitalisation rates for residents of each locality when compared to the NM average.

Rate ratio of CHD deaths and hospitalisations to NM average 2011-13

	Mortality	Hosps
Marlborough	1.10	1.26
Nelson	0.93	0.91
Tasman	0.98	0.85

Deaths 2009-11, hospitalisations 2011-13

See related: 4.1 Smoking, 4.6 Hypertension, 5.1 Diabetes, 5.3 Stroke

5.3. Prevalence of cerebrovascular disease (stroke)

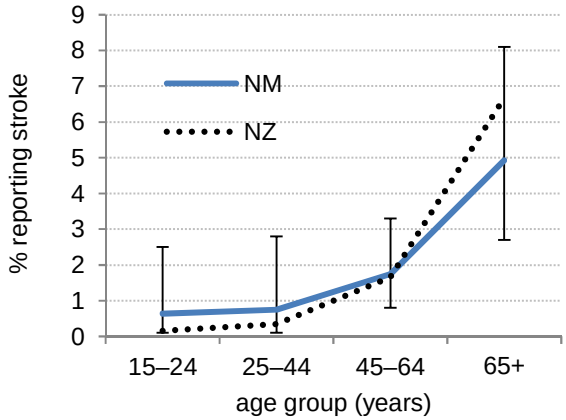
NZ Health Survey

% Adults	2011/14	2006/07	Change
NM	**2.0%**	1.5%	0.7%
NZ	1.8%	1.9%	0%

There were an estimated 2,300 people in NM in 2014 with diagnosed stroke.

NZ	Rate ratio
Men vs women	1.2
Māori vs non-Māori	1.8
Most vs least deprived	3.0

* significant difference



Mortality ASR per 100,000 for stroke, age 25+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% change pa
NM	80	61	50	-4.3%
NZ	76	63	50	-3.7%

Hospitalisation ASR per 1000 for stroke, age 25+, 2000-02 to 2011-13

	2000-02	2005-07	2011-13	% change pa
NM	2.2	2.1	2.2	-0.2%
NZ	2.9	2.5	2.4	-1.9%

Source: NZ Health Survey 2006/07 and 2011/14, Borman 2015

Why is this important?

Cerebrovascular disease, better known as stroke, is caused by the damage of brain tissue through bleeding or blockage of blood vessels. It can be termed a 'brain attack', in an analogy to heart attack. While the rate of stroke has been falling, the NZ Burden of Disease report found it remains a leading cause of health loss in NZ, accounting for 4% of illness, disability and premature mortality (MOH, 2013). High blood pressure (hypertension) is the single largest risk factor for stroke, along with (and potentiated by) smoking, obesity and lack of activity.

How is it measured?

The NZ Health Survey uses a self-reported history of stroke, where a doctor has told respondents at some time in their life that they have had a stroke (this excludes transient ischaemic attacks, also referred to as mini-strokes). Mortality and hospitalisation rates have been calculated by Centre for Public Health Research for the past 11 years (Borman, 2015).

While rates are falling, stroke remains an important cause of health loss for NM people, particularly for Māori

Nelson Marlborough

In NM 2% of adults reported having had a stroke, slightly more than the national average. This equates to an estimated 2,300 survivors of stroke. Prevalence rates climb steeply with age but at a slightly slower rate for NM - around 5% of those aged 65+ reported having had a stroke compared with 7% nationally.

Across NZ, rates for Māori were 1.8 times higher, age-standardised, than for non-Māori, but this did not reach statistical significance due to low case numbers. For NM, stroke rates, unstandardised, were almost four times higher for Māori than non-Māori (6.1% vs. 1.7%), though not statistically significant.

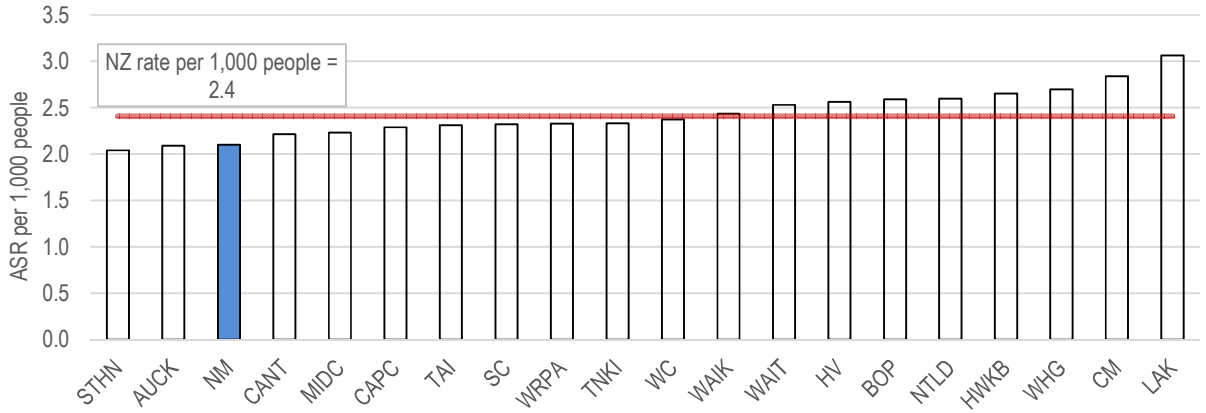
Likewise although those living in more deprived areas had a three-fold higher prevalence of stroke than those living in the least deprived 20% of areas (standardising for age, gender and ethnicity) this also did not reach statistical significance.

Over the last 10 years the mortality rate for stroke has fallen on average 4.3% per year for NM, a rate slightly higher than the fall nationally, and similar in magnitude to the fall in CHD deaths. Rates of hospitalisation have remained steady over the past 10 years.

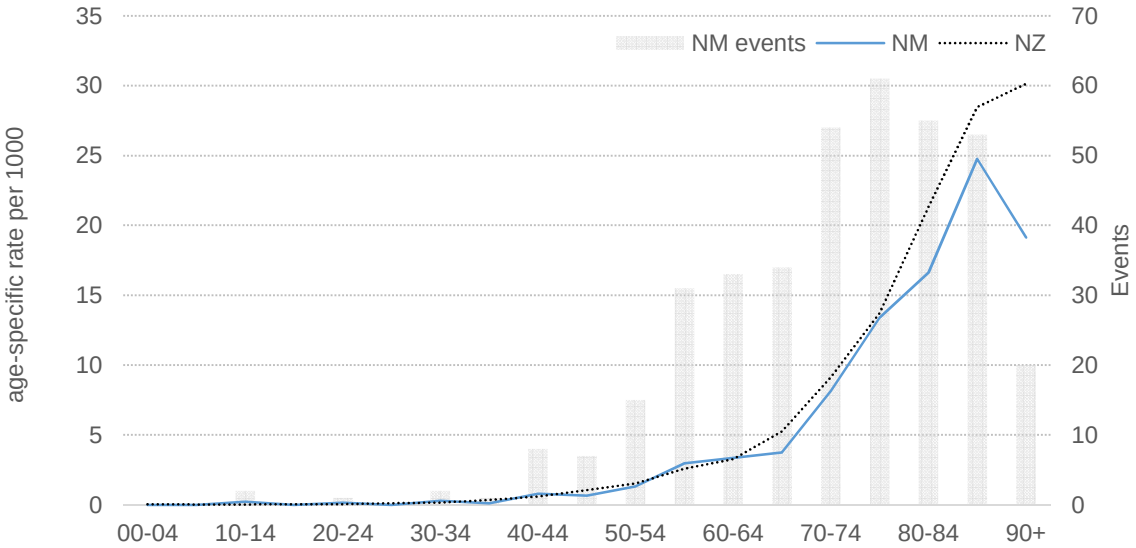
See related: 4.1 Smoking, 4.6 Hypertension, 5.1 CHD

5.3.1. Hospitalisations for stroke or transient ischaemic attack

DHB comparison, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of stroke or TIA hospitalisation compared with NZ 2013/14



Note: bars show actual numbers of hospitalisations a year on right axis

Source: NMDS, HPCG analysis

Nelson Marlborough

In NM just over 2 adults per 1000 per year are admitted to a public hospital with a principal diagnosis of stroke or transient ischaemic attack, the third lowest DHB rate and lower than the national average of 2.4 per 1000.

Hospitalisation rates climb steeply with age at a similar rate to that seen for NZ as a whole. Volumes peak at the 70 to 89 age range, at over 200 per year, the equivalent of 1.3% of all people of that age being admitted to hospital each year (assuming each hospitalisation was for a different person).

No significant differences were seen in stroke mortality or hospitalisation rates for residents of each locality when compared to the NM average.

Rate ratio of stroke deaths and hospitalisations to NM average

	Mortality	Hosps
Marlborough	1.00	1.12
Nelson	1.08	1.00
Tasman	0.91	0.89

Deaths 2009-11, hospitalisations 2011-13

See related: 4.1 Smoking, 4.6 Hypertension, 5.2 CHD

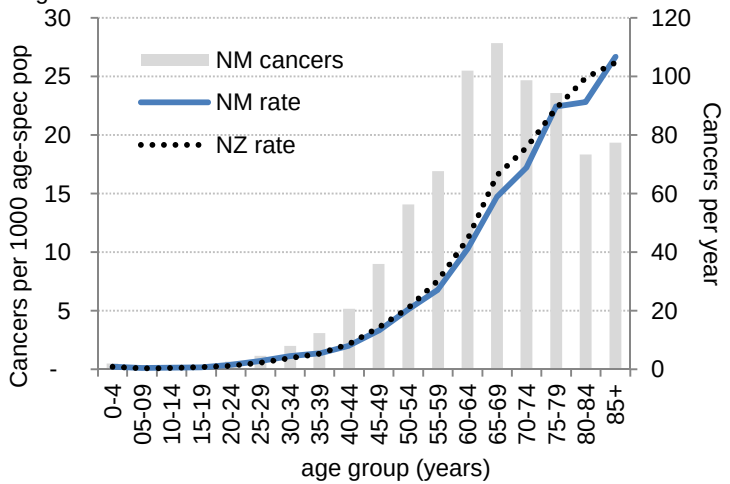
5.4. Cancer incidence - cancer registrations 2010-2012

	Number	ASR/1000	Ratio
NM	**770**	14.1	0.94
NZ	21,000	15.0	

770 people in NM are registered with a new cancer each year

NZ	Rate ratio	
Men vs women	1.2	*
Māori vs non-Māori	1.2	*
Most vs least deprived	1.4	*

* significant difference



Mortality ASR per 100,000 for cancer, all ages, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% change pa	Ratio
NM	141	131	106	-2.6%	0.88
NZ	148	137	121	-1.8%	

Hospitalisation ASR per 1000 for cancer, all ages, 2000-02 to 2011-13

	2000-02	2005-07	2011-13	% change pa	Ratio
NM	9.6	11.2	9.8	0.1%	1.18
NZ	8.5	8.2	8.3	-0.2%	

Source: Cancer registrations, HPCG analysis, MOH 2014b, Borman 2015

Why is this important?

Cancer is a major cause of illness, with a significant impact on individuals, families and health systems. Despite a decline in cancer mortality and an increase in cancer survival over time, it remains the most important cause of preventable mortality and illness alongside CVD. Cancers were reported as the leading cause of health loss at the condition group level, accounting for 17.5% of health loss in New Zealand (MOH 2013). Smoking, nutrition, obesity, alcohol and lack of exercise are key risk factors.

How is it measured?

Registrations of new cancers are collated nationally, with data to 2012 available for this analysis. Mortality and hospitalisation rates have been calculated by CPHR for the past 11 years (Borman, 2015). 'Cancers' here exclude skin cancer (apart from melanoma), superficial bladder cancers, 'in situ' cancers, and some haematological conditions that can be considered malignant - polycythaemia vera, myelodysplastic syndromes and chronic myeloproliferative disorders.

Nelson Marlborough

In NM there were 770 new cancer registrations per year from 2010 to 2012, giving a rate slightly lower than the national average. Incidence rates climb steeply with age at a similar rate to those seen for NZ as a whole. Around 560 (1.7%) people aged 60+ years would develop a new cancer in any one year.

Nationally incidence rates for Māori were 20% higher, age-standardised, than for non-Māori (which is statistically significant). Likewise, those living in the most deprived areas had a significant 40% higher incidence of cancer than those living in the least deprived areas (standardising for age, gender and ethnicity). Males had a significant 20% higher incidence rate.

Over the last 10 years the mortality rate for cancer has fallen on average 2.6% per year for NM, a rate slightly higher than the fall nationally. Rates of hospitalisation have remained steady over the past 10 years.

Mortality rates for cancer for NM people are falling

See related: 4.1 Smoking, 4.2 Alcohol, 4.5 Nutrition

Lung and colorectal cancers cause the most deaths of the cancers, rates are dropping

5.4.1. Cancer continued

Most common cancer registrations 2010 to 2012

Rank	NM	NZ	NM cases per year
1	Prostate	Prostate	126
2	Colorectal	Colorectal	125
3	Melanoma	Breast	94
4	Breast	Melanoma	89
5	Lung	Lung	56

Mortality ASR per 100,000 for lung cancer, age 25+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% Change pa	Ratio
NM	42	38	33	-2.2%	0.80
NZ	49	45	41	-1.6%	

Mortality ASR per 100,000 for colorectal cancer, age 25+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% Change pa	Ratio
NM	45	35	30	-3.5%	1.04
NZ	38	35	29	-2.4%	

Mortality ASR per 100,000 for melanoma, age 25+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% Change pa	Ratio
NM	11	18	10	-1.1%	0.88
NZ	11	11	11	0.0%	

ASR = Age-standardised rate

Rate ratio locality to NM, cancer deaths and hospitalisations

	Mortality	Hosps
Marlborough	1.11	1.04
Nelson	0.98	0.99
Tasman	0.92	0.98

Source: Cancer registrations HPCG analysis, Borman 2015

Cancer by type

In NM, as for NZ, the most common cancers registered over the three years 2010-2012 were prostate and colorectal cancer (each making up 16% of registrations). Next were melanoma and breast cancer for NM; these positions were reversed for NZ. The top 5 was rounded out by lung cancer.

In terms of deaths lung cancer has the largest impact on NM (as for NZ) with 33 deaths per 100,000 population, making up 19% of all cancer deaths. This rate has been falling at 2.2% per year as the smoking epidemic continues its decline. NM has a (non-significantly) lower mortality rate for lung cancer than the national average. Colorectal cancer is the next highest in terms of deaths, and has also been showing a significant decline as New Zealanders' diet improves.

By locality

No significant differences were seen in cancer mortality or hospitalisation rates for residents of each locality when compared to the NM average (rates were too low to compare mortality rates by type of cancer).

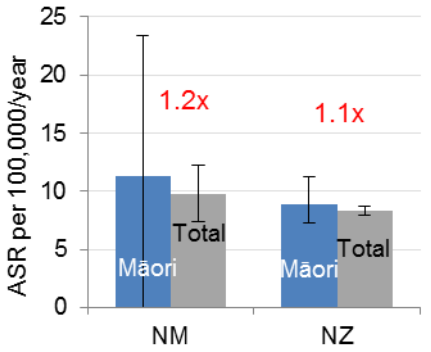
Health Targets

One of the six Health Targets for NZ health system performance monitoring is Faster Cancer Treatment. This aims to have 85% of patients receive their first cancer management within 62 days of being referred with a high suspicion of cancer. In Q2 2014/15 (Oct-Dec 2014) NM ranked 7th of DHBs with 70% of patients meeting the target. The national average was 66%.

Māori cancer hospitalisations

The hospitalisation rate for Māori in NM for cancer was 20% higher - age-standardised -, than for non-Māori, non-significant statistically but similar to the difference seen in cancer registrations.

Hospitalisation ASR Māori 2011-13



See related: 4.1 Smoking, 4.6 Hypertension, 5.1 Diabetes, 5.2 CHD

5.5. Chronic obstructive pulmonary disease (COPD)

Mortality ASR per 100,000 for COPD, age 65+, 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% Change pa	Ratio
NM	245	227	159	-3.8%	0.78*
NZ	283	237	203	-3.0%	

NZ mortality	Rate ratio
Men vs women	1.4*
Māori vs non-Māori	2.3*

* significant difference

Hospitalisation ASR per 1000 for COPD, age 45+ 2000-02 to 2011-13

	2000-02	2005-07	2011-13	% Change pa	Ratio
NM	3.4	3.9	3.6	0.5%	0.58*
NZ	6.2	6.3	6.1	-0.1%	

NZ hospitalisation	Rate ratio
Men vs women	1.1
Māori vs non-Māori	3.6*

Rate ratio locality to NM, COPD deaths and hospitalisations

	Mortality	Hosps
Marlborough	1.25	1.42*
Nelson	0.86	0.90
Tasman	0.87	0.67*

Deaths 65+ 2009-11, hospitalisations 45+ 2011-13.
*Marlborough residents have a significantly higher hospitalisation rate for COPD than Tasman residents.

Source: Cancer registrations, HPCG analysis, MOH 2014b, Borman 2015

Why is this important?

Chronic obstructive pulmonary disease (COPD) is a progressive lung disease that is responsible for 3.7% of health loss in the New Zealand population (NZ Burden of Disease Study – MOH, 2013). Cigarette smoking is the main risk factor for COPD resulting in a largely irreversible air-flow restriction into and out of the lungs. The two main forms of COPD are emphysema and chronic bronchitis, with the main symptoms being coughing and breathlessness.

How is it measured?

COPD is defined by ICD-10-AM codes J40-J44, or AR-DRGs E65A and E65B. At older ages (eg 45+) it can be difficult to distinguish from asthma. We treat the two entities separately here, but one could argue for combining the two at older ages.

Nelson Marlborough

NM has significantly lower mortality and hospitalisation rates for COPD compared to national averages.

Nationally mortality rates for Māori were 2.3-times higher, age-standardised, than for non-Māori (statistically significant). Males had a significant 24% higher mortality rate than females. Both these differences are linked to higher past smoking rates.

Over the last 10 years the mortality rate for COPD has fallen on average 3.8% per year for NM, a rate slightly higher than the fall nationally. This fall parallels the fall in smoking rates over the past 20 years or more. Rates of hospitalisation have remained steady over the past 10 years.

By locality

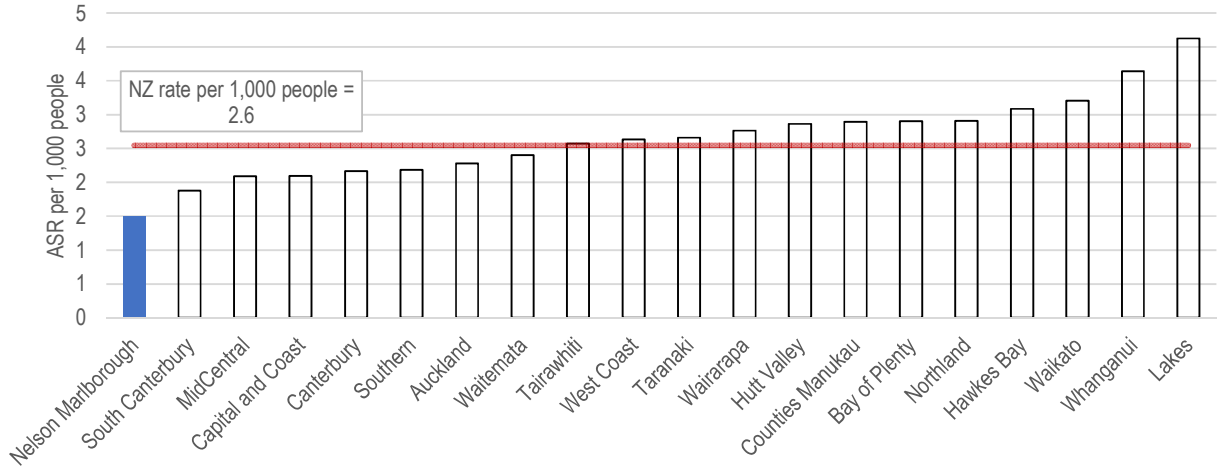
Marlborough residents had higher COPD mortality and hospitalisation rates than residents of the other localities, age-standardised, with the difference for hospitalisations reaching statistical significance between Marlborough and Tasman.

Māori have high rates of COPD linked to high smoking rates

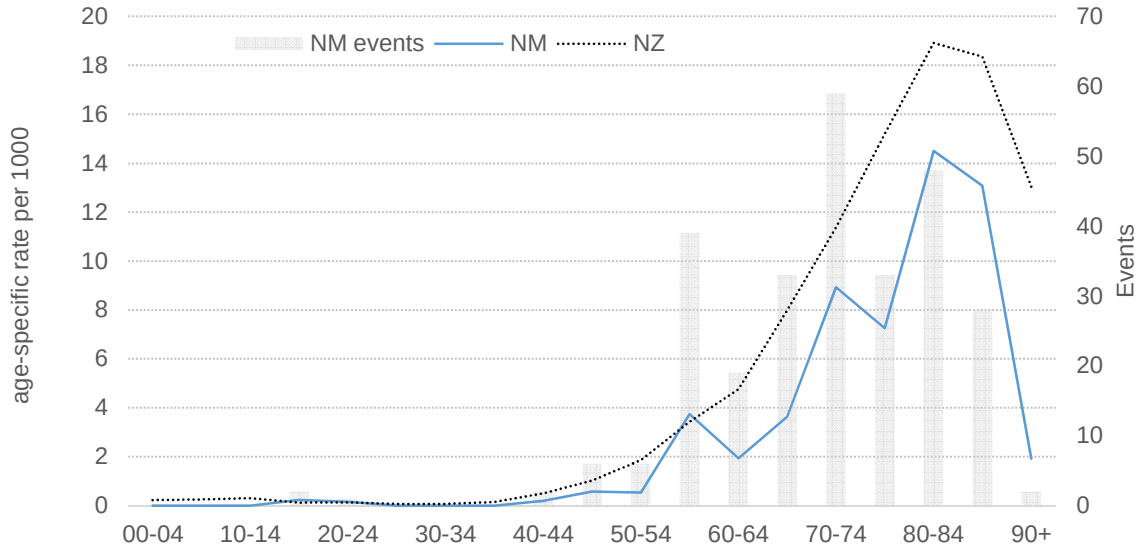
See related: 4.1 Smoking, 5.6 Asthma

5.5.1. Hospitalisations for COPD

DHB comparison, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of COPD hospitalisation compared with NZ 2013/14



Note: bars show actual numbers of events on right axis

Source: NMDS, HPCG analysis

Nelson Marlborough

NM at 1.5 adults per 1000 per year has the lowest public hospital admission rate with a principal diagnosis of COPD of any DHB, significantly less than the national average of 2.4 per 1000.

Hospitalisation rates climb steeply with age at a similar though lower rate to that seen for NZ as a whole. Volumes peak at the 70-84 years age range, at 130 per year, the equivalent of 1.3% of people of that age being admitted to hospital each year (assuming each hospitalisation was for a different person).

For NM Māori hospitalisation rates for COPD were nearly 3 times the non-Māori rate (age-standardised), similar to the national ratio and commensurate with the prevalence and mortality differences. The mode for NM non- Māori was 70-74 years (ie the most common age for a COPD admission), while for Māori it was 55-59 years – a fifteen year difference.

See related: 4.1 Smoking, 5.6 Asthma

Approximately 15,000 people in NM have asthma being treated with medication

5.6. Prevalence of (medicated) asthma

NZ Health Survey

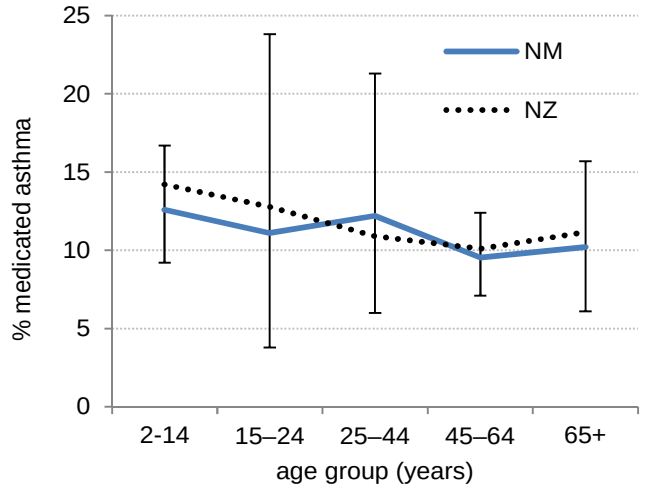
Adults	2011/14	2006/07	Change
NM	**10.5%**	9.7%	1.3%
NZ	11.0%	11.3	-0.3%

NZ	Rate ratio	
Men vs women	0.6	*
Māori vs non-Māori	1.4	*
Most vs least deprived	1.5	*

* significant difference

There were over 12,100 adults and 2,500 children in NM in 2014 with medicated asthma.

Age distribution – asthma NM and NZ 2011/13



2-14 yrs	2011/14	2006	Change
NM	**10.7%**	NA	-
NZ	14.6%	14.9%	-0.3%

Source: NZ Health Survey 2006/07 and 2011/14, MOH 2014a

Why is this important?

Asthma is a chronic inflammatory disorder of the airways in the lower respiratory tract which results in recurring symptoms of shortness of breath, wheezing, prolonged expiration and coughing. With a high prevalence and the possibility for sudden deterioration, asthma requires good primary care access and a care plan for good management. Asthma can be exacerbated by smoking and poor housing conditions.

How is it measured?

Self-reported prevalence data from the New Zealand Health Survey uses a definition of receiving asthma medication (MOH, 2014), with a similar question for children and adults.

Nelson Marlborough

One in ten adults in NM have medicated asthma (10.5%), similar to the national average. Children have a slightly higher prevalence, with 10.7% of 2-14 year olds receiving medication for asthma. This equates to over 12,000 adults and 2,500 children with medicated asthma in NM.

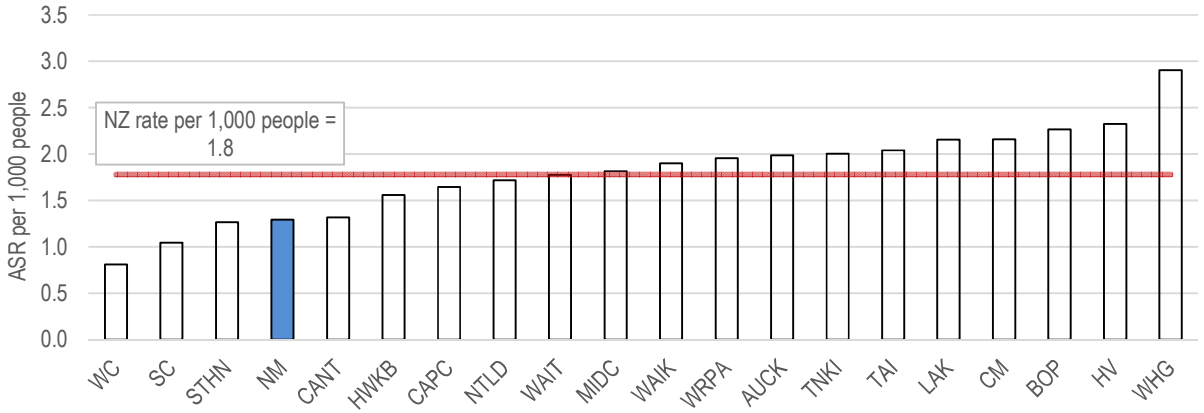
Nationally Māori had a 40% higher prevalence rate of medicated asthma, age-standardised, than non-Māori. Men had a 40% lower prevalence than women, and those living in more deprived areas had a 50% higher prevalence of medicated asthma than those living in the least deprived areas (standardising for age, gender and ethnicity). All these differences were noted as being statistically significant.

Asthma prevalence by age for NM residents is similar to the national average.

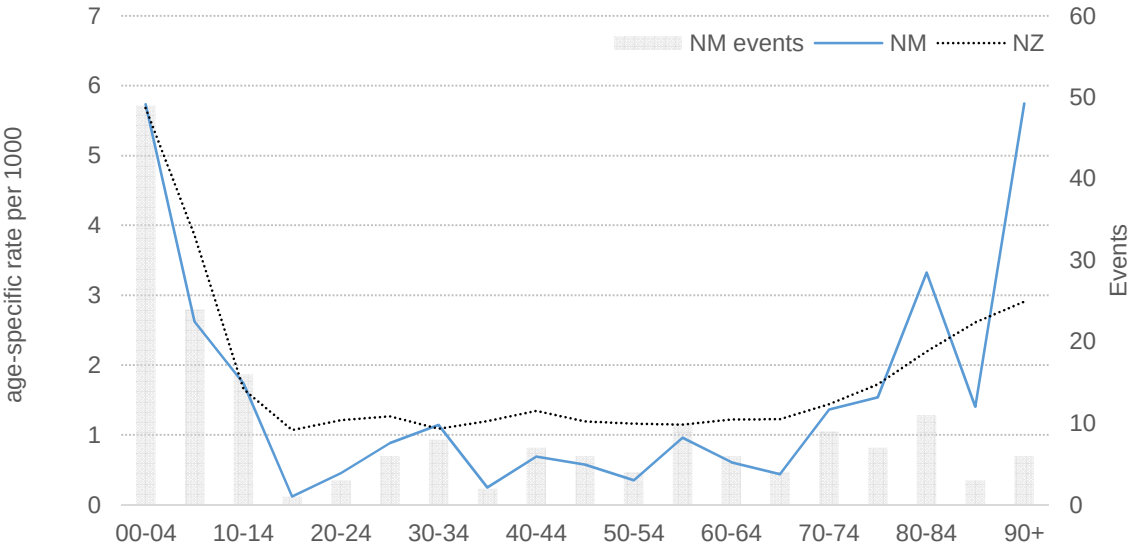
See related: 4.1 Smoking, 5.5 COPD

5.6.1. Hospitalisations for asthma

DHB comparison, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of asthma hospitalisation compared with NZ 2013/14



Note: bars show actual numbers of events on right axis

Source: NMDS, HPCG analysis

Nelson Marlborough

NM at 1.3 people per 1000 per year with a principal diagnosis of asthma has the fourth lowest public hospital admission rate of any DHB area, and is less than the national average of 1.8 per 1000.

Around half of the asthma hospitalisations in NM (~90 per year) are for children (ages 0-14). Rates for adults do not vary much by age thereafter. A slight rise at older ages probably relates to a reversible component of COPD, and might be better considered under that heading. For NM Māori hospitalisation rates for asthma were twice the non-Māori rate (age-standardised), similar to the national ratio.

By locality

Marlborough children had a higher asthma hospitalisation rate than the NM average, while Tasman children had a low rate. Neither reached statistical significance.

Rate ratio locality to NM, asthma hospitalisations 2011-13

	Child	Adult
Marlborough	1.43	0.92
Nelson	1.10	1.19
Tasman	0.51	0.89

Child 0-14, adult 15+

See related: 4.1 Smoking, 5.5 COPD

5.7. Prevalence of arthritis

NZ Health Survey

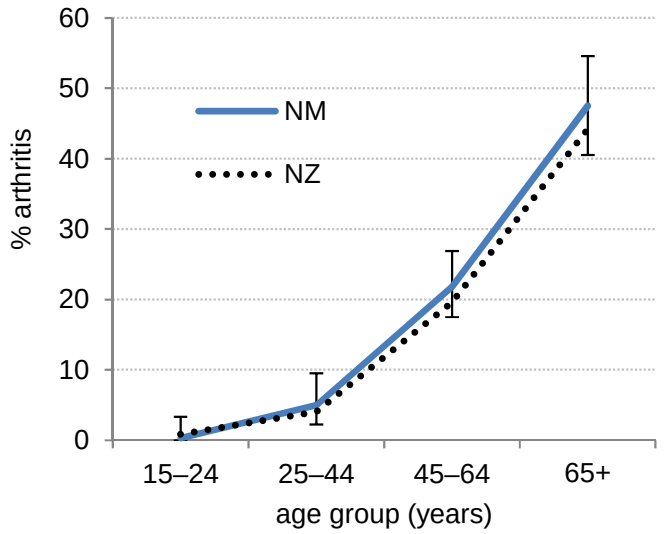
Adults	2011/14	2006/07	Change
NM	**19.8%**	21.1%	-1.3%
NZ	15.4%	14.9%	0.5%

NZ	Rate ratio	
Men vs women	0.9	*
Māori vs non-Māori	1.3	*
Most vs least deprived	1.2	

* significant difference

An estimated 22,800 adults in NM in 2014 reported having arthritis.

Age distribution – arthritis NM and NZ 2011/14



Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

Chronic arthritis can result in long-lasting pain and deformity, and is a major cause of disability in older people. Together osteoarthritis and rheumatoid arthritis accounted for 3% of health loss in the NZ Burden of Disease Study (MOH 2013).

How is it measured?

Self-reported prevalence data from the New Zealand Health Survey represents people who reported that a doctor has told them at some time in their life that they have any type of arthritis, including osteoarthritis, rheumatoid arthritis, gout, lupus and psoriatic arthritis (MOH, 2014).

Nelson Marlborough

One in five adults in NM reported having arthritis (19.8%), significantly higher than the national average. This equates to around 22,800 people with arthritis in NM.

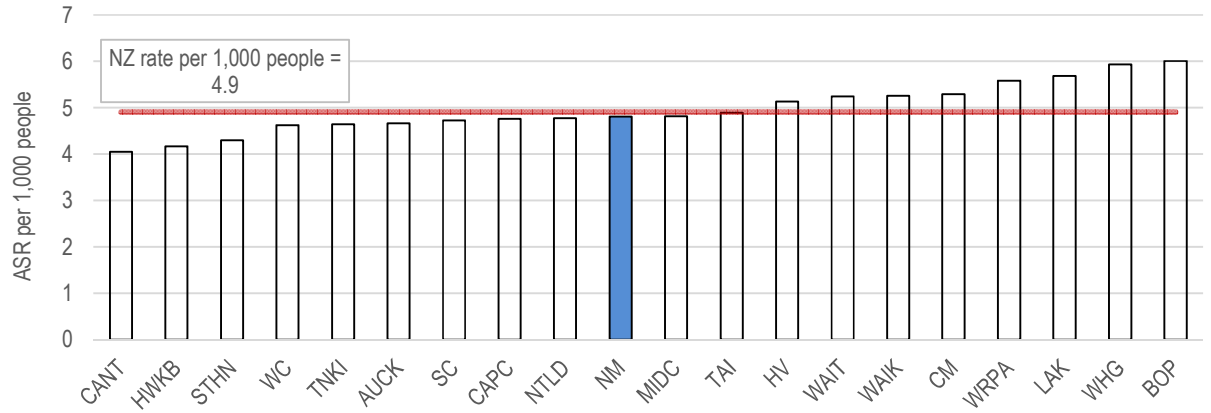
Nationally Māori had a 30% higher prevalence rate of arthritis, age-standardised, than non-Māori. Men had a 10% lower prevalence than women. Both these differences were statistically significant. Those living in the most deprived areas had a non-significant 20% higher prevalence of arthritis than those living in the least deprived areas (standardising for age gender and ethnicity).

Self-reported arthritis prevalence by age for NM residents is similar to the national average.

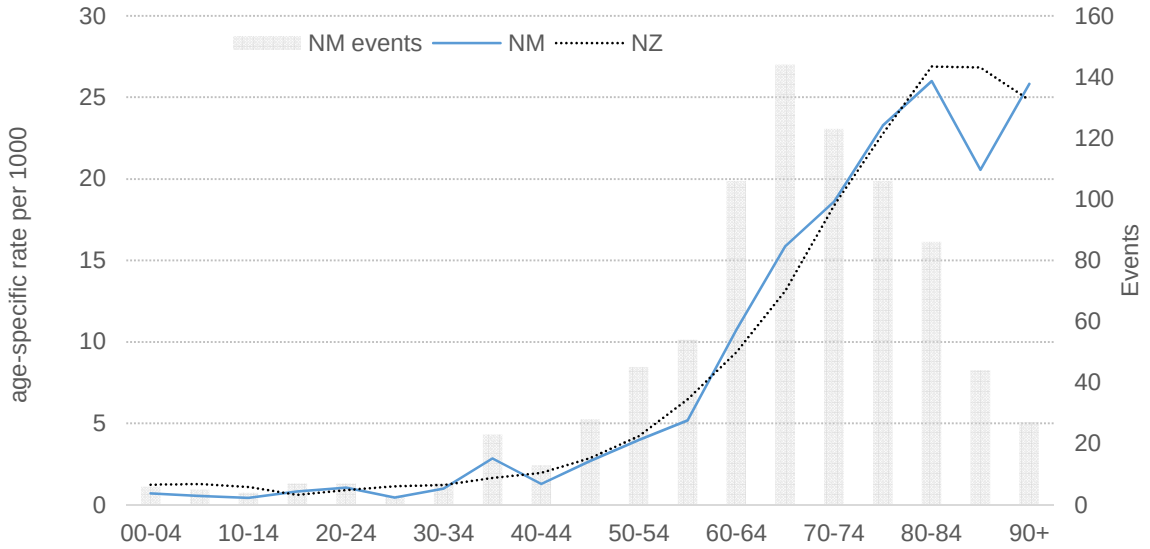
See related: 5.8 Chronic pain

5.7.1. Hospitalisations for arthritis

DHB comparison, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of arthritis hospitalisation compared with NZ 2013/14



Note: bars show actual numbers of events on right axis

Source: NMDS, HPCG analysis

Nelson Marlborough

NM has around national average hospitalisation rates for arthritis. This includes admissions for hip and knee replacement due to arthritis. Hospitalisation rates climb steeply with age at a similar rate to those seen for NZ as a whole.

Gout is the most common form of inflammatory arthritis. Caused by an inflammatory response to urate crystals, it can cause severe painful joint inflammation. Over time gouty tophi, chronic arthritis and joint damage can occur. Gout prevalence is shown in the Atlas of Healthcare Variation (HQSC, 2015). NM prevalence was 2.7% of adults (ages 20-79), significantly less than the NZ average of 4.0%. This still implied 2,700 people suffering from gout in NM. Males had a four-fold higher rate than females, and Māori a three-fold higher rate than non-Māori - age-standardised - both highly significant.

See related: 4.1 Smoking, 4.6 Hypertension, 5.1 Diabetes, 5.2 CHD

5.8. Prevalence of chronic pain

NZ Health Survey

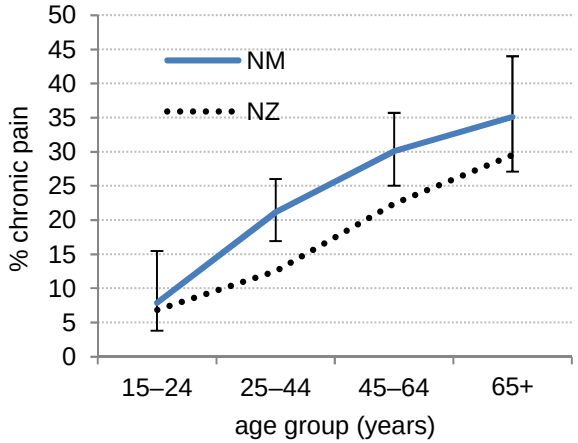
Adults	2011/14	2006/07	Change
NM	**25.6%**	22.2%	3.4%
NZ	17.6%	17.0%	0.6%

NZ	Rate ratio	
Men vs women	1.0	
Māori vs non-Māori	1.2	*
Most vs least deprived	1.5	*

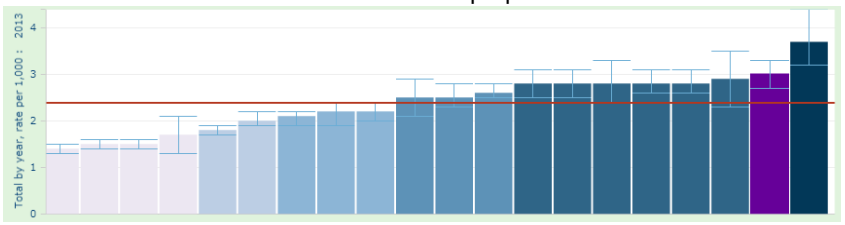
* significant difference

An estimated 29,500 adults in NM in 2014 reported experiencing chronic pain.

Age distribution – chronic pain NM and NZ 2011/14



People dispensed opioids for 6 weeks or more by DHB, 2013.
From Atlas of Healthcare Variation - NM in purple



Source: NZ Health Survey 2006/07 and 2011/14, HQSC 2015

Why is this important?

Chronic pain can severely affect a person's activities, mood and general well-being. It can be present at any age, although conditions that can commonly cause chronic pain (such as arthritis) tend to increase at older ages. While pain can be treated, some treatments such as opioids can cause side-effects and further problems of their own.

How is it measured?

Self-reported prevalence data from the New Zealand Health Survey defined chronic pain as pain that is present almost every day and has lasted, or is expected to last, more than six months (MOH, 2014).

The Atlas of Healthcare Variation (HQSC 2015) shows opioid dispensing by DHB. In this case we use the measure of covering 6 weeks or more – so getting at least two prescriptions of opioids.

NM has a high rate of use of opioid medications, possibly linked to high reported chronic pain

Nelson Marlborough

One in four adults in NM report having chronic pain (25.6%), significantly higher than the national average. This equates to around 29,500 people reporting chronic pain in NM.

Nationally Māori had a 20% higher prevalence rate of chronic pain, age-standardised, than non-Māori. Those living in the most deprived areas had a 50% higher prevalence of chronic pain than those living in the least deprived areas (standardising for age, gender and ethnicity). Both these differences were statistically significant. Within NM Māori had a 30% higher prevalence rate of chronic pain, unstandardised, than non-Māori, although this was not statistically significant.

Self-reported chronic pain prevalence by age for NM residents is higher than the national average for the 25-44 and 45-64 years age groups.

NM had the second highest rate of use of opioids of the DHB areas, with 2.3% using at least once in 2013 (3,200 people), and 0.3% of adults (420 people) using for more than 6 weeks (HQSC, 2015). The NZ averages were 1.7% and 0.2% respectively.

See related: 5.7 Arthritis

Mortality rates for injury for NM people have been falling

5.9. Unintentional injury

Mortality ASR per 100,000 for injury 2000-02 to 2009-11

	2000-02	2005-07	2009-11	% Change pa	Ratio
NM	28	21	23	-1.8%	0.96
NZ	25	23	24	-0.3%	

NZ mortality	rate ratio
Men vs women	2.1*
Māori vs non-Māori	1.7

* significant difference

Hospitalisation ASR per 1000 for injury 2000-02 to 2011-13

	2000-02	2005-07	2011-13	% Change pa	Ratio
NM	13.5	16.4	20.6	4.0%	0.93
NZ	18.7	19.9	22.2	1.6%	

NZ hospitalisation	Rate ratio
Men vs women	1.5*
Māori vs non-Māori	1.2*

Rate ratio locality to NM, injury deaths and hospitalisations

	Mortality	Hosps
Marlborough	1.24	0.99
Nelson	0.92	1.06
Tasman	0.84	0.95

Age standardised, all ages - deaths 2009-11, hospitalisations 2011-13.

For falls in 50+ year olds in 2013 (HQSC Atlas):

6,800 ACC claims per year for falls (less than NZ average rate)
850 hospitalisations per year (less than NZ average rate)
150 hip fractures per year (~ NZ average rate)
63% of hip fractures operated on same/next day (~ NZ average rate)

Source: Cancer registrations, HPCG analysis, MOH 2014b, Borman 2015. ASR = age-standardised rate.

Why is this important?

Unintentional injury covers all forms of external force and poisonings causing harm, excluding violence and self-inflicted injuries. Injury is responsible for 8% of health loss in the New Zealand population, the fifth largest condition grouping (NZ Burden of Disease Study – MOH, 2013). Injuries are a major cause of health loss in children and young people, second only to infant conditions and birth defects in those aged 0–14 years and mental disorders in those aged 15–24 years. For all 0-24 year olds unintentional injury made up 29% of all deaths for 2009-2013 (NZ Mortality Review Group 2014).

Mortality rates for injury have fallen over the past 10 years. This fall is likely linked to improving motor vehicle crash rates and survival, including drink driving initiatives.

How is it measured?

Injury is defined by ICD-10-AM codes V01-X59. The Atlas of Healthcare Variation (HQSC, 2015) shows information on falls, an important subset of injury, by DHB area.

Males are at much greater risk of death or hospitalisation from injury

Nelson Marlborough

NM has a similar mortality and hospitalisation rate for injury compared to the national average. Around 3,300 NM residents have a serious injury warranting hospital admission each year.

Nationally mortality rates for males for injury were twice those of females. Hospitalisation rates for injury in men were also higher at 1.5 times. Māori mortality rates were 70% higher (non-significant), and hospitalisations 20% higher (significant).

Over the last 10 years the mortality rate for injury has fallen on average 1.8% per year for NM, larger than the fall nationally. In contrast rates of hospitalisation have increased over the past 10 years, albeit not reaching statistical significance. Falls make up a large proportion of injuries in those aged 50+ - NM residents had fewer ACC claims and public hospitalisations for falls than the NZ average.

By locality

Injury mortality and hospitalisation rates, age-standardised, did not differ significantly across the localities.

See related: 4.2 Alcohol

Section 6
Primary health care

6.1 The majority of NM residents (97%) are enrolled with a PHO, this is higher than the average rate across NZ (95%)

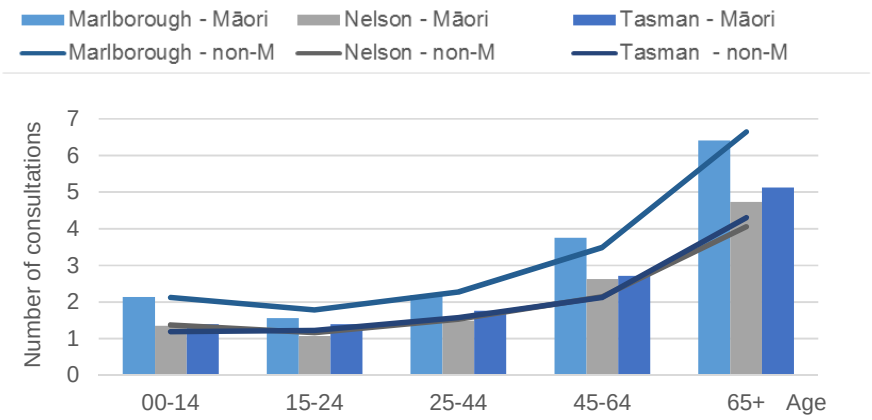
Locality	MB PHO	NB PHO	Total enrolled	ERP 2014	% of ERP enrolled
Marlborough	41,403	1,966	43,369	44,810	97%
Nelson	13	47,775	47,788	49,280	97%
Tasman	20	47,532	47,552	49,060	97%
NM	41,436	97,273	138,709	143,150	97%

6.1 Fewer NM residents access after-hours general practice services than the NZ average

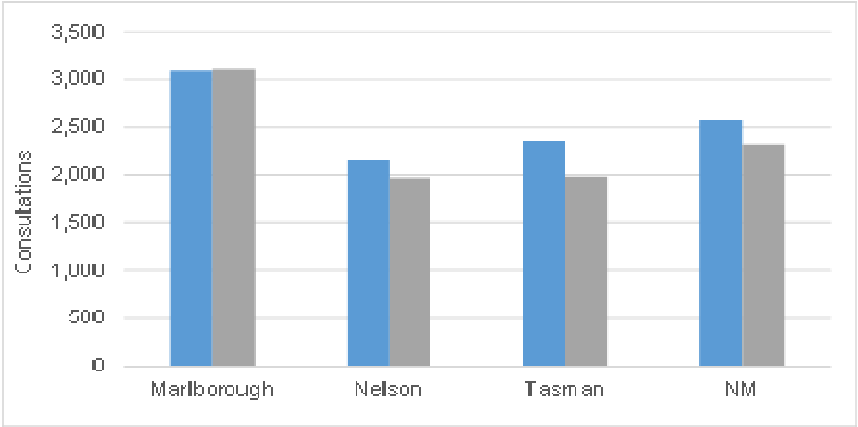
Service in past 12 months	NM	NZ	Sig diff	Male v female	Māori v n-M
Visited a GP	72%	76%	No	0.9 *	1.0
Visited a practice nurse (without seeing a GP at the same time)	32%	28%	Yes	0.7 *	1.1
Visited after-hours medical centre	10%	13%	Yes	0.8 *	0.8

6.2 Māori residents of NM have similar GP and nurse consultation rates to non-Māori

Residents of NM over the age of 65 years visit their GP and practice nurse significantly more than the average resident of NM



6.2.1 Māori residents have a higher age standardised GP and practice nurse consultation rate when compared with non-Māori residents in NM



6.3 One third of NM residents experience unmet need for primary health care

The single greatest barrier to access for primary care identified by survey respondents was cost

Reason	NM	NZ	Sig diff?
Unable to get appointment at usual medical centre within 24 hours in the past 12 months	19%	16%	No
Unmet need for GP services due to cost in the past 12 months	20%	15%	Yes
Unmet need for GP services due to lack of transport in the past 12 months	2%	4%	Yes
Unmet need for after-hours services due to cost in the past 12 months	6%	7%	Yes
Unmet need for after-hours services due to lack of transport in the past 12 months	0%	2%	Yes
Unfilled prescription due to cost in the past 12 mths	9%	7%	No
Experienced unmet need for primary health care in the past 12 months (any of the above)	32%	28%	No

6.1 Primary care access

PHO enrolment relative to population of NM, 2014

Locality	MB PHO	NB PHO	Total enrolled	ERP 2014	% of ERP enrolled
Marlborough	41,403	1,966	43,369	44,810	97%
Nelson	13	47,775	47,788	49,280	97%
Tasman	20	47,532	47,552	49,060	97%
NM	41,436	97,273	138,709	143,150	97%

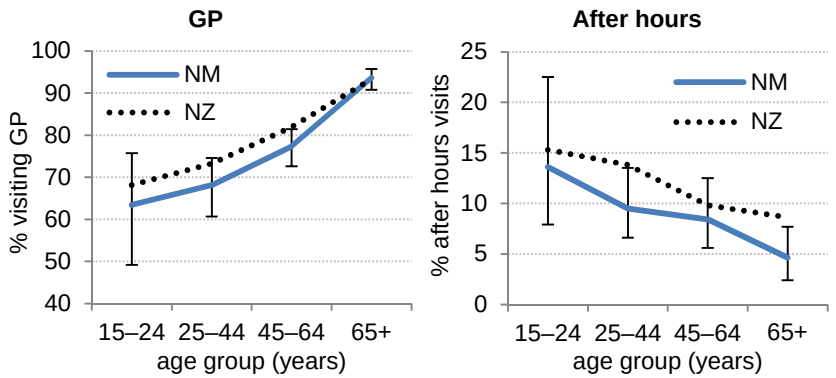
ERP = Statistics NZ estimated resident population

Access to primary care services, NM and NZ 2011-14

Service in past 12 months	NM	NZ	Sig diff	Male v female	Māori v n-M
Visited a GP	72%	76%	No	0.9 *	1.0
Visited a practice nurse (without seeing a GP at the same time)	32%	28%	Yes	0.7 *	1.1
Visited after-hours medical centre	10%	13%	Yes	0.8 *	0.8

*Last two columns are rate ratios for NZ 2013/14. * = Significant difference*

Visits to primary care in past year by age group, NM and NZ, 2011/14



Source: Marlborough PHO and Nelson Bays PHO enrolment data, Q2 2014/15, NZ Health Survey

The majority of NM residents (97%) are enrolled with a PHO, higher than the average rate across NZ (95%)

Why is this important?

Primary health care is the cornerstone of any health system, providing a comprehensive, collective organisational approach to health improvement. General practice is a vital part of this system, but is not the whole system. A health system strongly oriented to primary care improves overall health outcomes, reduces health inequalities, and reduces the overall health system cost. Being able to access primary care services is therefore essential to achieving such improvements.

How is this measured?

A proxy measure for assessing the level of access to primary care services is the comparison of total Primary Health Organisation (PHO) enrolment with estimated resident population. PHOs are funded by DHBs to support the provision of essential primary health care services, through general practice, to those people who are enrolled with the PHO. Enrolment brings advantages to the patient, including subsidised visits. The NZ Health Survey asked respondents about their primary care visits in the past 12 months.

Fewer NM residents access after-hours general practice services than the NZ average

Nelson Marlborough

Two PHOs serve the NM population - Marlborough (Kimi Hauora Wairau) PHO (MB PHO) and Nelson Bays PHO (NB PHO). Together the two PHOs have almost 139,000 residents of NM enrolled, 97% of the population. MB PHO has ~30% and NB PHO the remaining 70%. By way of comparison the New Zealand average enrolment is 95%. For Māori residents of NM 85% are enrolled with a PHO.

Of residents of NM 76% reported making contact with a general practitioner (GP) in the past 12 months, slightly lower than the NZ average 79%. Visits to a practice nurse were significantly higher than the NZ average, 37% compared with 30%. Rates for using a GP or nurse rose with age (GP shown), while males are less likely to use either than females. Māori were equally likely to report using primary care in the past year as non- Māori.

Visits after-hours were significantly lower in NM (9%) than the NZ average (12%) suggesting either less need, that access to general practice services after-hours may be more difficult, or that NM residents are more used to using EDs for their after-hours care. Rates fell by age.

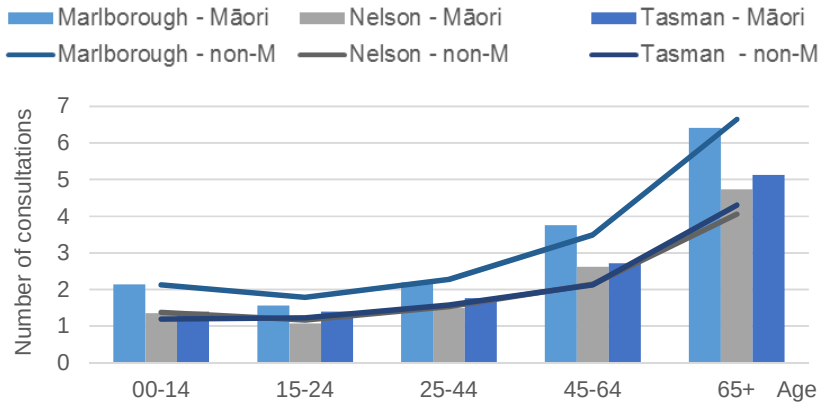
See related: 8.4 ED Utilisation

6.2 Primary care utilisation

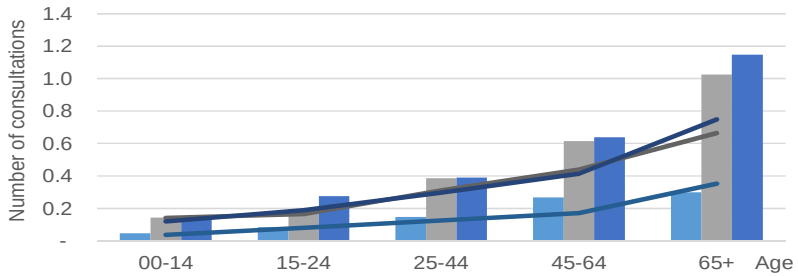
Number of GP and nurse consultations by locality, 2014

Ethnicity	Locality	GP	Nurse	Total
Māori	Marlborough	11,800	600	12,400
	Nelson	7,500	1,500	9,000
	Tasman	6,300	1,200	7,600
Total	NM	25,600	3,400	29,000
Non-Māori	Marlborough	139,700	6,700	146,400
	Nelson	93,200	16,300	109,400
	Tasman	96,800	16,800	113,600
Total	NM	329,600	39,900	369,500
Grand total	NM	355,200	43,200	398,500

GP consultations per person, by ethnicity, age and locality, 2014



Nurse consultations per head, by ethnicity age and locality, 2014



Source: PHO data 2014

NM residents have 8 GP and nurse consultations for every ED attendance

Why is this important?

Patterns of utilisation provide further insight into access to primary care services. This can include identifying which ethnic groups and age groups are accessing services (or not) and if patterns are consistent with expectations given population need. Consultations with a GP or practice nurse are the main indicator of utilisation.

How is this measured?

In this report the term consultation is used to describe a GP visit funded under the capitation (per head of population served) payments general practices receive for patients enrolled with them.

Consultations analysed include only primary capitation consultations, meaning ACC, immunisation and maternity visits are not included.

The recording of practice nurse consults can vary from practice to practice, so nursing rate comparisons should be made with caution. For example, residents of Marlborough are likely to be receiving more practice nurse consultations than the data suggests on face value.

Nelson Marlborough

From January to December 2014 there were a total of 355,200 GP and 43,200 practice nurse consultations in NM. This equates to 2.6 GP and 0.30 nurse consultations per head of population, and is 8x higher than the number of ED attendances.

Māori and non-Māori residents across NM are visiting their GPs at similar rates at each group (but see age-standardised analysis overleaf). Residents of Marlborough appear to have more frequent visits to their GP compared to Nelson and Tasman. This is consistent across all age groups.

Residents aged 65 years and over make higher use of GP and nurse consultations per capita at a rate roughly 2.5 times the average GP consultations and twice the average nurse consultations. Given the projected growth in the elderly population over the next 20 years, demand for GP and nurse consultations can be expected to rise significantly.

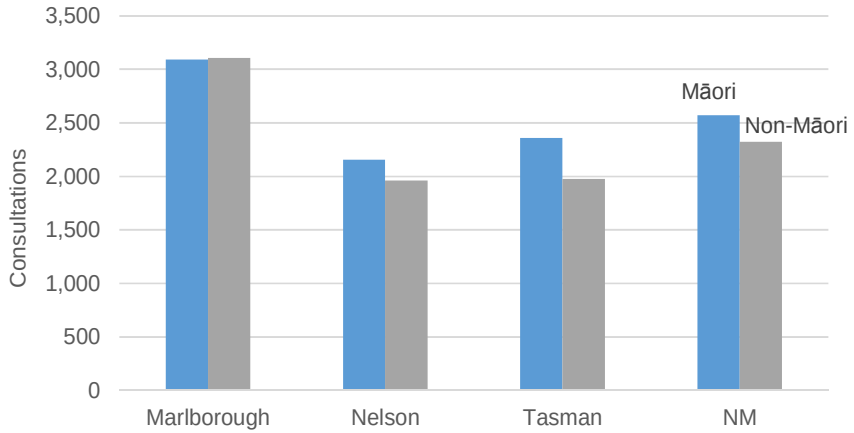
Residents of NM over the age of 65 years visit their GP and practice nurse significantly more than other age groups

See related: 8.4 ED utilisation

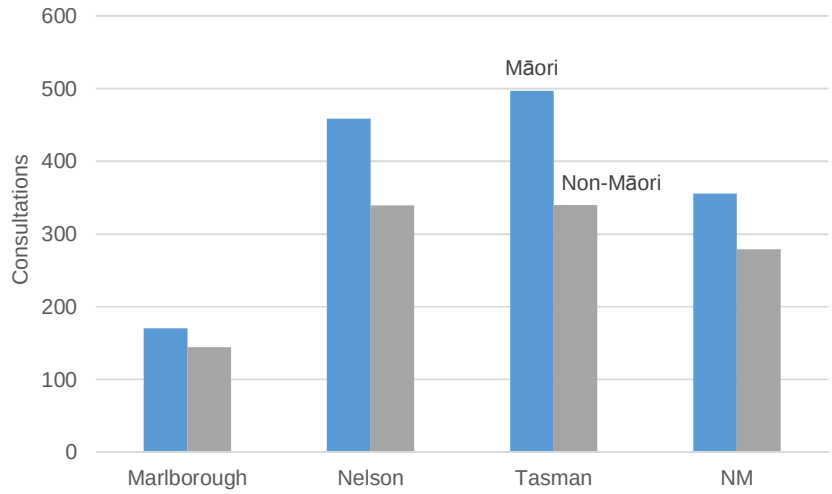
6.2.1 Age standardised primary care utilisation

Māori residents have higher age standardised GP and practice nurse consultation rates when compared with non-Māori residents in NM

Age standardised GP consultations per 1000, by locality, NM PHOs 2014



Age standardised practice nurse consultations per 1000, by locality, NM PHOs 2014



Source: PHOs

Why is this important?

To enable more accurate comparisons between utilisation of primary care services among the localities, this analysis has controlled for variances in age structure, using age standardisation.

How is this measured?

See 6.2 above. The graphs show rates per 1000, so a rate of 1000 is the equivalent of 1 visit per person.

Nelson Marlborough

Māori residents across NM appear to be visiting their GPs and practice nurses slightly more frequently than non-Māori, which is consistent with expectations given relative population need. However when compared for example to ED attendance rates Māori might have been expected to have more GP and nurse visits than seen here – Māori make up 10% of ED attends but only 7% of primary care consultations. Māori have 6 GP or nurse consultations per ED attendance, while non-Māori have 9.

Standardising the age structure of the residents across the localities of NM emphasises the higher rate of GP consultations in Marlborough (3.1 per capita per year) compared to the NM average (2.5 per capita). It also shows Nelson residents are visiting their GP at a lower rate than the NM average, at approximately two GP consultations per capita.

Practice nurse consultation rates as recorded are significantly lower than GP consultations across all localities, particularly in Marlborough.

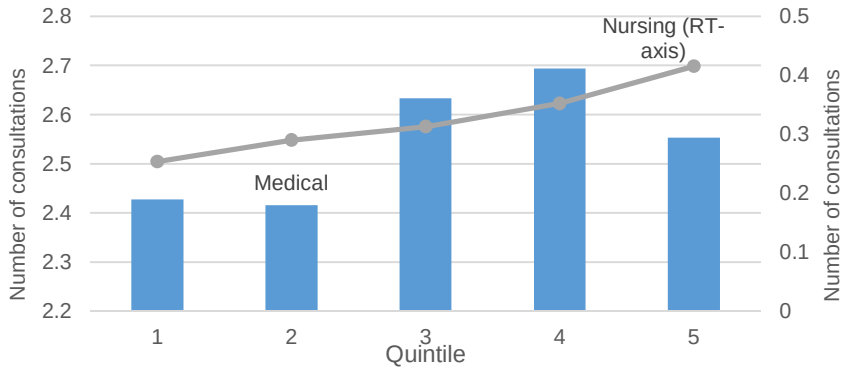
See related: 8.4 ED utilisation

6.3 Barriers to accessing primary care services

Unmet need for primary care, NM compared to NZ, 2011/2014

Reason	NM	NZ	Sig diff?
Unable to get appointment at usual medical centre within 24 hours in the past 12 months	19%	16%	No
Unmet need for GP services due to cost in the past 12 months	20%	15%	Yes
Unmet need for GP services due to lack of transport in the past 12 months	2%	4%	Yes
Unmet need for after-hours services due to cost in the past 12 months	6%	7%	Yes
Unmet need for after-hours services due to lack of transport in the past 12 months	0%	2%	Yes
Unfilled prescription due to cost in the past 12 mths	9%	7%	No
Experienced unmet need for primary health care in the past 12 months (any of the above)	32%	28%	No

GP and nurse consultation rates per person by deprivation quintile, 2014



Other Health Survey measures 2011/14

Measure	NM	NZ	Sig?
Definitely had confidence and trust in GP	84.7	80.1	No
Visited a dental health care worker (dentate only)	47.5	48.0	No
Had one or more teeth removed	6.7	6.9	No
Usually only visits dental health care worker for dental problems or never visits (dentate only)	61.7	54.7	Yes

Source: NZ Health Survey, 2011/14 waves combined, age-standardised. Deprivation analysis from PHO data, Quintile 1 = least deprived 20%

Why is this important?

Primary care outcomes are influenced by a combination of the quality of care (see Section 6.4) and the barriers that prevent access. Understanding the barriers NM residents face in accessing primary care services is essential in identifying potential areas of improvement.

How is this measured?

The New Zealand Health Survey collects self-reported data on adult patients who had experienced unmet need for primary health care in the past 12 months. In this context unmet need is defined as having experienced any of the following:

- Unable to get appointment at their usual medical centre within 24 hours
- Unmet need for GP services due to cost
- Unmet need for GP services due to a lack of transport
- Unmet need for after-hours services due to cost
- Unmet need for after-hours services due to a lack of transport
- Unfilled prescriptions due to cost.

The single greatest stated barrier to access primary care was cost

Nelson Marlborough

Approximately one-third (32%) of NM residents experienced a degree of unmet need for primary health in the past year. This is higher than the NZ average at 28% but is not statistically significant (p-value 0.06). The greatest barrier to access for primary care in NM was cost at 20%, significantly higher than the NZ average 15%. Cost was also identified as a barrier to filling prescriptions for NM for 9% of the population.

Residents of lower socioeconomic status are known to have higher healthcare needs, which naturally lead to requiring more health care services. However, in NM, much like across NZ this is not the case with those in quintile five areas utilising GP consultations at a lower rate than residents in quintile three and four. One explanation could be that access to care is hindered by cost of services. However there may also be a number of other influencing factors.

NM residents had high confidence and trust in their GP. Dentist visit rates were similar for NM compared with the national average, but NM people were more likely to state that they only visited a dentist for problems – ie not for preventive care.

See related: 8.4 ED utilisation

6.4 Primary care quality and performance measures

Marlborough PHO IPIF transition measures 2014

Measures	National target	July - Sep	Oct - Dec
More heart and diabetes checks	90%	82%	87%
Better help for smokers to quit	90%	81%	99%
Increased immunisation for 8 month olds	95%	89%	94%
Increased immunisation for 2 year olds	95%	94%	91%
Cervical screening	80%	78%	77%

Nelson Bays PHO IPIF transition measures 2014

Measures	National target	July - Sep	Oct - Dec
More heart and diabetes checks	90%	82%	84%
Better help for smokers to quit	90%	90%	96%
Increased immunisation for 8 month olds	95%	90%	91%
Increased immunisation for 2 year olds	95%	87%	88%
Cervical screening	80%	85%	85%

Note: IPIF measures described in detail in IPIF documentation

General practitioner to patient ratio by PHO, 2014

PHO	GP FTE	Enrolments	GP to patient ratio
Nelson Bays	67	97,270	1 : 1,452
Marlborough	29	41,440	1 : 1,429
NM	96	138,710	1 : 1,445
NZ*	3,594	4,432,279	1 : 1,230

FTE = full-time equivalent

Source: MOH PHO performance, NM PHOs

As at quarter 2 of the 2014/15 year Marlborough PHO is meeting one of five IPIF measures and Nelson Bays PHO two

Why is this important?

The Integrated Performance and Incentive Framework (IPIF) is a national quality and performance improvement programme established to support the health system address equity, quality, access and cost of service delivery. The Framework is initially focussed on the performance relationships between primary care and DHBs monitoring 5 key evidence-based measures outlined in the adjacent tables. PHOs are encouraged and appropriately rewarded for meeting national targets. It is expected that each PHO appropriately encourages and incentivises registered general practices to meet these targets.

General practitioner-to-patient ratios are useful to identify possible correlations between panel size and GP consultation rates, and supply barriers to access.

How is this measured?

Every PHO is expected to report on performance against the 5 IPIF indicators each quarter along with their enrolment registers. This information is processed and published on the Ministry of Health website and is available to the public.

Nelson Marlborough

There is room for NM PHOs to improve performance on IPIF measures. Results across the two quarters presented indicates an improving trend on most indicators which is promising. Strong emphasis appears to be placed on smoking cessation, however increased attention is required on heart and diabetes checks, immunisation and for and Kimi Hauora (Marlborough) PHO cervical screening.

The average GP in NM has more population to serve than the NZ average, around 1,450 compared with 1,230. There is a natural tendency for fewer general practices to be established in more rural and farm land areas, however data available from Nelson Bays (NB) PHO suggest rural general practices in the Nelson and Tasman localities have a higher GP to patient ratio (1:1,300) than urban areas.

The average GP in NM cares for approximately 1,450 patients, higher than the NZ average of ~1,230

See related: 4.1 Smoking, 5.1 Diabetes, 5.2 CVD

6.4.1 Primary care quality and performance measures cont

HQSC Atlas of Health Care Variation indicators for long term conditions

Quality indicator	NM DHB	NZ avg	NM DHB ranking*
Asthma	rate per 1,000		
People dispensed 1 + preventer med p/a	81	81	11th
People dispensed 1+ reliever med p/a	99	104	16th
No dispensing of preventer/reliever up to 1 year post admission to hospital	112	127	6th
CVD	%	%	
On triple therapy	61%	59%	6th
On statins alone	71%	70%	10th
On BP lowering medication	80%	77%	5th
On antiplatelets/anticoagulants	78%	75%	6th
On a combination of statins and BP lowering medication	66%	64%	9th
Diabetes	%	%	
25 yrs + and receiving metformin or insulin	51%	52%	14th
25 yrs + and receiving ACEI or ARB	45%	44%	8th
Admissions for ketoacidosis	0.40%	0.36%	11th
Proportion of medical/surgical bed days	13%	14%	9th
Regular HBA1c monitoring	87%	83%	7th
Regular screening for renal disease	67%	63%	8th

Data shows the latest year presented for each indicator (2011-2013).
**Figures presented are ranking from highest to lowest*

Source: HQSC Atlas of Health Care Variation: www.hqsc.govt.nz/Atlas

One in nine NM residents are not dispensed any medications for asthma within a year of being admitted to hospital

Why is this important?

Understanding variation in clinical practice is useful as it stimulates debate around the most appropriate treatment to optimise patient outcomes. A degree of variation should always be expected due to patient allergies, preferences etc. However too much variation can be detrimental to patient outcomes. The aim here is to prompt debate and raise questions about why differences exist among practice, and to stimulate improvement through this debate.

The table on the left displays a series of indicators for three common long term conditions with evidence-based standardised treatment pathways. Prescribing patterns and indicators of poor disease management are explored for NMDHB and NZ and a ranking against all DHBs is provided.

How is this measured?

HQSC Atlas of Health Care Variation reports on a number of indicators linked to specific long term conditions. This information is analysed from national datasets and is published for the public on the HQSC website.

Nelson Marlborough

Approximately 8.1% (81 per 1,000) of NM residents with asthma are dispensed medications to prevent the onset of symptoms in any given year. One in nine NM residents are not dispensed any medications for asthma within a year of being admitted to hospital. That is the 6th highest rate among all DHBs.

Approximately 60% of NM residents with CVD are on triple therapy and an average of 75% are on at least one medication for their heart.

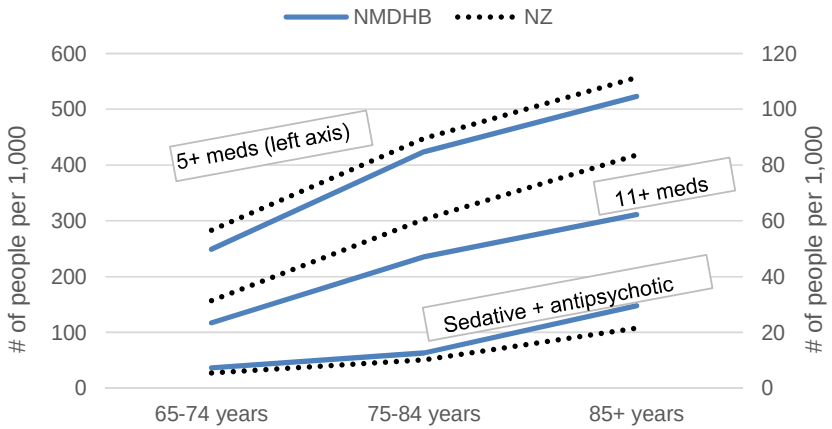
NM residents with diabetes fill 13% of medical/surgical bed days in any given year –11th highest proportion of all DHBs. Most residents (87%) with diabetes receive regular HbA1c monitoring and approximately two thirds receive screening for renal disease. Overall diabetes care figures are around the NZ average.

NM residents diabetes care figures are similar to the NZ average

See related: 5.1 Diabetes, 5.2 CVD, 5.6 Asthma

6.4.2 Primary care quality and performance measures cont

Prevalence of polypharmacy in older people, NM compared with NZ, 2011



Estimated number of older people with polypharmacy in NM in 2015

	65-74 years	75-84 years	85+ years	Total	% ERP 65+
5+ medications	4,100	3,600	1,800	9,500	6.6%
11+ medications	200	400	200	800	0.6%
Sedative + antipsychotic	120	110	100	330	0.2%

Estimated number of people getting that many medications in the same quarter, based on HQSC figures for the 2011 calendar year. ERP = Statistics NZ Estimated Resident Population

Source: HQSC Atlas of Health Care Variation: www.hqsc.govt.nz/Atlas

Why is this important?

Polypharmacy refers to the prescribing of many medicines or addition of inappropriate medications to an existing regimen. Polypharmacy is associated with a number of adverse consequences including reduced compliance, increased cost to patient and health systems and poor health outcomes associated with adverse drug events.

The frequency of adverse drug events increases exponentially for older people (65+ years) on many medicines. For patients taking two medicines there is a 13% risk of an adverse drug effect, this increases to 58% with five medicines and 82% with seven or more medicines.

Certain classes of medications are known to pose greater risk than others, such as sedatives, and antipsychotics. Although they can't always be avoided, there use in combination is not recommended.

How is this measured?

HQSC Atlas of Health Care Variation reports on a number of indicators linked to patient health outcomes. This information is analysed from national datasets and is published for the public on the HQSC website.

Nelson Marlborough

NM residents over 65 years are less likely to experience polypharmacy than the NZ average. However, there are still a significant number of older residents experiencing polypharmacy. Applying the rates of polypharmacy to the 2015 ERP over 65 years provides a rough indication of the prevalence in NM (table opposite).

Across all age groups there are almost 10,000 NM residents over 65 years on five or medications, approximately 800 residents on 11 or more medicines and 330 residents taking a combination of a sedative and antipsychotic.

Although there is no means of determining the appropriateness of such medication regimens, the risk of these patients experiencing an adverse drug effect is high.

With an ageing population, the prevalence of polypharmacy can be expected to increase. Consideration should be given to increasing awareness of the risks associated with polypharmacy and exploring new models of care that incorporate medication therapy assessments delivered by clinical pharmacists, as is available at Midlands Health.

6.5 Improving access to primary care

Uptake of health care initiatives to improve access 2015

	Marlb PHO	NB PHO	NZ average
Total enrolment	41,085	97,871	4,336,849
Care Plus	4,244	6,439	153,947
Care Plus %	10%	7%	4%
High User Health Card	89	117	21,841
High User Health Card %	0.22%	0.12%	0.50%
Community Services Card	7,006	18,548	782,738
Community Services Card %	17%	19%	18%
# of pts receiving services to improve access/outcomes	11,339	25,104	958,526
% of pts receiving services to improve access/outcomes	28%	26%	22%

Source: PHO Enrolment Demographics 2015 quarter 2 (April to June 2015), Ministry of Health, NZ.

Residents of Nelson Marlborough are utilising initiatives to improve access to primary health care more than the average New Zealander

Why is this important?

Several primary health care initiatives have been established over the years to improve access to primary care and reduce the cost of services for high need and/or deprived health care users. These include, inter alia, Care Plus for chronic disease, High User Health Card (HUHC) and the Community Services Card (CSC).

Care Plus is a primary health care funding initiative to support people with high health needs due to chronic conditions, acute medical or mental health needs, or terminal illness. The CSC entitles the holder and their family to a reduction in the cost of receiving some health services and prescriptions. The HUHC gives a general practice a higher government subsidy for patients with high health needs, allowing for potentially cheaper patient visits and allowing GPs to spend more time on developing plans to manage chronic conditions.

How is this measured?

Data is collected by PHOs and reported to the Ministry of Health which publishes reports quarterly.

Nelson Marlborough

The proportion of NM residents utilising primary health care initiatives is greater than the NZ average. Of the patients enrolled with NB PHO and Kimi Hauora Wairau (Marlborough) PHO, 26% and 28% receive services to improve access respectively, compared with 22% of the NZ population.

Considering each initiative separately, Care Plus enrolments appear to be high given the low proportion of Māori and deprived people in NM, again implying a strong take-up of this funding stream.

The overall rate of CSC card holding is similar in NM and across NZ. As cost was identified as the single largest barrier to accessing primary care services, further awareness around the CSC and its benefits may be warranted.

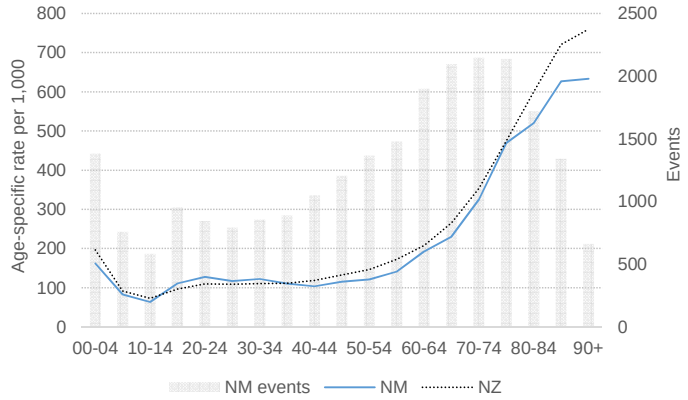
Uptake of the HUHC in NM is lower than the national average, which may be due to the greater utilisation of Care Plus (which effectively delivers the same benefit to the patient/practice).

The higher rate of use of subsidized services comes despite a lower relative deprivation than the New Zealand average

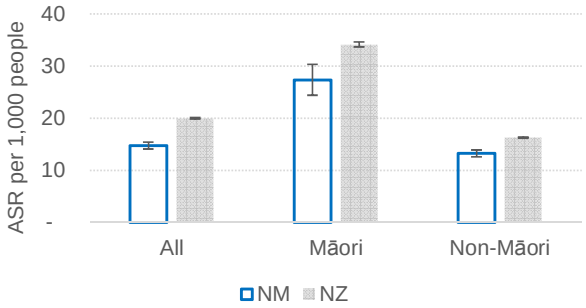
See related: 6.1 Access, 6.2 Utilisation, 2.1 Deprivation

Section 7
Hospitalisation

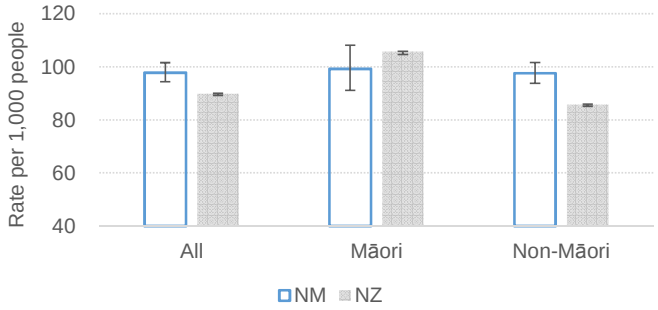
7.1 NM residents are hospitalised less often for unplanned reasons than other New Zealanders



7.2 NM residents aged 0-74 years are hospitalised less often for conditions considered potentially preventable

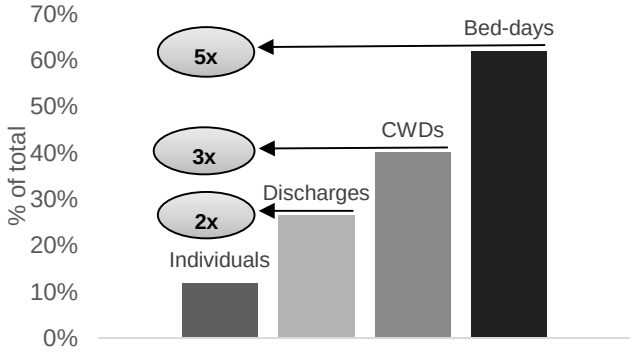


7.3 NM youth are more likely to be hospitalised for unplanned reasons than the NZ average



NM children and the elderly are less likely to be hospitalised

7.4 Around 12% of individual patients accounted for 40% of all case-weighted discharges and 62% of bed-days in 2014 (excluding maternity services)

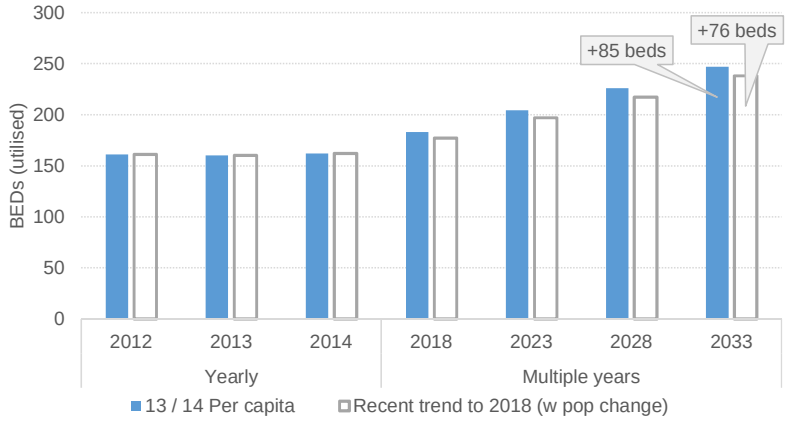


7.5 & 7.6 The average length of stay at hospitals for NM residents is relatively short suggesting good productivity, and their unplanned readmission rate is lower than predicted

7.7 Most adult and child medical and surgical hospitalisations for NM people occur in NM hospitals. Wairau Hospital almost exclusively serves the Marlborough population

7.8 The day surgery rate in NM is about the national average. International benchmarks suggest it could be higher, providing efficiency savings

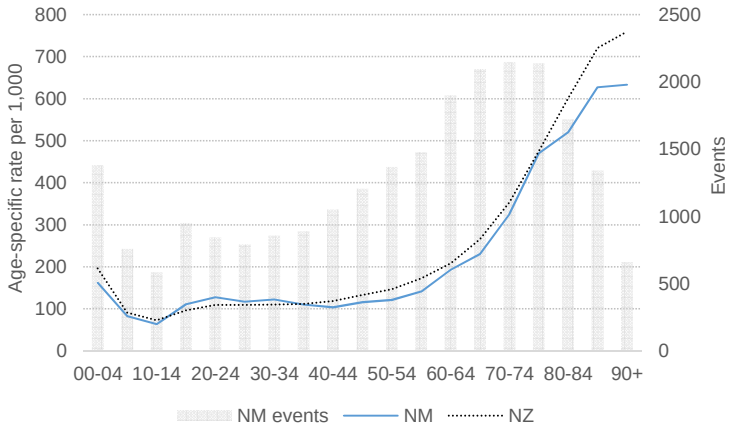
7.9 Future demand for hospital and specialist services suggests bed utilisation will increase if current patterns of care continue. Around 30,000 additional utilised bed-days are forecast by 2033, with population ageing the major driver



NM has a lower unplanned hospitalisation rate than the NZ average

7.1 Planned and unplanned medical or surgical hospitalisations

Planned and unplanned medical/surgical hospitalisation rate per 1,000 people by age group, NM and NZ, 2013/14



The number of hospitalisations (events) are bars represented on the right axis

Medical/surgical hospitalisation ASR per 1,000 by ethnicity – 2013/14

Unplanned

Ethnicity	NM	NZ	*Rate ratio*
Māori	140.6	175.4	*0.8*
Non-Māori	112.5	126.6	*0.9*
Rate ratio	*1.2*	*1.4*	
Total	115.0	132.1	*0.9*

Planned

Ethnicity	NM	NZ	*Rate ratio*
Māori	40.1	40.7	*1.0*
Non-Māori	41.9	37.3	*1.1*
Rate ratio	*1.0*	*1.1*	
Total	41.9	37.8	*1.1*

Source: Ministry of Health, NMDHB, HPCG analysis. ASR = age-standardised rate; unplanned includes acute and arranged admissions, planned includes elective or waiting list admissions. Casemix funded events, including ED and day cases.

Why is this important?

Unplanned ('acute') hospitalisations are for patients whose health needs are urgent, and maybe potentially life threatening. Unplanned hospitalisations can occur for a variety of reasons, some of which can be moderated by population health initiatives, early health care intervention, effective primary and community care, and coordination with social services.

Unplanned hospitalisations indicate increased risk of poor health outcomes, both as a result of the underlying condition(s) and from adverse events in hospital settings. They are also expensive, with the national average cost of a hospitalisation being around $4,700. Reducing unplanned hospitalisations through improved health and social care therefore improves health outcomes and quality of life for patients while also impacting on system costs.

Planned ('elective') hospitalisation rates are an indicator of access to specialist services that can improve quality of life. Higher elective hospitalisation rates can indicate good access, if services provided are effective for the patient, and cost-effective compared to other DHB expenditure options.

Nelson Marlborough

The rate of unplanned or acute hospitalisation in NM is lower than the NZ average, age standardised. Younger people in NM have a slightly higher rate of hospitalisation than their NZ counterparts while older people have a lower rate.

Both Māori and non-Māori NM residents have lower rates of acute hospitalisation than their respective NZ averages. The NM Māori rate is however still 20% greater than the non-Māori rate, suggesting further room for improvement in preventive care for this population.

The planned or elective hospitalisation rate for NM is higher than the NZ average, suggesting the resident population has good access to these services. In Q2 2014/15 NMDHB was performing above the national Health Target for elective surgery (105 discharges over) and was fully compliant with MOH elective measures (ESPI) (MOH 2015e).

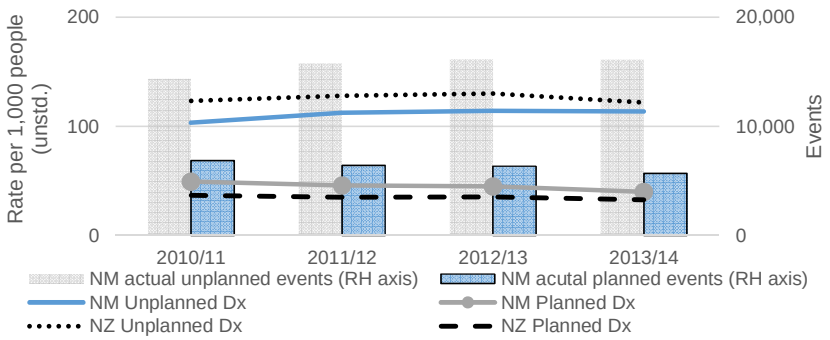
While elective services can improve the quality of life of patients, some elective services can provide little benefit or not be cost-effective relative to other services. Further investigation is warranted to ensure the mix of elective services is cost-effective.

NM residents appear to have good access to planned services

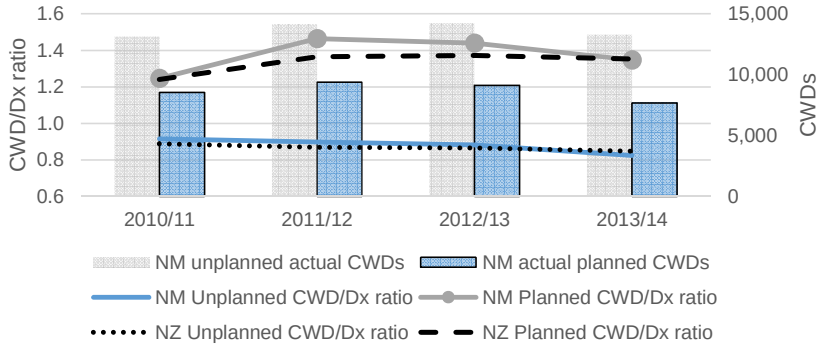
See related: 5 Long term conditions, 6 Primary health care

7.1.1 Hospitalisation trends 2010/11 – 2013/14

Trends in planned and unplanned medical/surgical hospitalisations



Trends in planned and unplanned case-weighted discharges



Planned also known as elective or waiting list; unplanned covers acute and acute arranged hospitalisations. Casemix funded events, including ED and day case, based on DHB of service.

From the Caseload Report:

"Case weights measure the resources needed for the treatment given to each patient during an event. For example, a cataract operation will receive a case weight of approximately 0.5, whereas a hip replacement will receive 4 case weights. Inpatient case-weighted events are defined by casemix inclusive purchase units which are derived by applying the current casemix filter WIES14".

Source: Caseload Monitoring Reports (Ministry of Health), HPCG analysis

The rate of unplanned hospitalisations has been consistently less than the NZ average

Why is this important?

See above.

The number and rate of hospitalisations can change over time. A variety of factors can contribute to changes in hospitalisation numbers and rates including but not limited to:

- Demography
- Epidemiology
- Cyclical influenza impacts
- Models of care
- Government priorities (eg, Health Target – Access to Elective Surgery).

Some of these factors are outside of the control of DHBs, but DHBs choose how far and in what ways they respond to them.

Generally DHBs would seek to manage unwell people outside hospital if at all possible, so would seek to have a low rate of acute hospitalisation if possible. For planned admissions a rate around the NZ average is viewed favourably – over-intervention can bring its own downside.

Nelson Marlborough

The rate of unplanned medical/surgical hospitalisations per 1,000 people (unstandardised) has been consistently lower than the NZ average since 2010/11. In contrast, the rate of planned hospitalisations has been slightly higher than the NZ average, although actual numbers of discharges delivered have been decreasing slightly. Examining specific surgical procedures indicates good access to key surgical interventions compared with the NZ average (data not shown).

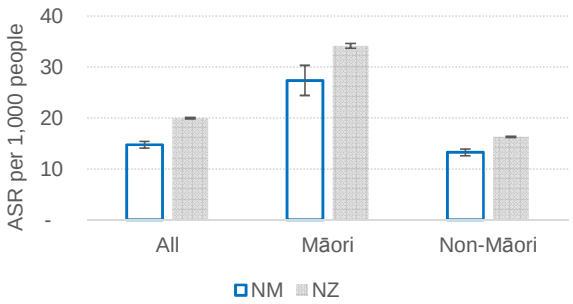
The ratio of case-weighted discharges (CWDs, a measure of complexity and resource intensity) per discharge has been broadly comparable to the NZ average for both unplanned and planned hospitalisations. CWDs per discharge have been moderately decreasing since 2010/11.

The rate of planned hospitalisations has been slightly higher than the NZ average since 2010/11

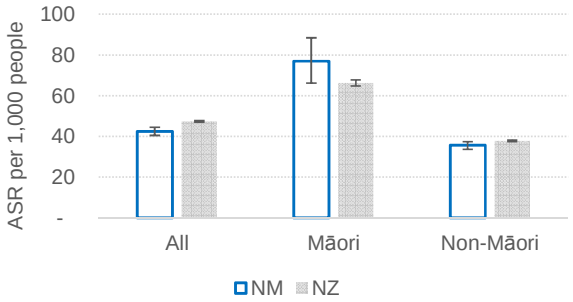
See related: 7.9 Hospitalisation projections, 9.3 Procedures in elderly

7.2 Ambulatory Sensitive Hospitalisations ('ASH')

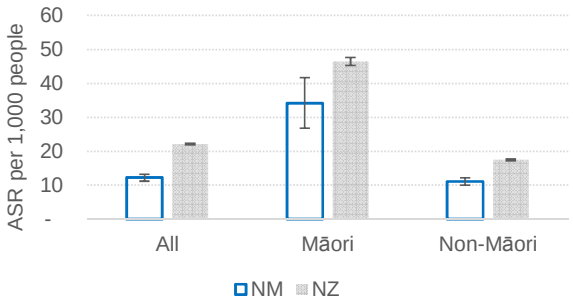
ASH ASR per 1,000 people – 0 – 74 years



ASH age specific rate per 1,000 people – 0 – 4 years



ASH ASR per 1,000 people – 45 – 64 years



Source: Ministry of Health (MOH 2015). ASR – Age-standardised rate (WHO standard population).

NM residents are hospitalised less often for conditions considered potentially preventable, but NM Māori are more likely to be hospitalised than non-Māori

Why is this important?

Ambulatory sensitive hospitalisation ('ASH') conditions are those that are considered potentially amenable to primary and community care, as well as population health actions, and thus represent potentially preventable hospitalisations.

They represent an opportunity cost to the health system given hospital care is generally considerably more expensive than addressing these conditions in primary and community settings, or preventing them through population health actions such as reducing smoking rates or addressing morbid obesity.

How is this measured?

Ambulatory sensitive hospitalisation conditions are identified by their principal diagnosis (the main reason for hospitalisation). The list of diagnoses included is given in the appendix – the top six by volume are shown in the table in the next column.

Nelson Marlborough

NM's rate of ASH is lower than the NZ average across all major age groups, and Māori and non-Māori. The only exception is for Māori children aged less than 5 years, whose rate is slightly above the NZ rate. If NM's ASH rate for this age group was at the NZ average then there would be around 100 fewer hospitalisations per year.

The top six ASH conditions for the NM population aged 0-74 years are:

Conditions	Māori	Non-Māori
Dental conditions	155%	106%
Pneumonia	102%	91%
Gastroenteritis/dehydration	94%	75%
Cellulitis	38%	43%
Angina and chest pain	54%	48%
Asthma	109%	81%

100% = same as NZ rate

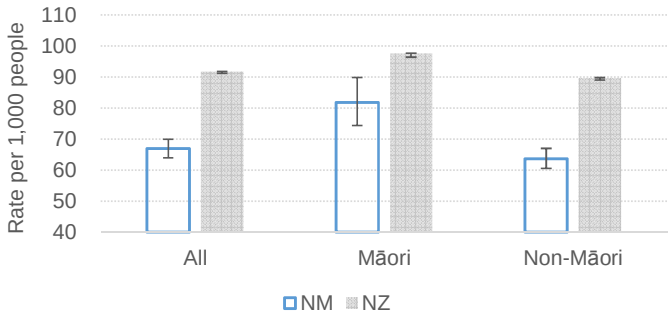
NM ASH rates have been generally stable since 2010/11 for both Māori and non-Māori people aged 0-74 and 0-4 years. There has been a slight increase in ASH rates for Māori people aged 45-64 years, although the number of actual events is relatively small.

NM Māori children aged less than 5 years had 100 more admissions than expected in the 12 months to September 2014

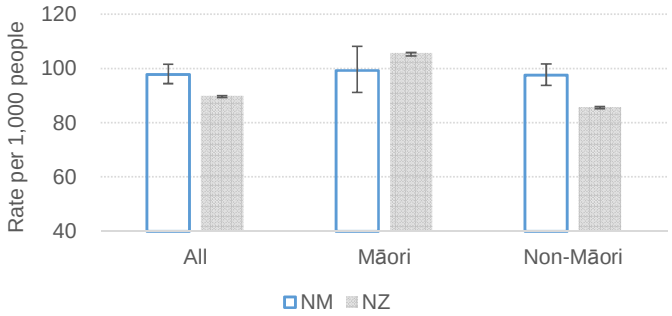
See related: 6.1 Primary care access, 5 Long term conditions

7.3 Unplanned hospitalisations for key age groups

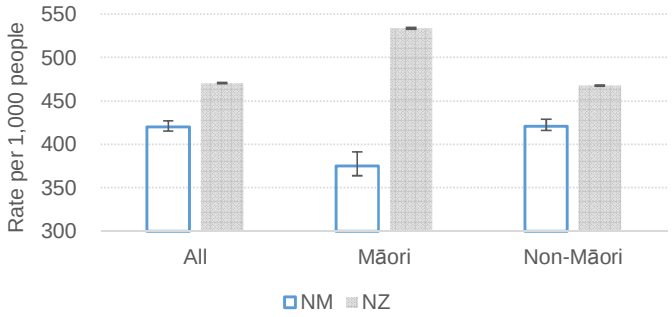
Child (0-14 years) unplanned hospitalisations – 2013/14



Youth (15-24 years) unplanned hospitalisations – 2013/14



Elderly (75+ years) unplanned hospitalisations – 2013/14



Source: Ministry of Health, NMDHB, HPCG analysis

NM youth are more likely to have unplanned hospitalisations than youth across NZ, particularly non- Māori NM youth

Why is this important?

Some age groups are more vulnerable than others. Vulnerability arises from higher risk of poor health outcomes and/or less ability to access services (eg because of cost, health literacy, transport). Typically, children aged under 14 years, youth and the elderly are considered as the more vulnerable population groups.

Health events during childhood and youth can be strongly related to lifelong health and social outcomes. Timely and effective interventions can reduce risk of lasting harm and premature mortality.

The elderly (75+) have increased risk of poor health and disability outcomes as a result of increasing frailty from the ageing process. Currently, people aged 75+ comprise 8% of the population in NM but account for 41% of all planned/unplanned medical, surgical and AT&R bed-days.

The top 5 areas for youth unplanned hospitalisations account for 68% of hospitalisations for youth, at a cost of $2.9M (national price)

Nelson Marlborough

NM children and elderly appear to have a lower rate of unplanned hospitalisation than the NZ average. In contrast, youth appear to have a higher rate, with this being the result of a significantly higher rate for non-Māori youth.

The top 5 areas for youth unplanned hospitalisations are:

Diagnosis group	Hosp
Digestive system	324
Injuries, poisoning, drugs effects	291
Reproductive health	169
Musculoskeletal system	137
Nervous system	85
Top 5 groups	1,006
All hospitalisations	1,485
Top 5 groups %	68%

Based on groupings of Diagnosis Related Groups (DRGs)

While unplanned hospitalisation rates for children and the elderly are lower than the NZ average, they collectively amount to nearly 6,500 hospitalisations or 37% of all unplanned hospitalisations. This equates to approximately $24M at national prices. Therefore a focus should be on continually improving health outcomes for children and elderly.

See related: 5.9 Injury, 9 Health of the elderly

7.4 High intensity users (HIU) of hospital services

Excluding maternity services

Measures of HIU with % of all patients (2014)

Measure	HIU	All patients	% HIU
Individuals	2,168	18,311	11.8%
Discharges	7,441	27,996	26.6%
CWDs	8,902	22,278	40.0%
Bed-days	34,862	56,157	62.1%

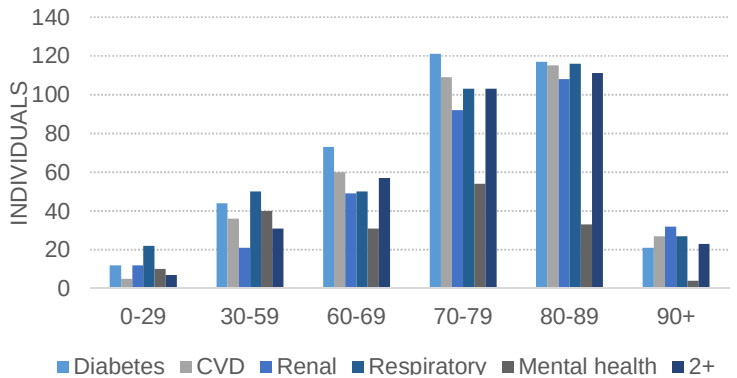
HIU potentially preventable hospitalisations by type (2014)

Conditions	Individuals	Discharges	CWDs	Bed-days
Acute	217	267	232	1,025
Chronic	301	389	349	1,268
Vaccine-preventable	35	49	54	189
Total	-	705	634	2,482

Number of HIUs by key conditions (2014)

HIU	Individuals	Discharges	CWDs	$M	Bed-days	% HIU
Diabetes	376	1,240	1,595	$ 7	5,921	17%
CVD	350	630	683	$ 3	2,112	16%
Renal	310	630	817	$ 4	3,341	14%
Respiratory	368	610	840	$ 4	3,685	17%
Mental health	170	383	582	$ 3	2,832	8%
2+ conditions	326	686	893	$ 4	3,554	15%

HIU individuals by age group and condition (2014)



Source: NMDHB, HPCG analysis. CWD = case-weighted discharges

Around 12% of individual patients accounted for 40% of all case-weighted discharges and 62% of bed days in 2014

Why is this important?

Increasing attention is being paid to patterns of health care use by users who show a very high frequency of contact with services. Many of these patients have complex health and/or social conditions. In other situations, they may not be well connected to primary and community care services. By identifying this cohort of patients, models of care can be designed that improve personal and population health outcomes while minimising impact on health care resources.

How is this measured?

High intensity users (HIUs) of hospital services are defined for the purposes of this report as people have two or more events and at least five days in hospital. Maternity events are not included. Potentially preventable hospitalisations are based on primary diagnosis. Key condition analysis is based on relevant diagnoses being identified in any of the first ten patient diagnosis fields. A 'discharge' is the same as a hospitalisation (in reference to someone being discharged from hospital) and is used here to link with the case-weighted discharge 'CWD' analytical term.

Nelson Marlborough

In 2014, around 2,200 individuals (7% Māori – 146 individuals) were hospitalised two or more times and had at least five days in hospital. They accounted for a significantly greater share of discharges, CWDs and bed-days than their proportion of individual patients – 12% of patients used 62% of the bed days.

Around 9% of their hospitalisations could be considered potentially preventable. In financial terms, these hospitalisations represent an opportunity cost of ~$3M at national prices, with nearly half being related to chronic conditions.

Diabetes, CVD and respiratory conditions were the key main conditions for High Intensity Users ('HIUs'). Around 15%, had two or more conditions.

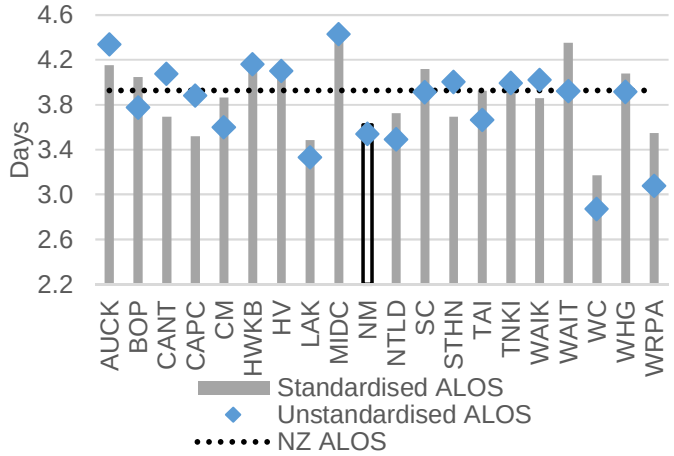
About 60% of all HIUs were aged 70 years and over suggesting a focus on the frail elderly rather than disease specific models of care may be warranted.

Nearly 60% of HIUs were aged 70+ years, 15% had two or more chronic conditions, and ~9% of HIU hospitalisations were potentially preventable

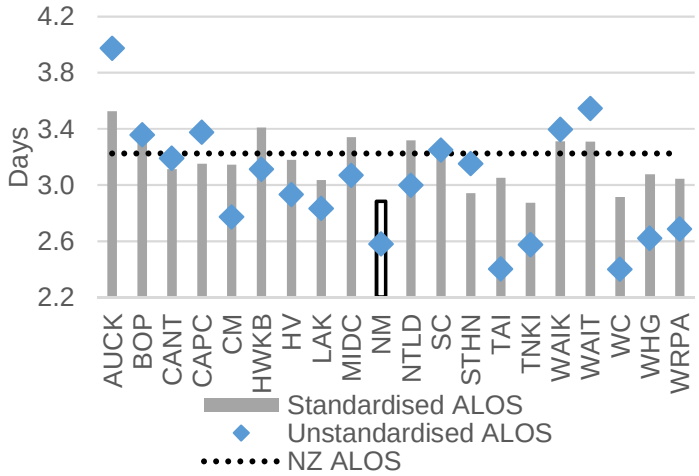
See related: 5.1 Diabetes, 5.2 CVD, 5.5 COPD, 11 Mental health

7.5 Average length of stay (ALOS)

Acute ALOS by DHB – 12 months to Sep 2014



Elective ALOS by DHB – 12 months to Sep 2014



Source: Ministry of Health (MOH 2015d)

The average length of stay in hospitals for NM residents is relatively short suggesting good productivity

Why is this important?

Longer lengths of hospital stay increase costs and expose patients to greater risk of adverse events, such as hospital-acquired infections.

While patient length of stay remains an important clinical decision, by shortening hospital length of stay, while ensuring patients receive sufficient care to avoid readmission, hospital productivity can be improved. This results from freeing up beds and other resources so that hospitals can provide more elective services and reduce length of stay in the emergency department (ED).

Shortening hospital length of stay can also help to delay infrastructure expansion and/or make savings that can assist in achieving sustainable clinical and financial performance. Where possible, savings could be used to support contemporary models of out-of-hospital care, and population health actions.

Nelson Marlborough

NM residents have one of the shortest ALOS for acute and elective services in NZ. Given that around 90% of hospitalisations for NM residents occur in NMDHB hospitals this suggests these hospitals are using bed capacity efficiently. Further investigation is required to ascertain whether the level of bed capacity and associated resources at NMDHB hospitals is configured optimally.

Between 2008/09 and 2012/13, NM residents' ALOS has been decreasing, broadly in line with the NZ average. By 2012/13 NM residents spent half a day less in hospital for acute reasons, and nearly a full day less for elective reasons. This will have contributed to the DHB's improving financial performance, and was accomplished without any corresponding increase in 28-day readmission rates (see 7.6).

Further length of stay improvements could be achieved through increased use of day case surgery and medical care, supported by discharge planning involving primary and community care.

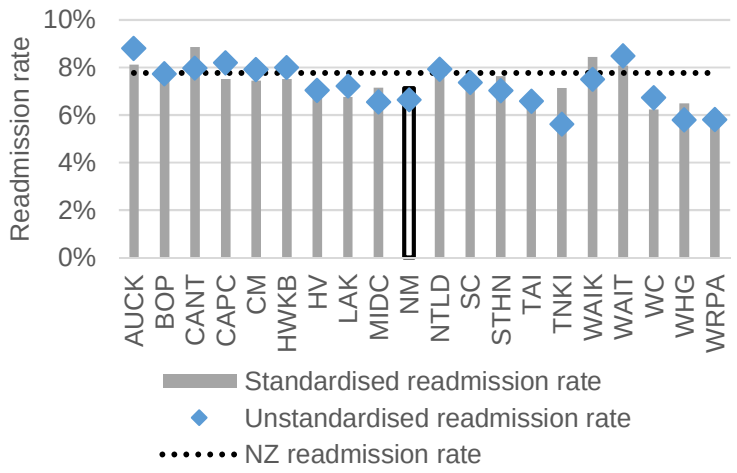
NM residents had 2,000 fewer bed-days than expected in the 12 months to September 2014

See related: 7.6 Readmissions, 7.8 Day surgery

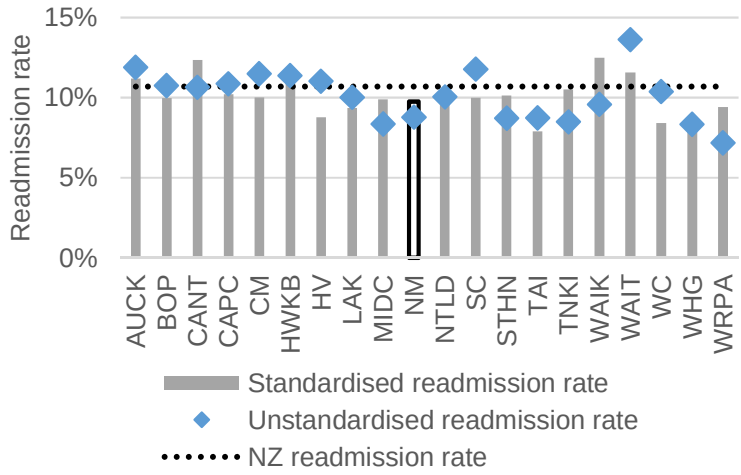
7.6 Unplanned readmissions

NM residents are less likely to be re-admitted to hospital within 28 days

Unplanned readmissions by DHB, all ages – 12 months to Sep 2014



Unplanned readmissions by DHB, ages 75+ – 12 months to Sep 2014



Source: Ministry of Health (MOH 2015d)

Why is this important?

An unplanned (acute) hospital readmission can occur as a result of the care provided to the patient by the health system. Reducing unplanned readmissions can therefore be interpreted as an indicator for improving the quality of acute care in the hospital, community support services, and/or primary care, following transfer of care post-discharge.

How is this measured?

Readmissions are defined as those that occur within 28 days of a patient's last hospital discharge. The assumption is that if a hospital service has effectively addressed a patient's needs (including linking them with primary and community services through discharge planning), the patient generally should not need to be readmitted within the next four weeks.

NM residents had 100 fewer readmissions than expected in the 12 months to September 2014

Nelson Marlborough

NM resident acute readmission rates for all ages and for people aged 75 years and over are below the NZ average.

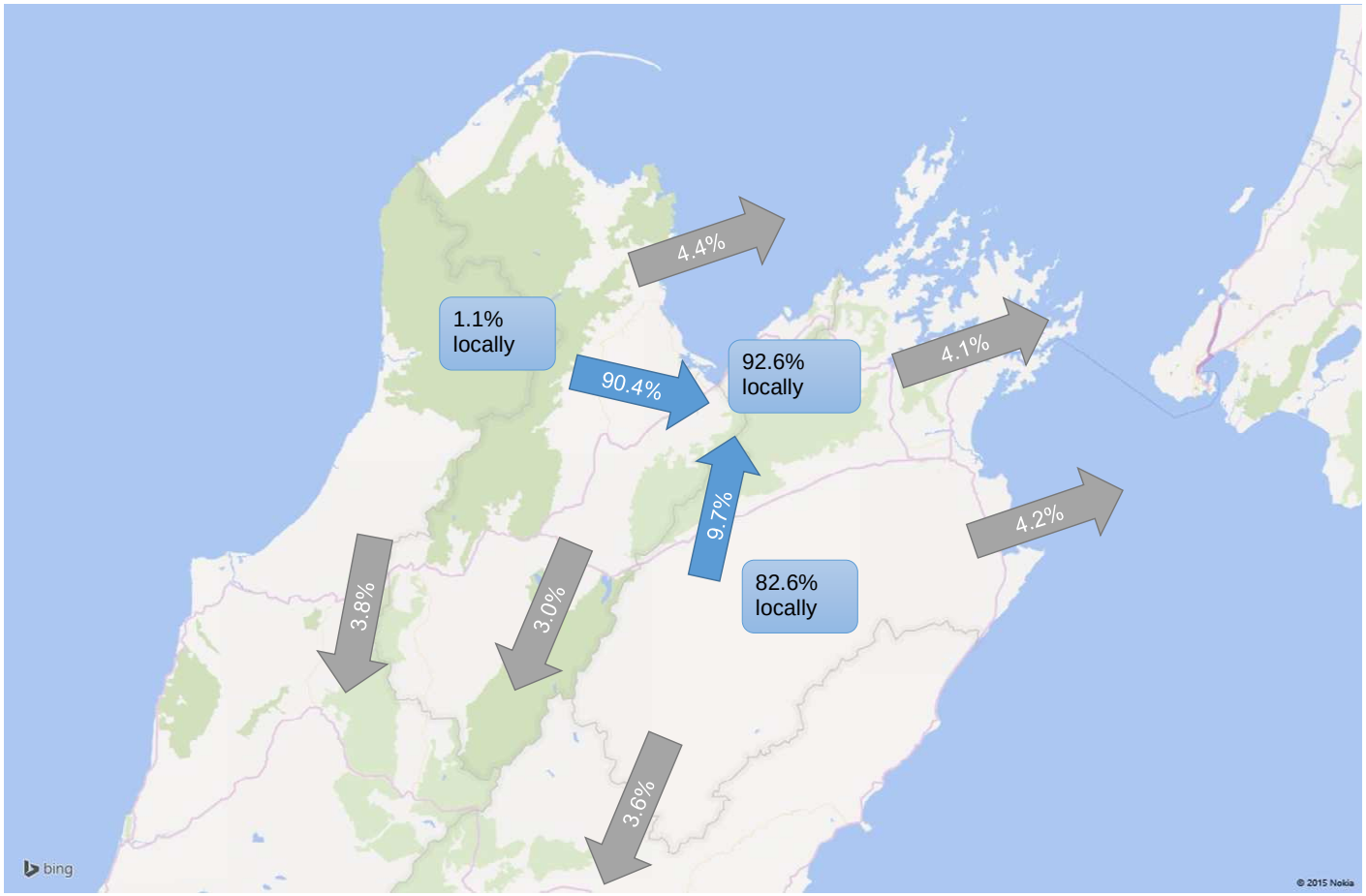
Between 2010 and 2014, readmission rates for NM residents of all ages have been gradually increasing as a percentage of all admissions (6.9% →7.2% - standardised). Over the same period, readmissions for people aged 75 years and over have been broadly steady (average 10.2% - standardised).

Between 2007-2014 NM Māori residents were less likely to be readmitted to Nelson and Wairau hospitals than non-Māori (10.6% compared with 12.1% - unstandardised).

The significant ageing of the NM population in coming years means that focus will need to be on ensuring services for older people are effective. However, while NM remains below the average, recent trends in readmission rates suggest that focus is also required on providing effective care for younger age groups. Further investigation may be worthwhile to identify the reasons behind the (small) upwards trend in readmission rates for people aged less than 75+ years.

See related: 7.1 Hospitalisation rates, 7.6 ALOS, 6 Primary care

7.7 Hospitalisation flows - adult medical and surgical



Grey arrows indicate flows to non-NMDHB facilities. Blue arrows indicate flows to Nelson Hospital.

Source: Ministry of Health NMDS, HPCG analysis

Nelson Marlborough

More than 90% of adult medical and surgical hospitalisations for NM residents occur within Nelson Marlborough. The remaining hospitalisations occur in the North Island (~4%) or at other hospitals in the South Island (~3.5%). These hospitalisations tend to be for specialised services not provided in NMDHB hospitals (or for NM residents who are temporarily in other parts of NZ).

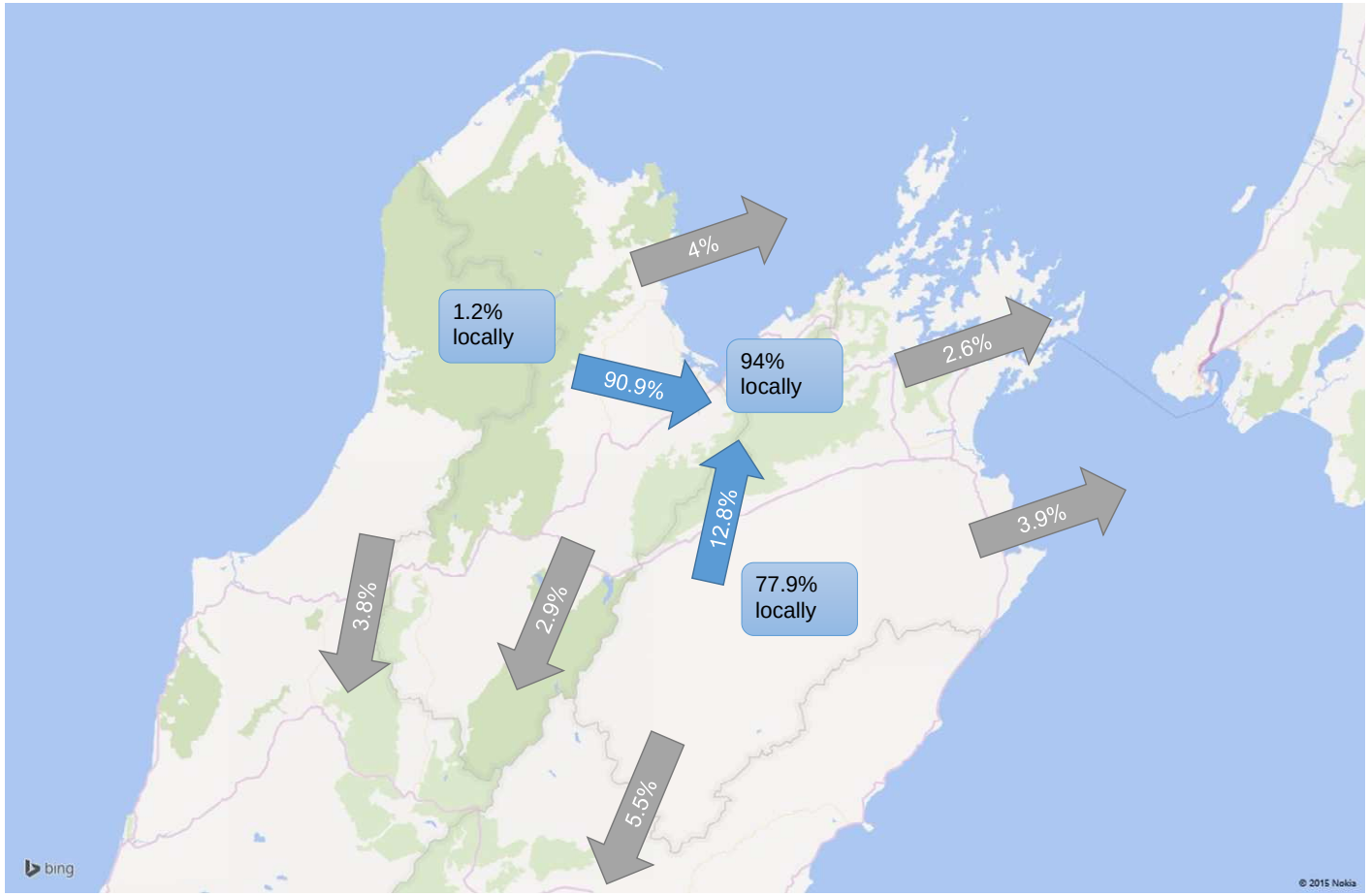
Nelson and Tasman residents are almost exclusively hospitalised at Nelson Hospital, with around 10% of Marlborough resident hospitalisations also occurring at Nelson Hospital.

Wairau Hospital almost exclusively serves the Marlborough population for adult medical/surgical services. Wairau Hospital refers patients to Nelson Hospital for more specialised services, or to North Island and South Island hospitals at a similar rate to Nelson Hospital.

Wairau Hospital almost exclusively serves the Marlborough population

See related: 7.7.1 Child flows, 10.3 Maternity flows

7.7.1 Hospitalisation flows - child medical and surgical



Grey arrows indicate flows to non-NMDHB facilities. Blue arrows indicate flows to Nelson Hospital.

Source: Ministry of Health NMDS, HPCG analysis

Nelson Marlborough

More than 90% of child (up to 14 years of age) medical and surgical hospitalisations for NM residents occur within Nelson Marlborough. The remaining hospitalisations occur in the North Island (~3%) or at other hospitals in the South Island (~4%). These hospitalisations tend to be for specialised services not provided in NMDHB hospitals (or for NM residents who are temporarily in other parts of NZ). Flows largely mirror those for their adult counterparts, with a similar proportion going to hospitals outside NM.

Nelson and Tasman residents are almost exclusively hospitalised at Nelson Hospital, with around 13% of Marlborough resident hospitalisations also occurring at Nelson Hospital.

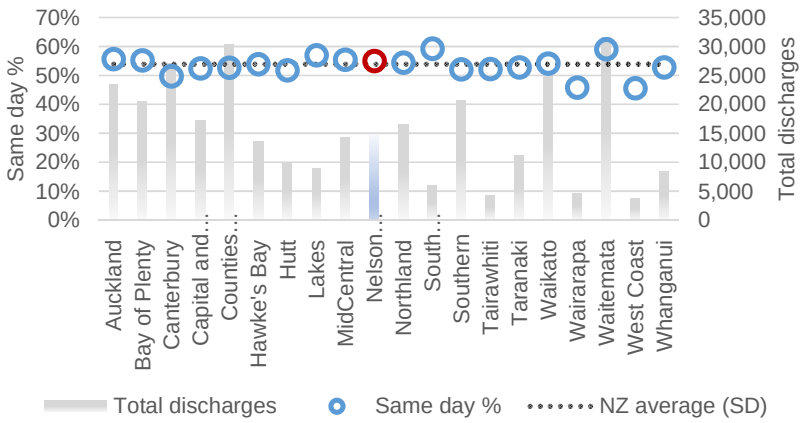
Wairau Hospital almost exclusively serves the Marlborough population for child medical/surgical services. Wairau Hospital refers patients to Nelson Hospital for more specialised services, or to North Island and South Island hospitals.

Flows for hospital care for children are similar to adults

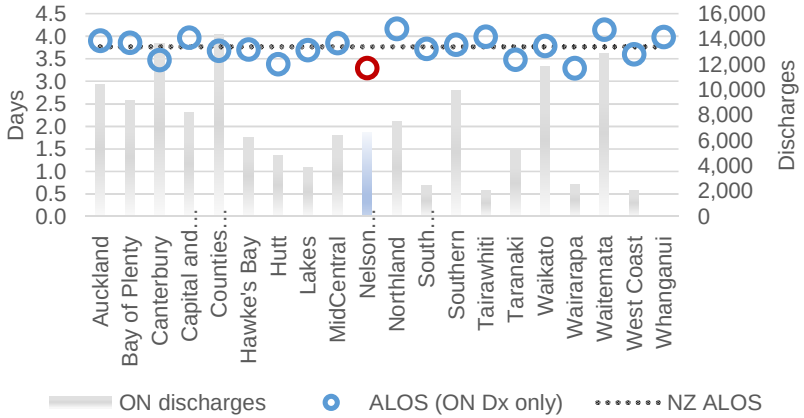
See related: 7.7 Adult flows, 10.3 Maternity flows

NM's elective/arranged day surgery rate is in line with the NZ average

Day surgery rates by DHB – 2011/12 to 2013/14



ALOS for surgery with at least one night of hospital stay – 2011/12 to 2013/14



Source: Ministry of Health (MOH 2015d)

Why is this important?

The percentage of elective/arranged surgical procedures undertaken on a day case basis (ie, no overnight stay) is a common efficiency performance metric used across health system. Day surgery requires robust patient prioritisation, clear clinical pathways and effective discharge planning. It needs to be supported by good use of technology.

The benefits of day surgery include:

- Short hospital stays enabling more patients to be treated
- Releasing inpatient capacity for more complex and emergency cases
- Improved scheduling and productivity where dedicated day case theatres are used
- Reduced risk of nosocomial infections
- Convenience for patients.

Nelson Marlborough

Between 2011/12 and 2013/14, NM's percentage of elective/arranged surgery undertaken on a day case basis was in line with the NZ average (~54%). This includes the following specialities:

- Dental surgery
- Dermatology
- Gastroenterological
- General surgery
- Maxillo-facial surgery
- Ophthalmology
- Orthopaedic
- Spinal
- Urology
- Vascular surgery.

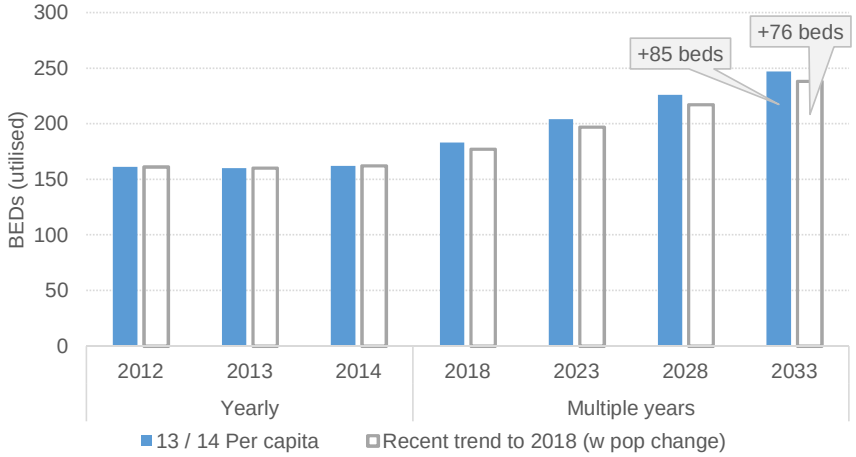
International benchmarks suggest that around 75-80% of select elective/ arranged surgical procedures could be undertaken on a day case basis. Further detailed analysis might be useful to assess how far NM is from these benchmarks, and opportunities to improve surgical efficiency.

International benchmarks suggest NM can increase its day surgery rate providing more convenience for patients and efficiency savings

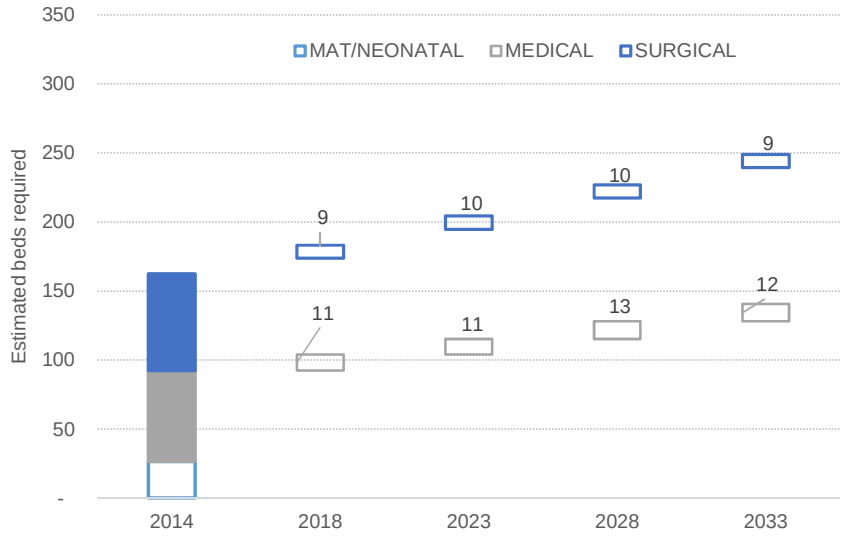
See related: 7.5 Average length of stay

Future demand for hospital and specialist services suggest bed utilisation will increase if current patterns of care continue

7.9 Hospital demand projections
(medical/surgical/maternity/neonates)
Hospital bed demand projections to 2033



Hospital bed demand projections by major specialty to 2033



Source: Ministry of Health, NMDHB data sets, HPCG analysis

Why is this important?

Total hospital bed capacity is important for ensuring appropriate patient access for specialist services and 24/7 care. However, a higher than optimal level of bed capacity increases system costs without corresponding benefit for patients. Additional hospital bed capacity generally requires a 'step change' in physical capacity (ie, an investment in a ward). These investments are expensive.

Contemporary models of care are increasingly enabling patients to be safely and effectively cared for on a daycase basis (ie, no overnight stay), and in primary and community settings. These models suggest that hospital and specialist services can be reconfigured, with a moderation of total hospital bed capacity required to address population health needs. It is therefore important that consideration is given to alternative models of care rather than expanding capacity based on historical norms.

Projections are based on age-specific rates by specialty multiplied by forecast locality population changes by age group. They assume an average occupancy rate of 85%.

Nelson Marlborough

Projections of future demand for hospital and specialist services (medical, surgical, maternity, neonates) in NM suggest that between 76 and 85 additional beds will be utilised by 2033. The primary driver of future demand is the significant ageing of the NM population.

Changes in models of care alongside efficiency improvements (eg, ALOS improvements) can contribute to moderating additional bed utilisation.

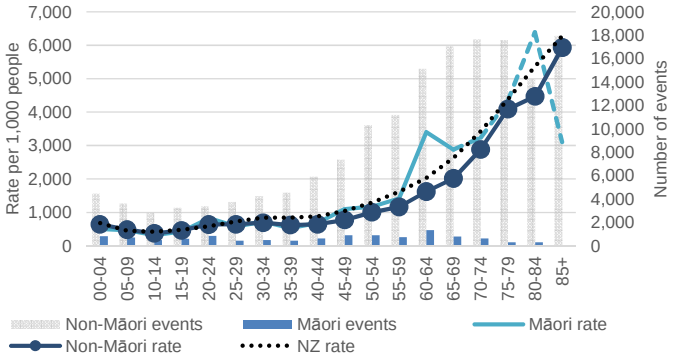
These estimates do not factor in existing capacity but rather provide an indication of the number of additional beds that would be filled by patients given current rates of hospitalisation under current models of care. Actual growth is likely to be lower as models of care refine and efficiencies such as increased day surgery and lower ALOS occur.

Around 30,000 additional medical/surgical/ maternity/ neonatal bed-days are forecast by 2033 (76 – 85 beds)

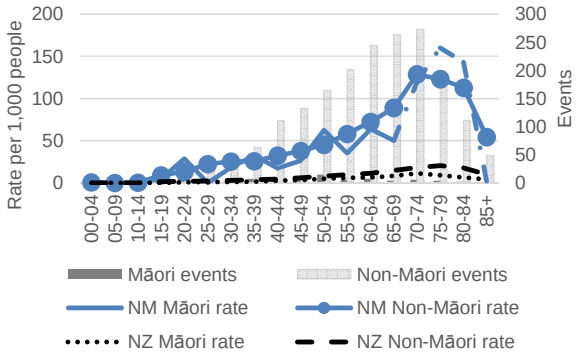
See related: 1.1 & 1.3 Population growth & ageing

Section 8
Outpatient utilisation

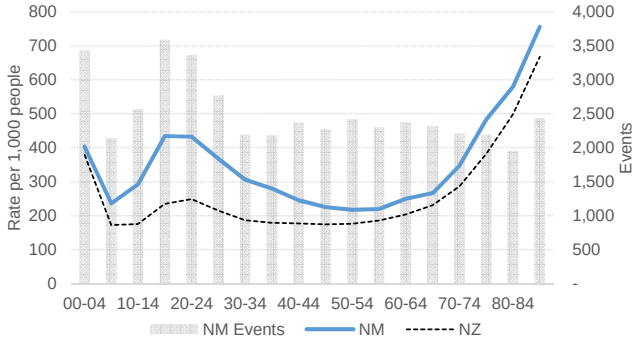
8.1 NM residents appear to have reasonable access to specialist and allied health outpatient services. Māori have higher attendance rates, but relatively high non-attendance rates are concerning



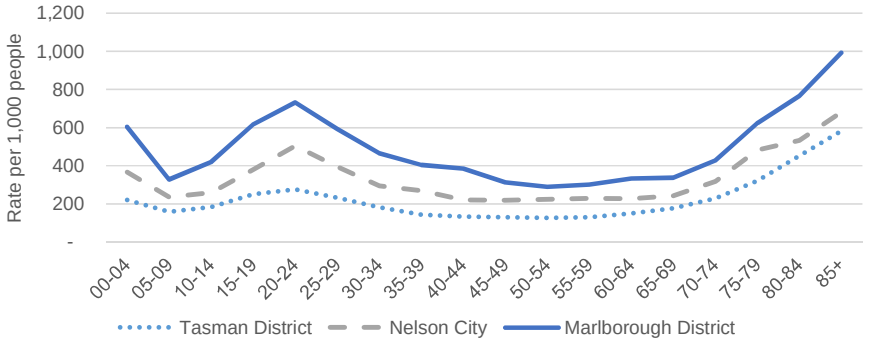
8.2 NM residents appear to have a much higher level of access to colonoscopy and gastroscopy than the NZ average



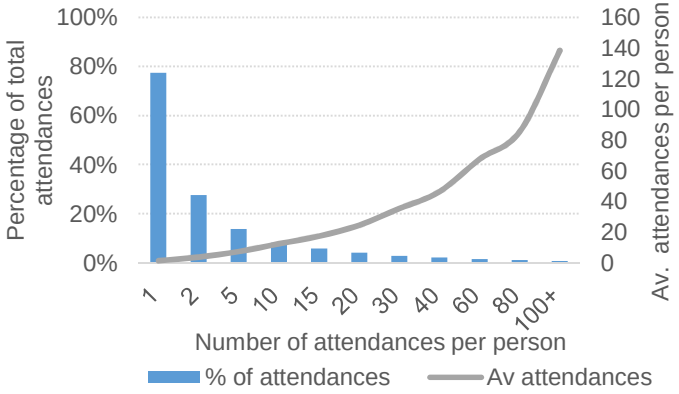
8.3 NM residents attend ED more than the NZ average, with the percent of attendees being admitted increasing in the past 3 years



8.4 Marlborough residents attend ED more frequently than Nelson and Tasman residents. They are also much more likely to attend after-hours (before 8am or after 5pm weekdays, and on weekends)

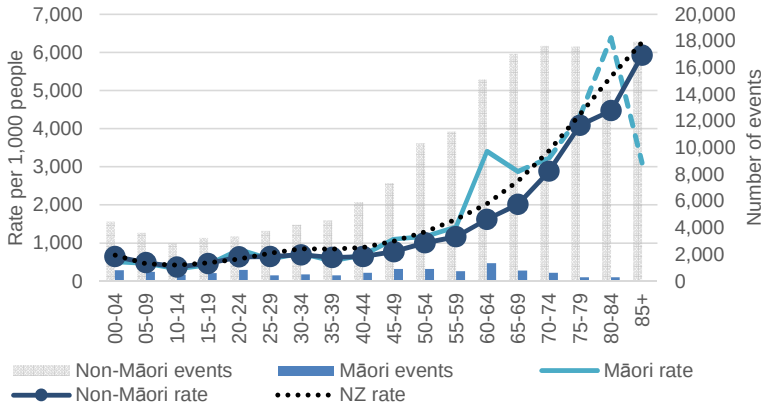


In any given year, about 6% of ED attenders account for 24% of all ED attendances. They are more likely to be admitted, increasing system costs and the chance of adverse events



8.1 Specialist and allied health utilisation

Utilisation rate per 1,000 people (specialist and allied health services) 2013/14



Specialist medical ASR per 1,000 people (FSAs and follow-ups)

Locality	Total	Māori	Non-Māori	Ethnicity
Marlborough	168.1	219.0	168.5	1.30
Nelson	152.4	192.5	152.9	1.26
Tasman	143.5	178.5	140.9	1.27
NM	154.6	196.5	153.6	1.28
NZ	165.7	131.8	172.0	0.77
NM/NZ ratio	0.93	1.49	0.89	-

Specialist surgical ASR per 1,000 people (FSAs and follow-ups)

Locality	Total	Māori	Non-Māori	Ethnicity
Marlborough	277.7	241.8	282.1	0.86
Nelson	251.1	278.5	252.5	1.10
Tasman	235.2	207.7	236.1	0.88
NM	254.4	237.7	256.3	0.93
NZ	223.9	173.3	233.2	0.74
NM/NZ ratio	1.14	1.37	1.10	-

Source: Ministry of Health, HPCG analysis

NM residents appear to have reasonable access to DHB outpatient services when compared to the NZ average

Why is this important?

Timely access to specialist advice and DHB allied health services contributes to improved personal and population health outcomes. Access barriers to specialist advice can delay timely diagnosis and clinical interventions, and ultimately lead to poorer health outcomes.

Access barriers to allied health can impede recovery, result in unnecessary ED attendances and hospitalisations, and restrict the ability of older people to age in place.

Not appearing for a First Specialist Assessment (FSA) appointment (known as 'DNA' or 'did not attend') can indicate lack of understanding of the need for the appointment, and reduce clinic effectiveness – low DNA rates are sought.

NM FSA visits and DNA % 2013/14

	Attended	DNA	% DNA
Māori	2,149	333	13.4%
Others	31,206	1,332	4.1%
Total	33,355	1,665	4.8%

Source: NMDHB

Nelson Marlborough

NM residents appear to have broadly comparable access to DHB outpatient services, with both age specific rates for Māori and non-Māori being close to the NZ average. This includes all services categorised as Allied Health, Medical and Surgical.

Looking specifically at medical and surgical FSAs and subsequent attendances suggests in general that NM residents have reasonable access to publicly-funded services.

Access rates differ by locality, with Marlborough residents having a higher rate of both medical and surgical and allied health attendances.

Māori residents tend have a higher rate of access than non-Māori residents, and also compared to the NZ average for Māori.

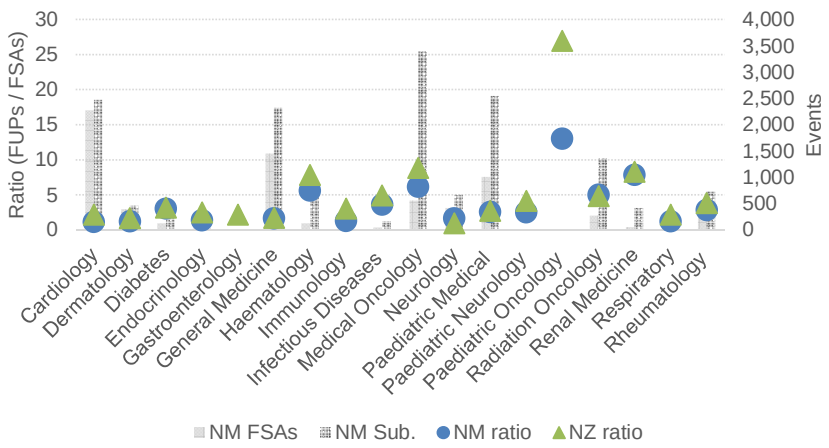
Overall DNA rates for FSAs at NM were low at 4.8%. Māori rates at 13% are more concerning, representing missed diagnostic or treatment opportunities.

NM Māori residents have reasonable access to outpatient services, but DNA rates are a concern

See related: 7.1 Hospitalisation rates

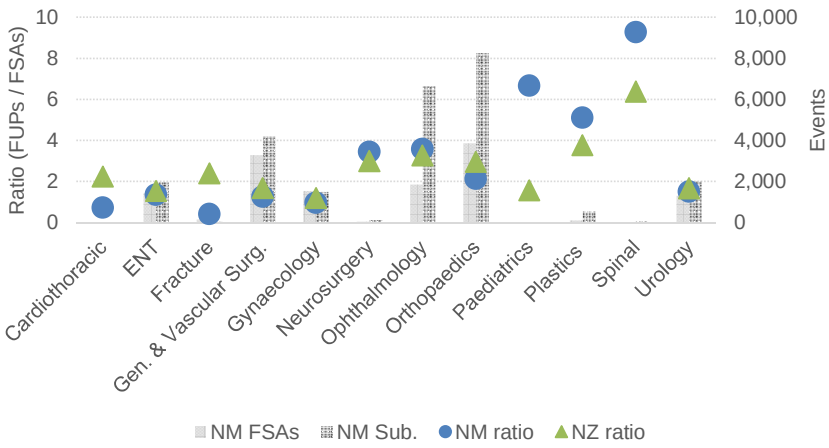
8.1.1 Specialist FSAs and follow-ups

Specialist medical FSA and follow-up ratios – 2013/14



Note NM gastroenterology figures not shown given data issues

Specialist surgical FSAs and follow-up ratios – 2013/14



Source: NNPAC, HPCG analysis

FSA/Follow-up ratios for NM residents are broadly comparable to the NZ average

Why is this important?

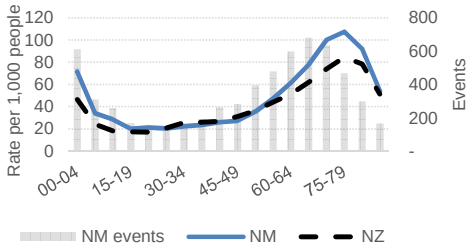
Timely access to specialist advice contributes to improved personal and population health outcomes. Patients are referred for First Specialist Assessments ('FSAs') to assess their health needs and appropriate course of medical response. They may then attend subsequent follow-up appointments with their designated specialist.

The ratio of follow-up attendances to FSAs can be considered a measure of efficiency and effectiveness, although clinical decision-making regarding individual patients remains paramount. A lower ratio of follow-up to FSAs may indicate better use of scarce specialist time. Similarly, a lower ratio may indicate more effective courses of medical response following the initial FSA and/or better connection of patients back to their primary care provider.

Nelson Marlborough

Medical and surgical FSA/follow-up ratios for NM residents are comparable to the NZ average. Where by specialty there are deviations between the NM and NZ average, associated volumes are small. With ratios for these specialties likely to fluctuate year on year given the small associated volumes.

Of interest are apparently higher age specific rates for key age groups for medical FSAs excluding specialist paediatrics, oncology and haematology:



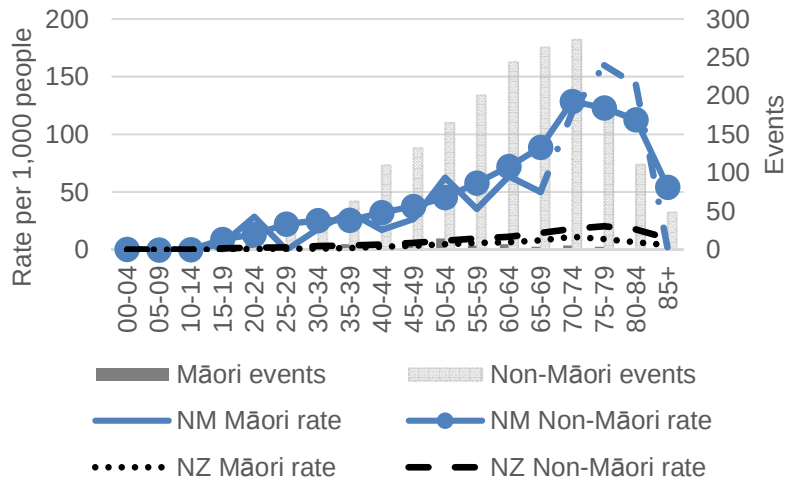
While this may indicate good access to specialist care for NM residents, it would be prudent to investigate whether some of these patients would be more appropriately cared for in primary care.

There is evidence of increased access for key age groups to medical FSAs. This may be cost-effective but warrants further investigation

See related: 6 Primary care

8.2 Outpatient diagnostic attendances

Colonoscopy and gastroscopy rate per 1,000 people by age and ethnicity – 2013/14



Colonoscopy and gastroscopy ASR per 1,000 people by ethnicity – 2013/14

	Total	Māori	Non-Māori
NM	12.4	9.4	12.6
NZ	5.4	1.8	6.0
Rate ratio	2.3	5.1	2.1
NM events	1,997	74	1,923

Source: Ministry of Health, HPCG analysis

Why is this important?

Colonoscopy and gastroscopy are both important diagnostic procedures that can assist clinicians to diagnose a range of conditions, and plan appropriate treatment for patients. Good access to these procedures can help identify health problems in a timely way that improves personal and population health outcomes.

Currently, there are no evidence-based benchmarks for the appropriate level of colonoscopy and gastroscopy procedures for a given population. While these are important diagnostic procedures, it can be assumed that at some stage a given population intervention level is reached where the cost-effectiveness of an additional procedure will be small or negative. At national prices, each procedure costs between $800 - $1000.

Nelson Marlborough

NM residents appear to have a much higher level of access to publicly-funded colonoscopy and gastroscopy procedures (~2.3 times the NZ average). However some caution in interpretation is required as there is some variability in recording this data across the country. Private utilisation rates may vary by DHB as well.

While NM's higher rate of colonoscopy and gastroscopy may reflect an underlying burden of disease (e.g. colorectal cancer), differences in key disease rates between NM and NZ are not significantly different (see 5.3 Cancer).

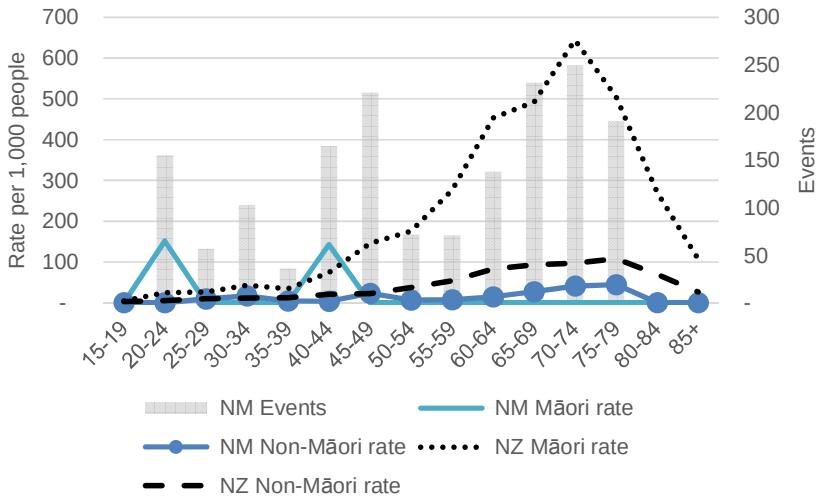
The increased access being provided by the DHB to these procedures is potentially a good investment, but should be measured against other priorities for health care expenditure.

See related: 8.1 Outpatient rates, 5.3 Cancer

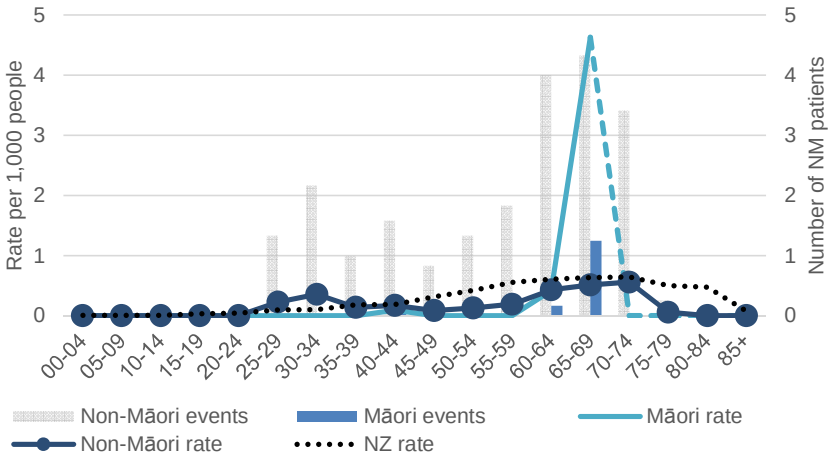
8.3 Dialysis

NM residents have a lower rate of in-centre dialysis than the NZ average, likely reflecting a lower burden of disease

In-centre dialysis rate per 1,000 people by age and ethnicity – 2013/14



Estimated number of patients per 1,000 people receiving home-based dialysis – 2013/14



Source: Ministry of Health NNPAC data, HPCG analysis

Why is this important?

Dialysis provides a life-saving service for people with end stage renal failure. Generally, a person will receive dialysis for the remainder of their life.

Dialysis can be delivered in hospital and outpatient settings or in a patient's home or at work. The latter option provides more convenience for patients but clinical and cost-effectiveness assessment of this option is necessary for individual patients.

Dialysis is costly. As a result, health systems focus on preventing end stage renal failure though chronic condition management (eg, diabetes).

An alternative to dialysis is kidney transplantation. This alternative provides life extending and quality of life improvements, and is generally more cost-effective. However, kidney availability for transplantation is a key limiting factor.

It is estimated that two-fifths of NM dialysis patients receive home-based dialysis

Nelson Marlborough

Around 30 – 35 NM residents aged 15 years and over receive in-centre dialysis per year. There were 1,700 in-centre dialysis attendances in 2013/14.

NM residents are much less likely to receive in-centre dialysis than the NZ average irrespective of ethnicity or age. This likely reflects the lower burden of diabetes and renal disease in NM rather than poor access to care.

A further 20-25 patients are estimated to receive home-based dialysis. If broadly correct this suggests that around two-fifths of NM patients receive dialysis at home.

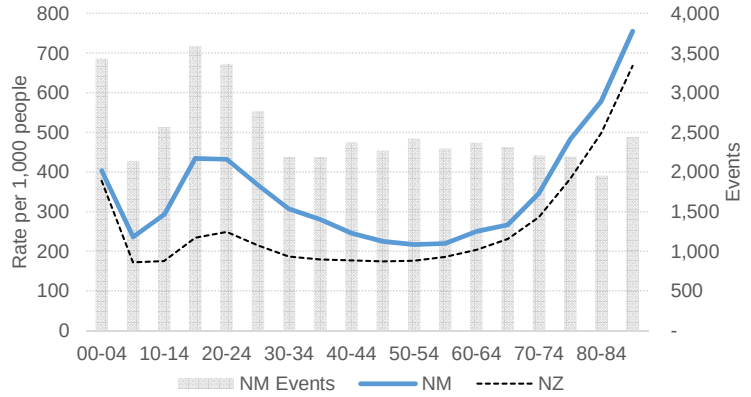
In 2013/14, there were seven renal transplants for NM residents. This equates to around 11% of NM residents likely to have end stage renal failure receiving a renal transplant. This compares to an estimated NZ average of around 5%. Please note these are estimates only and should be treated with caution. Individual DHB transplant rates are likely to have material year on year variation given small volumes.

See related: 5.1 Diabetes

8.4 ED utilisation

NM residents attend ED more frequently than the NZ average, especially youth and young adult (10-34 years)

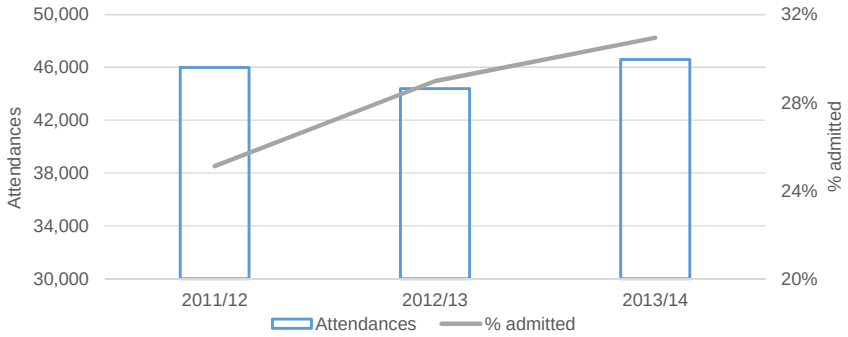
ED attendance rates by age per 1,000 people – 2013/14



ED attendance age standardised rates by ethnicity per 1,000 people – 2013/14

Ethnicity	NM	NZ	Rate ratio
Māori	372.7	296.7	1.3
Non-Māori	314.5	218.7	1.4
Rate ratio	1.2	1.4	
Total	320.5	230.6	1.4

ED attendances and % admitted – 2013/14



Source: Ministry of Health, NMDHB data sets, HPCG analysis. NM residents only

Why is this important?

Emergency departments ('EDs') are an important component of the health system, treating people with serious illness or injury that requires urgent attention. Less urgent health needs are generally considered to be best met through primary and community care.

Overburdened EDs can result in longer patient waiting times, staff fatigue, and errors. Patients presenting to ED are also more likely to be admitted to hospital even where they could be safely cared for in community settings. This increases their risk of adverse events and increases system costs.

The average cost based on national prices for an ED attendance (Level 4 as per NM hospitals) is approximately $250.

The percentage of ED attendances admitted to hospital has increased from 24% to 31% in the past three years

Nelson Marlborough

In 2013/14, Nelson Marlborough had the sixth highest rate of ED attendance in NZ (321 attendances per 1,000 people compared to 231 nationally). The rate was even higher for NM Māori (373).

While the general age-specific rates of ED use appears similar between NM and NZ, the age cohorts between 10 – 34 years have appreciably higher rates of attendance in NM. The higher rates of identified barrier to primary care (Section 6) may be related.

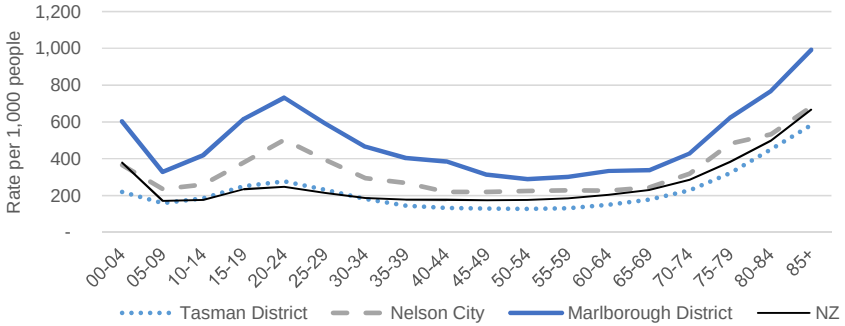
Total NM ED attendances have not increased greatly over the past three years although the percentage admitted to hospital has increased markedly. While this could indicate increasing patient complexity, further investigation is warranted to ensure best use of resources is being made.

In Quarter 2 2014/15 NMDHB was the second highest performing DHB on the national 'shorter stays in emergency departments', with 97% of patients being admitted, discharged, or transferred from an ED within 6 hours.

See related: 6.2 Primary care utilisation

8.4.1 ED utilisation

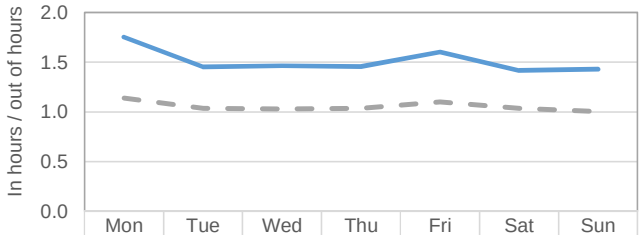
ED attendance rates per 1,000 people by age and locality, 2013/14



ED attendance age standardised rates per 1,000 by locality, 2013/14

Localities	ASR	Diff. NM	Ratio. NM
Marlborough	464	143	1.4
Nelson	312	-10	1.0
Tasman	198	-124	0.6
NM	322		

ED attendance by time of attendance – 2013/14



	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Wairau hospital - in hours rato	1.75	1.45	1.46	1.46	1.60	1.41	1.43
Nelson hospital - in hours ratio	1.14	1.03	1.03	1.04	1.10	1.04	1.00
Nelson hospital - in hours	53%	51%	51%	51%	52%	51%	50%
Nelson hospital - out of hours	47%	49%	49%	49%	48%	49%	50%
Wairau hospital - in hours	64%	59%	59%	59%	62%	59%	59%
Wairau hospital - out of hours	36%	41%	41%	41%	38%	41%	41%

Source: Ministry of Health, NMDHB data sets, HPCG analysis

Marlborough residents have a significantly higher rate of ED attendance than other NM residents

Why is this important?

See above.

ED use and the type and mix of services accessed can differ across local populations. These differences can reflect the health needs and/or health literacy of each population, the structure and availability of local health services, or a combination thereof.

All figures here are restricted to NMDHB EDs (Wairau and Nelson Hospitals) and NM residents attending them.

ED attendance (unstandardised) by ethnicity and locality per 1,000 people – 2013/14

Locality	Māori	Non-Māori
Marlborough	428	454
Nelson	302	309
Tasman	302	184
Total	350	310

Wairau Hospital ED attendances are much more likely to be triaged as level 4 or 5 than those at Nelson Hospital

Nelson Marlborough

There is marked variation in use of ED services across each of NM's three major locality populations (Marlborough, Nelson, and Tasman).

Marlborough residents make significantly more use of ED services than their counterparts in Nelson and Tasman. Tasman residents make the least use of ED services, which may reflect geography and the role of the Golden Bay Community Hospital. Māori and Non-Māori ED attendance rates by locality are broadly the same (unstandardised), but Tasman Māori tend to access ED more than Non-Māori.

Around 54% of ED attendances at Wairau Hospital were triaged as level 4 or 5 compared to 37% at Nelson Hospital. This suggests that a greater number of people attending ED at Wairau Hospital could be effectively cared for in community settings. Attendances at Wairau are also less likely to result in admittance to hospital.

Attendances to Wairau Hospital are much more likely to occur outside of business hours (8am – 5pm) than those at Nelson Hospital.

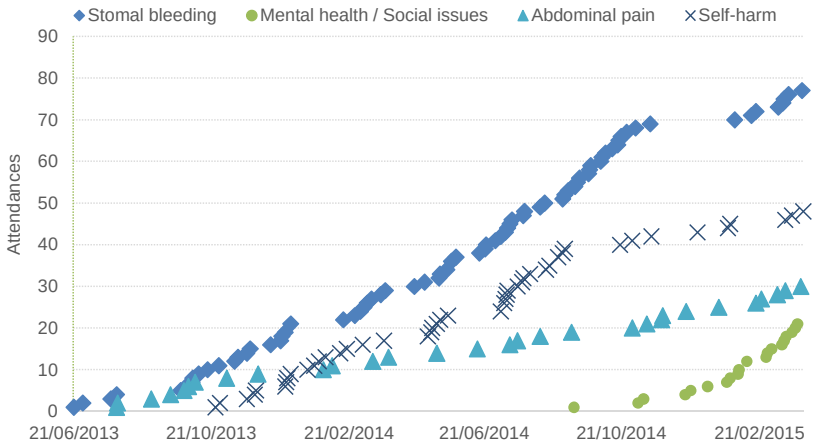
See related: 6.1 to 6.3 Primary care utilisation and access

8.4.2 ED utilisation

NMDHB ED patients by frequency of attendance, 2011/12 to 2013/14

Num. Att.	Num. Patients	% of Patients (Cum.)	Num. Att.	% of Att. (Cum.)
100+	2	0.0%	277	0.2%
80	2	0.0%	171	0.3%
60	2	0.0%	135	0.4%
40	9	0.0%	417	0.8%
30	18	0.1%	636	1.3%
20	70	0.2%	1,715	2.6%
15	121	0.4%	2,095	4.2%
10	451	1.1%	5,565	8.4%
5	2,782	5.7%	20,229	23.9%
2	11,142	24.2%	40,371	54.8%
1	45,704	100.0%	59,082	100.0%
Total	60,303	-	130,693	-

Indicative cases ('individual patients') categorised by key presenting problem (2013 – 2015)



Source: NMDHB data sets, HPCG analysis. NMDHB EDs, NM patients.

In any given year, around 6% of patients at NMDHB hospitals account for 24% of all ED attendances

Why is this important?

See above.

Increasing attention is being paid to patterns of health care use by users who show a very high frequency of contact with these services. Many of these patients have complex health and/or social conditions. They may not be well connected to primary and community care services. By identifying this cohort of patients, it is hoped that models of care can be designed that improve personal and population health outcomes while minimising impact on health care resources.

Nelson Marlborough

Around 5.7% (~3,500) of patients at Nelson and Wairau hospitals accounted for 24% (~31,000) of all ED attendances between 2011/12 and 2013/14 (total 130,522 – NM residents only).

Frequent attenders (12 or more attendances between 2011/12 and 2013/14) to ED have a much greater chance of being admitted. For example, in 2013/14 71% of frequent attenders were admitted compared to 35% for all other attendees.

Frequent attenders present for a wide variety of health-related reasons, often compounded by their social situation. For example, the figure opposite shows four indicative frequent attenders (individual patients) categorised by their most commonly recorded presenting problem. As can be seen, attendances can occur in rapid succession, and frequency of attendance can endure over many months, if not years. Understanding the cycle of frequent attender ED use can enable timely and effective interventions in primary care or community settings.

Frequent ED attendees are more likely to be admitted to hospital, increasing system costs and chance of adverse events

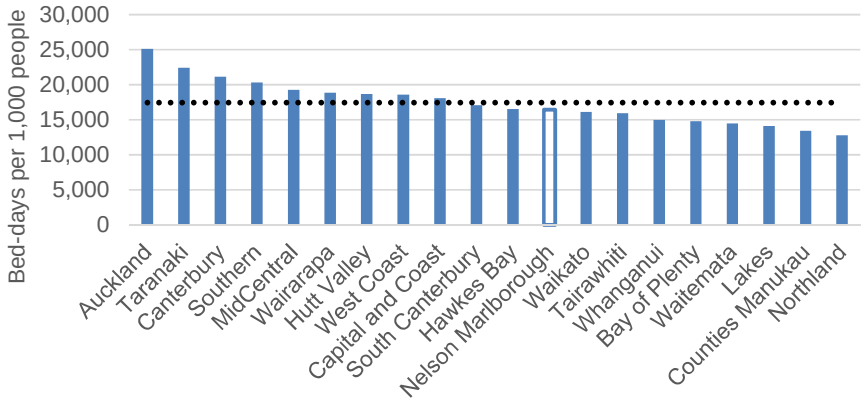
See related: 6.1 to 6.3 Primary care utilisation and access

Section 9
Health of older people

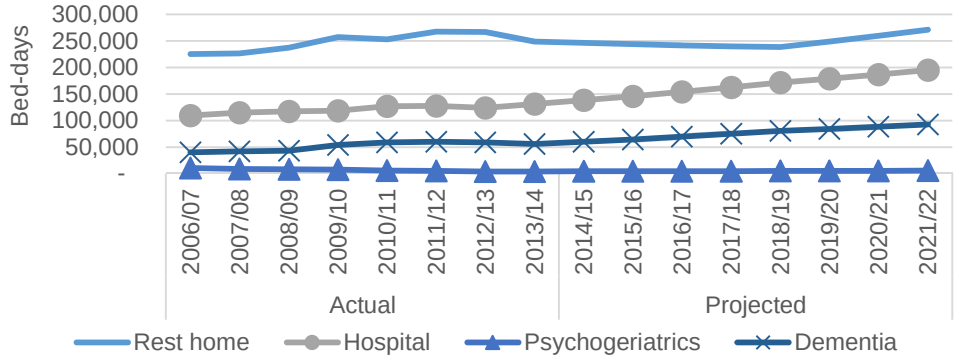
9 Health of older people

Most of the health care issues of the elderly, and their health care utilisation have been covered in the preceding sections. Section 5, Long term conditions, is particularly relevant. This section briefly covers some remaining specific older persons' service needs – aged residential care, health of the elderly care in hospitals, and some selected surgical intervention rates at older ages.

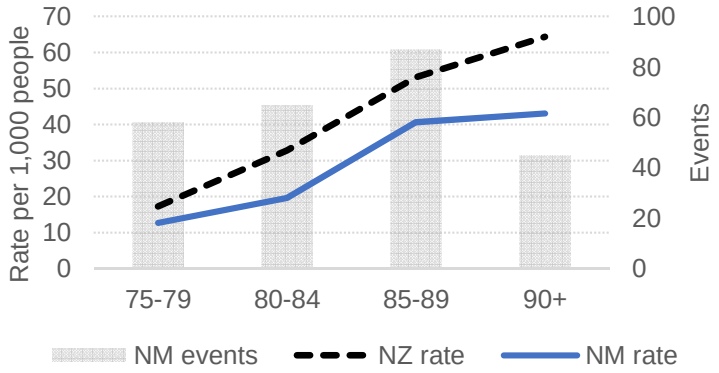
9.1 NM residents have similar rates of residential care use to the NZ average - they are more likely to age in place than other South Islanders



With the expected ageing of the population NM demand for hospital level and dementia care is projected to increase over coming years



9.2 NM residents are less likely to be admitted to an assessment, treatment and rehabilitation (AT&R) facility than the average New Zealander. With low lengths of stay and relatively high outpatient and community support use the model of care appears sound.



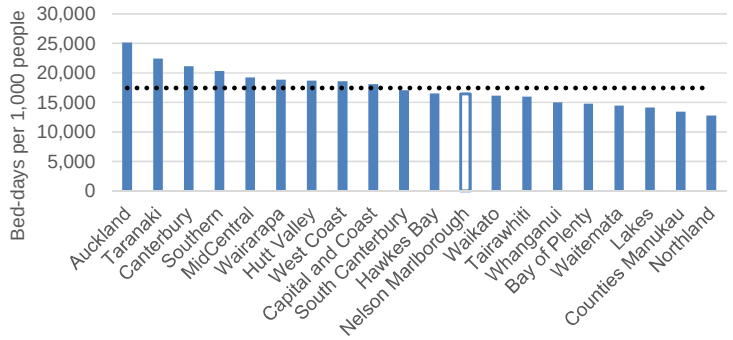
9.3 NM residents aged 75 years and over have comparable access to the NZ average for surgical procedures that can improve quality of life

Rates per 1000 75+. 2013/14

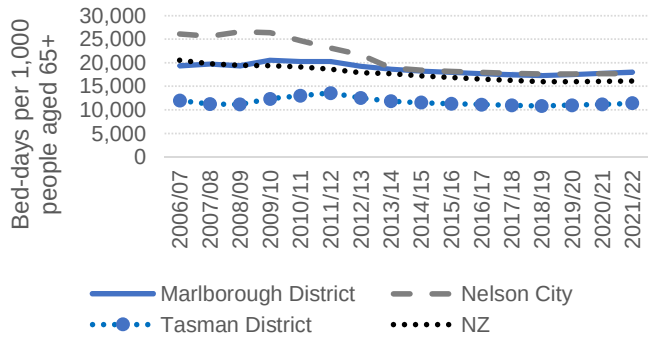
Procedures	NM	NZ	Ratio	Sig.
Cardiac	4	5	0.8	No
Cataracts	23	28	0.8	No
Major joints	20	21	0.9	No

9.1 Age-related residential care (ARRC) utilisation

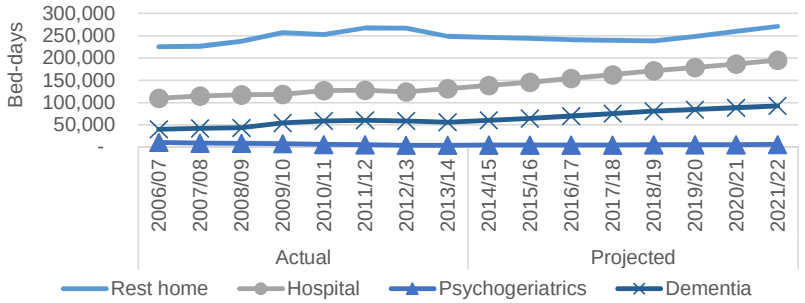
ARRC bed-days by DHB for people aged 65+ - 2013/14



ARRC bed-days by NM locality, 2006-14 and projected to 2022



Projected ARRC bed-days for NM residents by service type



Source: DHB Shared Services – ARC Demand Planner. Ages 65+ included.

NM residents are more likely to age in place than other South Islanders

Why is this important?

Age-related residential care ('ARRC') services include long-term rest home, continuing care (hospital), dementia and specialised hospital (psychogeriatric) care for people:

- with high, or very high needs which are indefinite
- who are assessed as unable to be safely supported in the community
- aged 65 years and over or 50 to 64 without close family support.

ARRC utilisation refers to the use of any of these services regardless of the source of funding (out of pocket or government).

Older people generally state strong preferences for living in their own home or non-institutional community settings. With appropriate models of care, this aspiration is achievable for many older people with age-related health and support needs. Increasing focus is being given to anticipatory and/or restorative models of care that enable older people to live in the community ('age in place') by addressing emerging health and support needs or supporting quicker recovery.

ARRC services are often more expensive than community based support services, both for the government and for individuals.

Nelson Marlborough

NM has the lowest rate of ARRC use (as measured by bed-days per 1,000 people aged 65 years and over) in the South Island. It is slightly lower than the NZ average. Tasman has the lowest rate of ARRC use in NM largely due to fewer aged care beds in the locality. Marlborough and Nelson rates are similar.

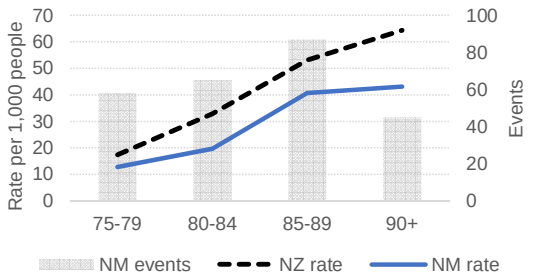
In recent years, there has been a decrease in overall ARRC use in NM (and across NZ), primarily as a result of decreasing rest home utilisation (the least intensive form of long-term support). Hospital and dementia utilisation has been increasing, reflecting increasing complexity of older people's needs. This is expected to continue.

The DHB spends around 11.3% of its revenue on disability support services, primarily for people aged over 65 years. This compares to a NZ average of 9.6%. About 70% of the DHB's disability support services is spent on residential care (NZ 68%), with a further 23% spent on a range of community based support services (NZ 23%). Further opportunities should be explored to enable ageing in place.

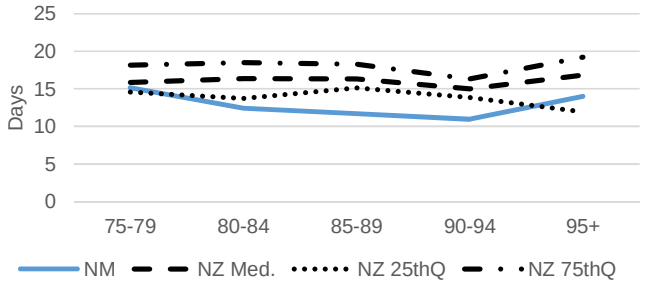
NM demand for hospital level and dementia care is projected to increase over coming years

9.2 Assessment, Treatment & Rehabilitation (AT&R)

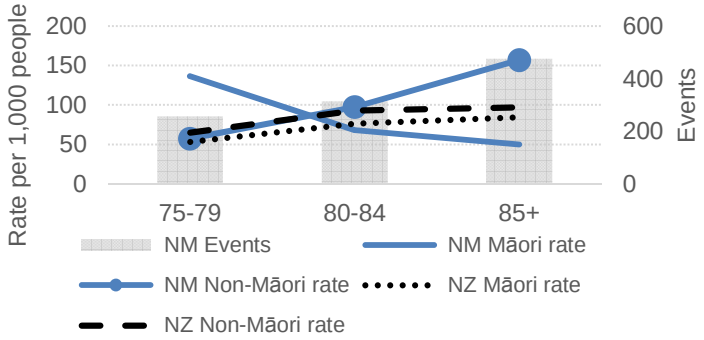
AT&R hospitalisations per 1,000 people – 2013/14



AT&R length of stay – 2013/14



AT&R outpatient clinics per 1,000 people aged 75+ years – 2013/14



Source: Ministry of Health, HPCG analysis

NM residents are less likely to be admitted to an AT&R facility than the average New Zealander

Why is this important?

Health of the Elderly inpatient care, also known as assessment, treatment and rehabilitation (AT&R) or geriatric care, refers to care that normally follows an acute hospitalisation of an elderly person in need of more treatment and recuperation prior to returning home.

Inpatient stays of this nature have become much shorter in recent years as the dangers of prolonged bed rest have become apparent. Patients are now encouraged to ambulate as soon as possible, returning home as soon as it is safe to do so with support and active rehabilitation in a community--based setting. The home setting with its familiar surroundings can also reduce the risk of exacerbating dementia symptoms.

Utilisation of outpatient AT&R clinics is higher in NM than across New Zealand

Nelson Marlborough

NM has a lower AT&R hospitalisation rate than the national average despite having an older population. This is likely explained by the shift towards community-based rehabilitation and support and is encouraging. Care will be needed to ensure that this does not mean there is limited access for complex rehabilitation services within the district, particularly as the number of elderly continue to increase. Utilisation increases steadily by age which is typically expected.

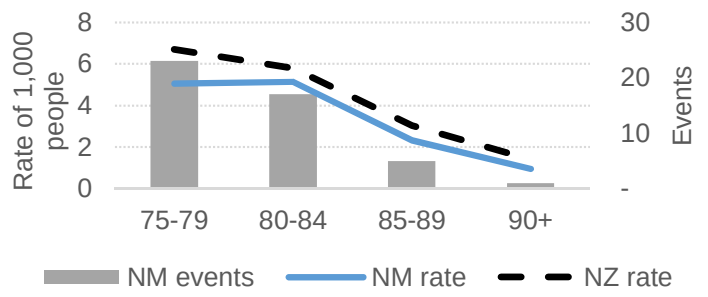
The average length of stay in AT&R facilities within NM is below the national average, sitting within the bottom quartile across the country for most age groups with the exception of 75-79 and 95+ years.

Rates of outpatient AT&R utilisation is in line with the NZ average for 75 to 84 year olds but significantly higher (50 visits per 1,000 people) for residents aged 85+ years. Small numbers make it difficult to assess, but Māori access to AT&R outpatients appears good. Some services are not available across the district (eg stroke in Marlborough) so this overall may hide local differences.

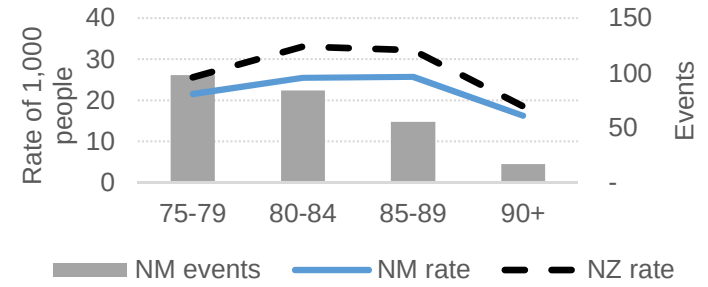
See related: 1.1 & 1.3 Population growth and ageing

9.3 Select intervention rates

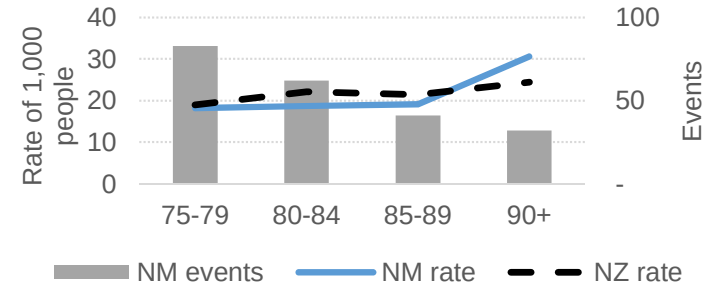
Cardiac intervention rate for people aged 75+ – 2013/14



Cataracts intervention rate for people aged 75+ – 2013/14



Major joint intervention rate for people aged 75+ – 2013/14



Source: Ministry of Health NMDS, HPCG analysis

NM residents aged 75 years and over have comparable access to the NZ average for procedures that can improve quality of life

Why is this important?

Healthcare intervention may be necessary at older ages to ameliorate the effects of the ageing process. This may include cardiac, cataract and major joint interventions. While it is always important to be wary of over-intervention, these interventions can improve the quality of life for older people including their ability to perform tasks of daily living, age in place and actively participate in family and community life.

The Ministry of Health provides intervention rate guidance to DHBs for specific clusters of procedures. The rationale for this is to ensure that New Zealanders have equitable access to these procedures.

DHB use clinical need thresholds to determine access to interventional procedures. This includes assessing alternative approaches such as medical rather than surgical management for individual patients. These are clinically-led decisions.

Nelson Marlborough

NM residents aged 75 years and over appear to have comparable access to a range of procedures that can improve quality of life at older ages:

ASR per 1000 people age 75+

Procedures	NM	NZ	Ratio	Sig.
Cardiac	4	5	0.8	No
Cataracts	23	28	0.8	No
Major joints	20	21	0.9	No

The observed difference in intervention rates between NM and NZ (eg cataracts) may reflect a lower burden of disease in NM due to demographic factors and/or impacts of relatively healthier lifestyles. Alternatively it may represent barriers to access. Currently, the DHB is at its Ministry of Health assessed access rate for elective surgery (~103% of the DHB's Health Target benchmark – 2014/15 Q2).

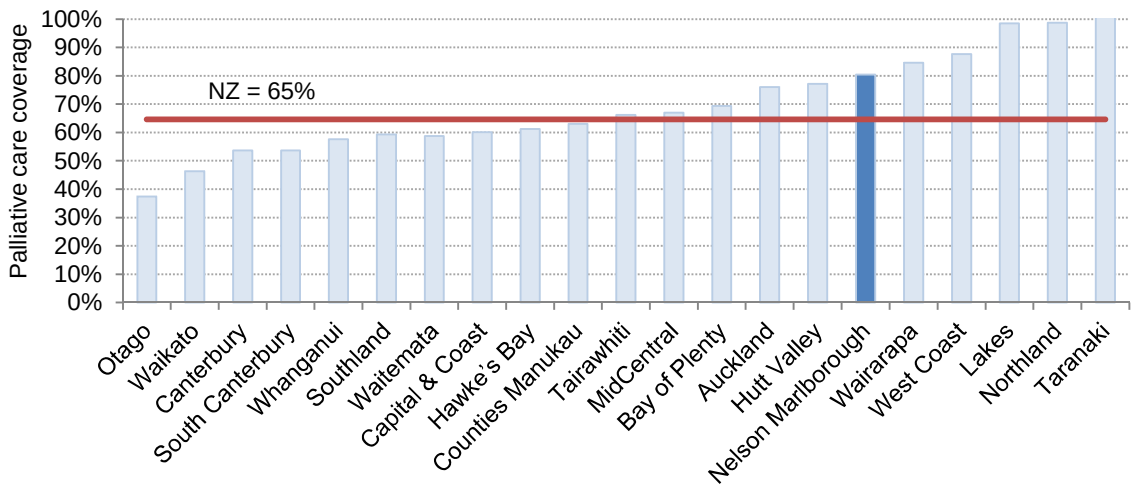
The DHB will need to continue to deliver on the national Health Target, and assure itself that it is optimally intervening for the health needs of its older population. This will include weighing up the appropriate balance between medical and surgical intervention, and efforts to promote healthy ageing.

The DHB will need to continue to assure itself that it optimally intervening for the health needs of its older population

See related: 7.1 & 7.2 Hospitalisation rates

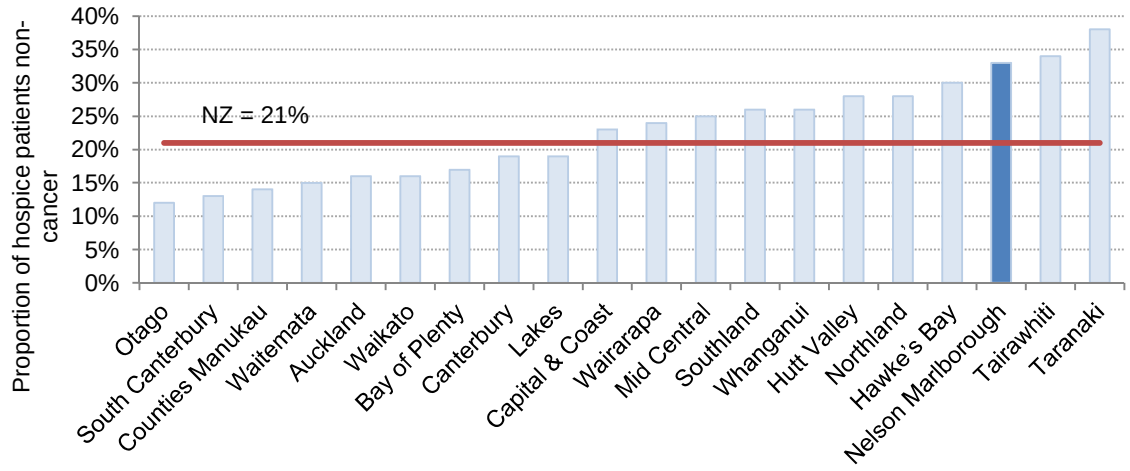
9.4 End of life care

Palliative care referrals –coverage of potentially needful deaths 2010/11



Compares accepted referrals with the proportion of deaths likely to have benefited from palliative care services. The % measure is the % of deaths so covered – ie for NZ overall around two-thirds of the potential deaths were covered.

Proportion of hospice patients with non-cancer diagnoses, 2010/11



Source: Palliative Care Council 2013.

NM residents have reasonable access to palliative care services

Nelson Marlborough

Increasingly people are looking for quality in life in addition to quantity of life. For many chronic illnesses good palliative care in the last six months or year of life can do both. NM residents appear to have good access to palliative care services. Based on accepted referrals around 45% of deaths in NM had palliative care involvement in 2011 compared to a nominal target of 56% (based on Palliative Care Council figures). This gave an estimated 80% coverage, higher than the average coverage for NZ of 65%.

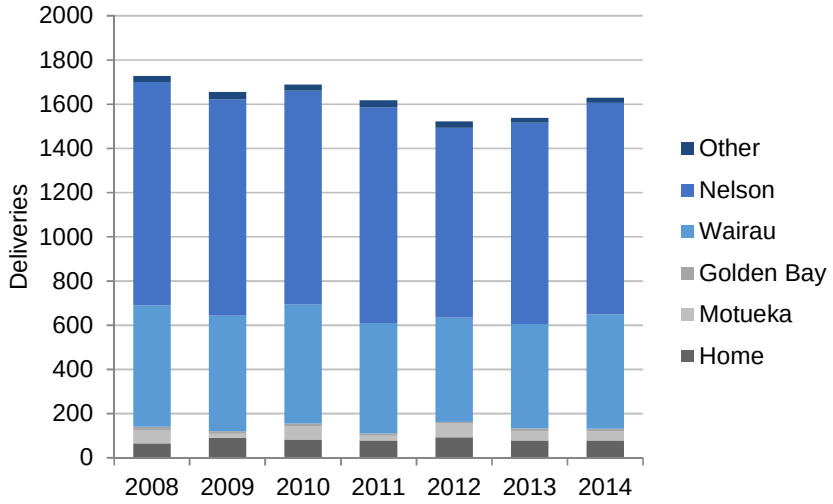
Traditional palliative care had a focus on cancer - a potentially large number of people with a non-cancer diagnosis would benefit from palliative care but are currently not receiving it, eg people with cardiovascular diagnoses, such as ischaemic heart disease, congestive heart failure and stroke. NM had the third highest proportion of non-cancer patients at 33%, well above the NZ average of 21%. The Palliative Care Council suggests at least 50% of the palliative care load could be for non-cancer patients.

Increasing the proportion of non-cancer patients in palliative care may be beneficial

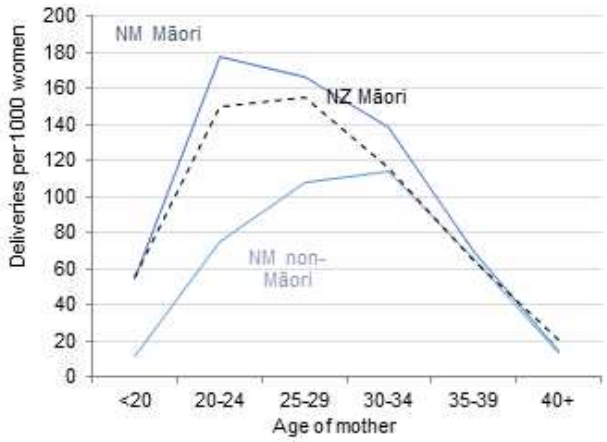
Section 10
Maternity

10 Maternity

10.1 The NM birth rate has been relatively stable over the past 7 years. The rate of birthing in primary maternity units is relatively low.



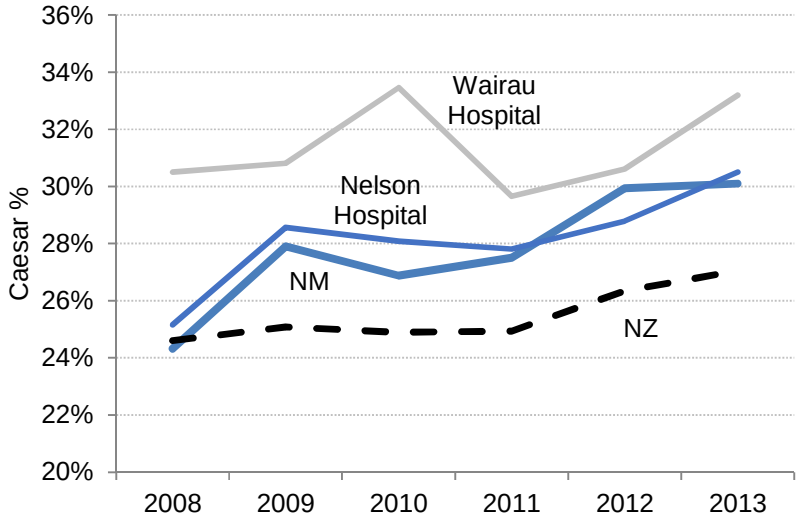
NM Māori have a higher birth rate than non-Māori. Teenage birth rates are particularly high for Māori

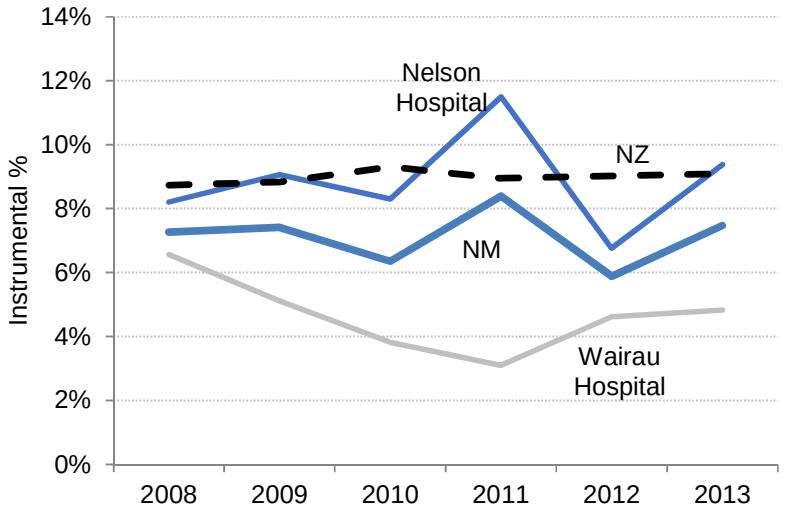


10.2 1 in 3 NM women were not enrolled in the first trimester.
34% of NM Māori women (10% non-Māori) smoke in their pregnancy
20% of NM mothers are obese, 3% morbidly so.

10.3 NM women use local hospital services for maternity almost exclusively

10.4 NM women have a higher Caesarean rate than the NZ average, representing an extra 50 Caesarean sections per year. Rates have been rising. Instrumental delivery rates are below the NZ average.



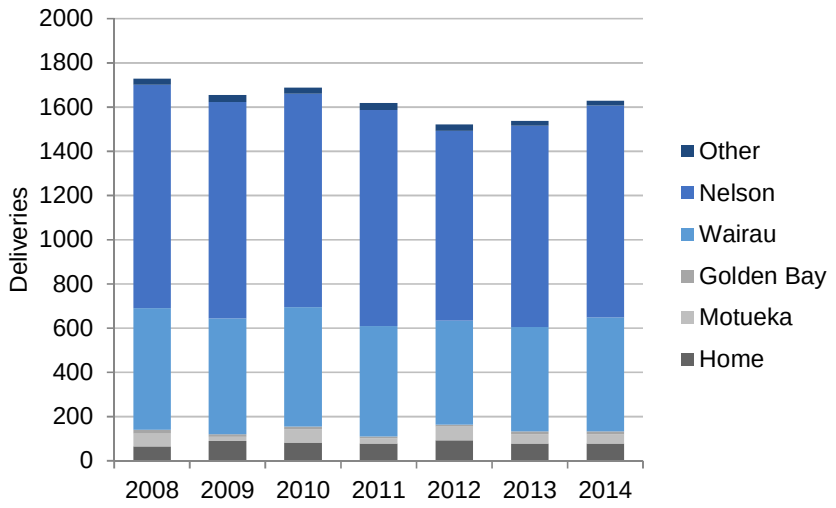


10.5 NM women have good local access to termination services. Rates have been falling recently.

NM birth rate has been relatively stable over the past 7 years

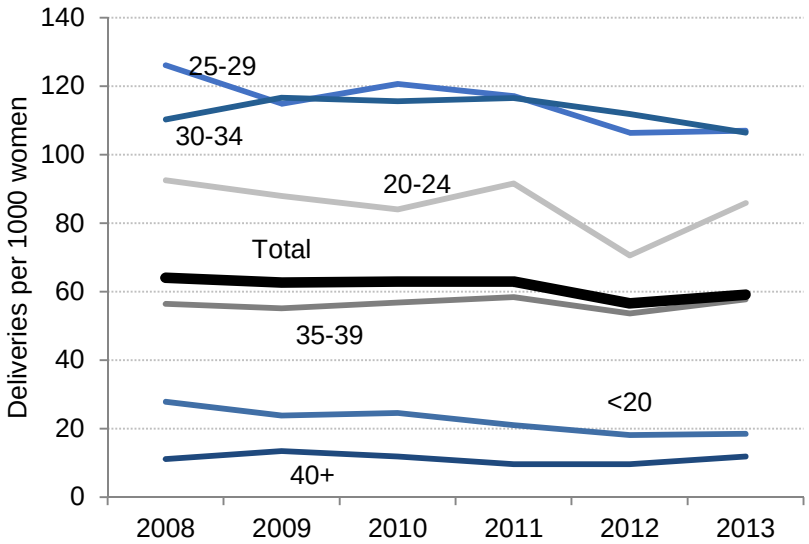
10.1 Fertility

NM deliveries by place of delivery 2008-2014



'Other' = hospitals outside NM; 2014 data provisional. Grey = home/primary.

NM deliveries by age group 2008-2013



Source: MAT, NMDS, based on women resident in NM.

Why is this important?

Pregnancy and birth are essentially normal physiological processes, with maternity services there to assist if necessary. Maternity care can affect women's physical, emotional and psychological health throughout their life - conditions such as pre-eclampsia and gestational diabetes resolve after pregnancy, but can be associated with higher cardiovascular mortality in later life. The start point of a person's health and wellbeing is established during pregnancy and childbirth, setting their development path and ability to reach their full potential.

How is this measured?

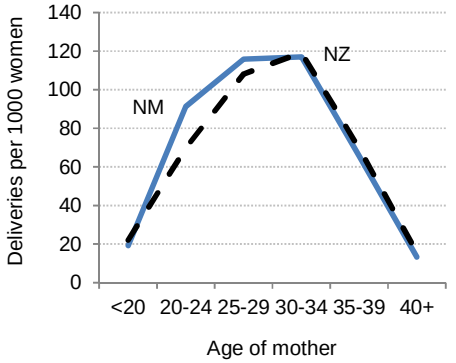
This analysis uses data from the National Maternity Collection (MAT), and as recorded in the NMDS – that is, births occurring in public hospitals. The most recent MAT data available is for 2013 calendar year; NMDS data has been matched to that. Data was also sourced from the NMDHB Maternity Annual Report 2013/14, and the NMDHB inpatient data set. Some provisional figures for 2014 are available and are shown in the top graph opposite, but the analysis concentrates on the 2013 year.

NM has a relatively low rate of deliveries in primary units

Nelson Marlborough

The number of deliveries to NM mothers has been relatively stable over the past 7 years, at around 1600 per year. The overall total did follow the pattern for the rest of NZ in falling after the 2009-10 financial crises to a low of 1521 in 2012 before recovering. Deliveries at home (average 81 per year) or in primary settings (Golden Bay (12) and Motueka (44)) made up 8-9% of all deliveries, (NZ average 12%). While home births at 5% were above the national average of 3%, births in primary facilities at 3.5% were less than the 8.5% nationally.

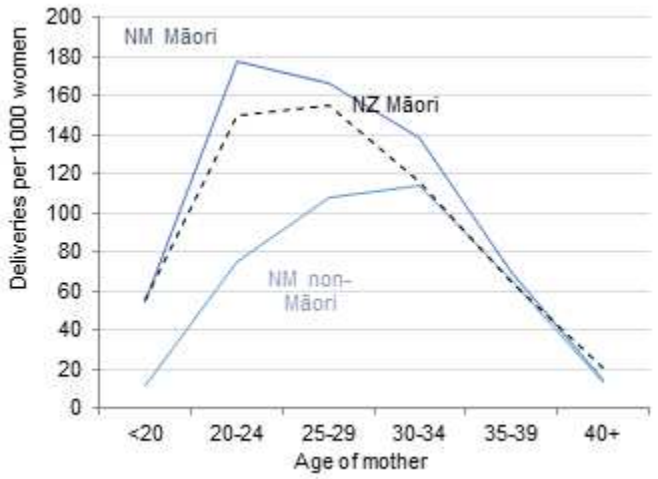
Fertility has fallen very modestly, ending at 59 births per 1000 women per year for NM in 2013, less than the New Zealand rate (66). The fall is seen across all age groups apart from 35-39 and 40+. The NM age – fertility profile in 2013 was similar to that of NZ (graph below).



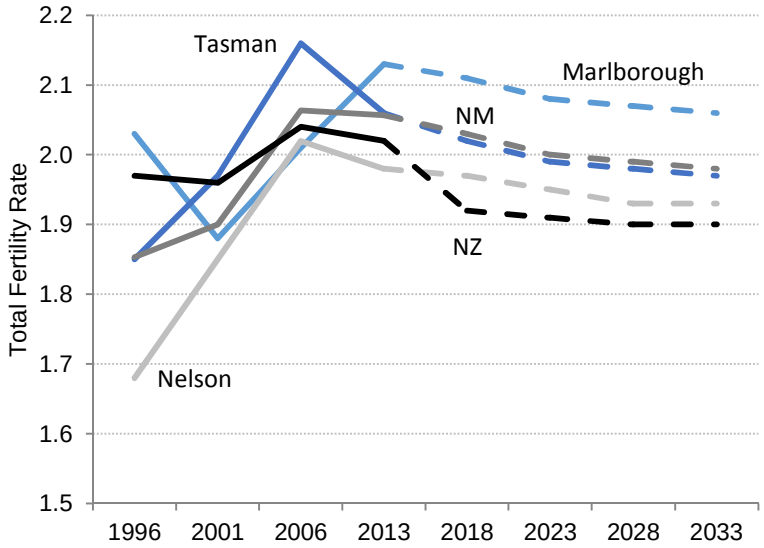
See related: 1.1 Population size, 10.3 Maternity flows

10.1.1 Fertility continued

NM delivery rates by age and ethnicity 2013



NM TFR by locality 1996-2013, projected to 2033



Source: MAT, NMDS for top graph, Statistics NZ for lower graph

NM Māori have a higher birth rate than non-Māori. Teenage birth rates are particularly high for Māori

Why is this important?

Fertility varies by age, ethnicity and locality. Changes in fertility in the future may require changes in service provision. Teenage pregnancies are linked with conduct disorders in early adolescence, poor school achievement, family adversity, and early onset sexual intercourse. While some communities and whanau welcome and support teenage mothers and their babies, lower teenage pregnancy rates generally greater long-term health gains for mother and child.

How is this measured?

Data sources are discussed in Section 10.1 above. The total fertility rate (TFR) is an estimate of the number of babies a women would have over her life if the current age-specific rates applied. TFR projections are used by Statistics New Zealand to estimate future birth projections. Traditionally a TFR of 2.1 is considered a 'replacement' rate, signalling a population where births might match deaths.

NM has a slightly higher fertility rate than NZ, but this is expected to decline over time

Nelson Marlborough

Māori women in NM had 295 deliveries in 2013, 19% of the total, while making up 12% of women aged 15-44. The fertility rate at each age group was slightly higher than the rate for Māori in NZ as a whole; both were much higher than non-Māori rates. The rates were particularly higher for younger mothers – half the births to teenagers in NM were for Māori mothers (who made up 17% of 15-19 year olds), and a third of 20-24 year old mothers (16%). If Māori teenagers had had the same birth rate as their European counterparts in 2013 the number of births would have been 8 instead of 38. An increased focus on Māori youth, eg to improve sexuality education or access to contraception, seems indicated.

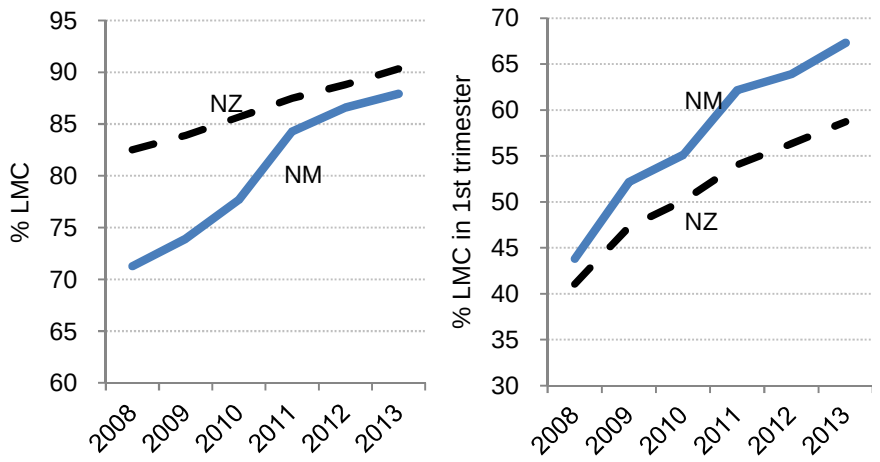
The TFR for Māori in NM was 3.1, compared with 2.8 for NZ Māori and 2.1 for NM overall. Fertility rates by locality have been volatile in the past. They rose faster than the NZ average through the 2000s in all localities such that by 2013 Tasman (2.06) and Marlborough (2.13) are higher than NZ (2.02), while Nelson was a little lower (1.98). Statistic NZ medium projections are for a slight drop in fertility over the next twenty years, although NM is anticipated to remain higher than the NZ average, with Marlborough the highest locality.

See related: 1.1 Population growth

One third of NM Māori women smoke during their pregnancy

10.2 The pregnancy

NM LMC enrolment rate, overall and in first trimester 2008 - 2013



Smoking in pregnancy, NM compared with NZ, 2013

	Māori	Non-Māori	Total
NM smokers	90	108	198
NM %	34%	10%	15%
NZ %	38%	7%	15%

MAT - % based on those with smoking information recorded

Obesity in pregnancy, NM compared with NZ, 2013

	Māori	Non-Māori	Total
NM Obese	25%	15%	17%
NZ Obese	28%	17%	20%
NM Morbidly obese	6%	3%	3%
NZ Morbidly obese	5%	3%	4%

MAT - % based on those with BMI information recorded.
Obese = 30-39 BMI, morbidly obese = 40+ BMI

Source: MAT. NM = all resident women

Why is this important?

Timely antenatal care assists mothers to have a safe pregnancy and childbirth. Timely interventions to address risk factors such as smoking and obesity, while ideally started before pregnancy is planned, can be more effective if started earlier in the pregnancy.

How is this measured?

Data is sourced from the National Maternity Collection (MAT). Lead Maternity Carers (LMCs) ensure data is collated and entered in MAT.

No estimate was available for the use of alcohol during pregnancy in NM. A study in Taranaki (Ho & Jaquemard 2009) found that drinking large volumes of alcohol before pregnancy was common - among those who drank - 26% reported having four or more drinks on a single occasion at least monthly. This kind of drinking pattern increases the risk of damage to a foetus in the early stages of pregnancy when a woman might not be aware she is pregnant. The Growing up in NZ study found 7% of mothers drank 4 or more units a week in the first trimester (Morton et al 2010).

Rising obesity and morbid obesity rates are increasing obstetric risk.

Nelson Marlborough

NM had a slightly lower overall LMC enrolment than the NZ average, but a higher proportion of women enrolling in the first trimester. Both rates have been rising steadily, but still leaves 1 in 3 NM women not enrolled in the first trimester.

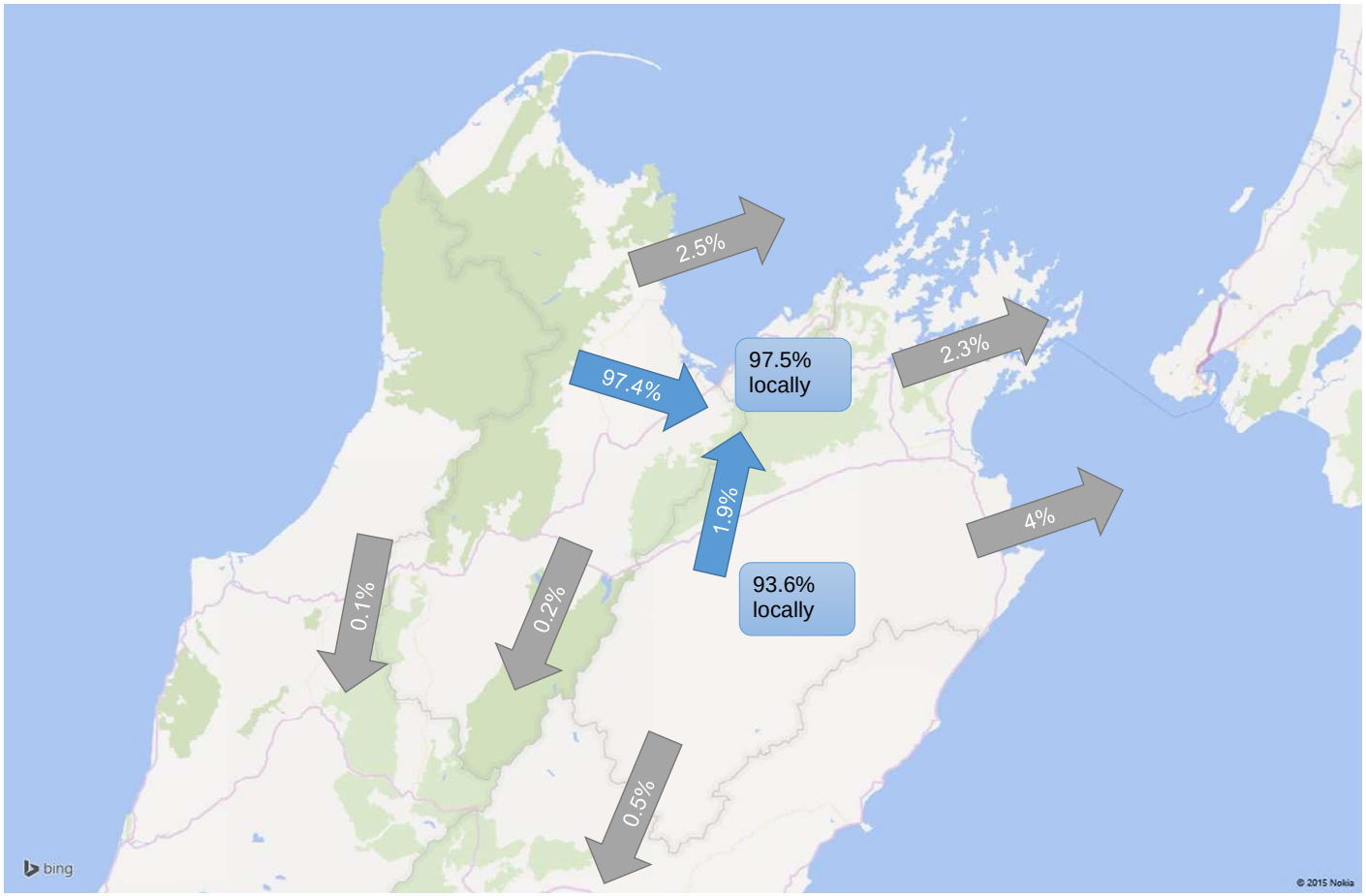
Māori women in NM were three times more likely to smoke during their pregnancy than non-Māori. With a third smoking the rate was similar to that for NZ Māori – at a similar rate to non-Māori there would have been 60 less smokers. The non-Māori smoking rate was also higher in NM than NZ overall, consistent with the higher young adult smoking rates seen in Section 4.1. It equated to 15 additional smokers in pregnancy.

Obesity rates in pregnancy for NM mothers were similar to NZ rates, with 25% of Māori women and 15% of non-Māori obese, and 6% and 3% morbidly obese. That is nearly 1 in 3 Māori mothers (31%) and 1 in 5 non-Māori mothers (18%) were at increased risk during their pregnancy through obesity.

There were ~200 antenatal hospitalisations in 2013, or around 1 per 8 deliveries. This was lower than the national average of around 1 per 4 deliveries.

See related: 4.1 Smoking, 4.2 Alcohol, 4.3 Obesity

10.3 Hospitalisation flows for maternity



Grey arrows indicate flows to non-NMDHB facilities. Blue arrows indicate flows to Nelson Hospital.

Source: Ministry of Health NMDS, HPCG analysis

Nelson Marlborough

Nearly all (97%) maternity hospitalisations for NM residents occur within Nelson Marlborough. The remaining hospitalisations occur in the North Island (~3%) or at other hospitals in the South Island (~0.3%). These hospitalisations tend to be for specialised services not provided in NMDHB hospitals (or are for NM residents who are temporarily in other parts of NZ).

Nelson and Tasman residents are almost exclusively hospitalised at Nelson Hospital, with around 2% of Marlborough resident hospitalisations also occurring at Nelson Hospital. Note the local flow for Tasman includes the deliveries in primary settings - Golden Bay (12 in 2013) and Motueka (44).

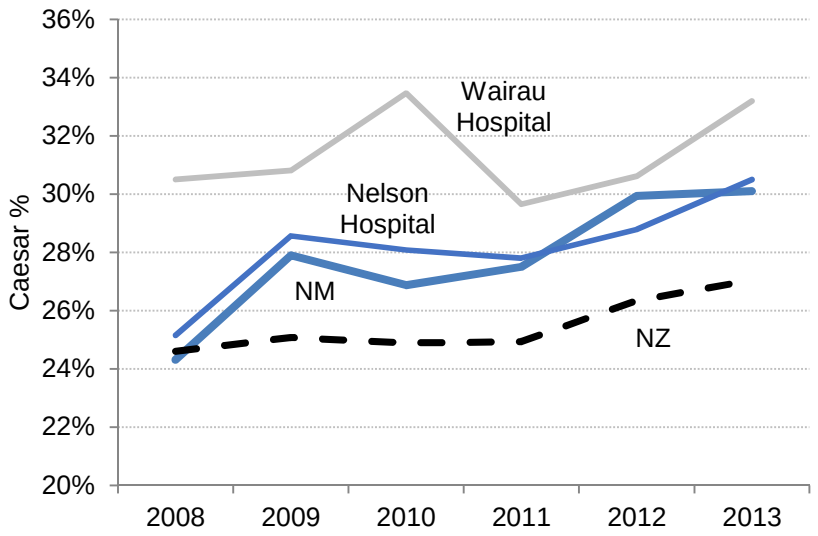
Wairau Hospital almost exclusively serves the Marlborough population for maternity services. Wairau Hospital seems to refer patients needing more specialised services to Wellington Hospital more often than to Nelson.

Wairau Hospital refers to Wellington Hospital more often than Nelson Hospital

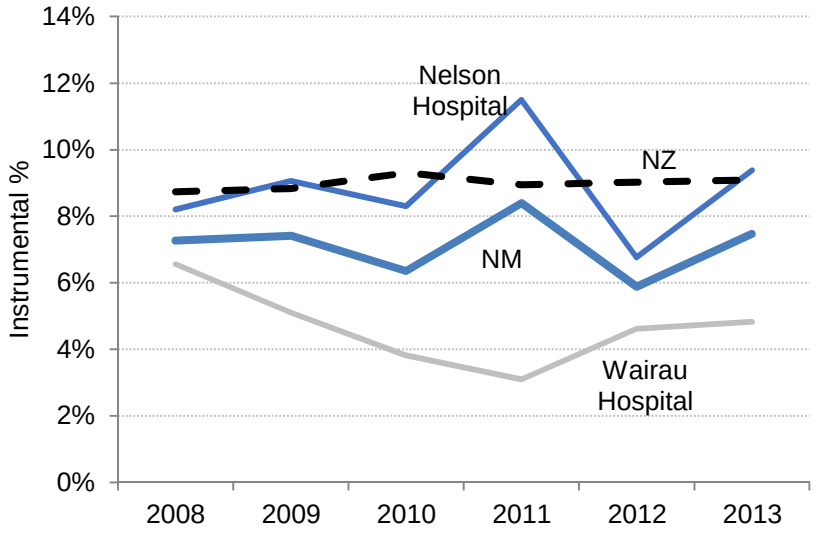
See related: 7.7 Hospitalisation flows

10.4 Birth outcomes

NM Caesarean rate by facility and overall, 2008 - 2013



NM Instrumental delivery rate by facility and overall, 2008 - 2013



Source: NMDS – excludes home births. Includes elective and emergency Caesars, includes forceps and ventouse instrumental interventions. NM = all resident women

NM women have a higher Caesarean rate than the NZ average, representing an extra 50 Caesarean sections per year

Why is this important?

Maternity services strive to maximise the chances for women to achieve a normal childbirth whilst ensuring the safety of mother and baby at all times.

How is this measured?

Data sources are discussed in Section 10.1 above.

Birth outcomes are discussed in detail in the *NMDHB Maternity Annual Report 2013/14*, based strongly on the national maternity clinical indicators work. This work uses a 'standard primipara' definition to identify a group of women for whom interventions and outcomes should be similar and thus comparable across DHBs. There reader is referred to that report for details. The main caveat for using the standard primiparae is that it only applies to a small number of births – for NM around 200 or ~13% of all births. In general the indicators show NM to have rates consistent with the national results – the report details each indicator and responses to the results. The main areas suggesting further work were induction of labour rates and Caesar rates

The NM Caesar rate is climbing faster than the NZ average

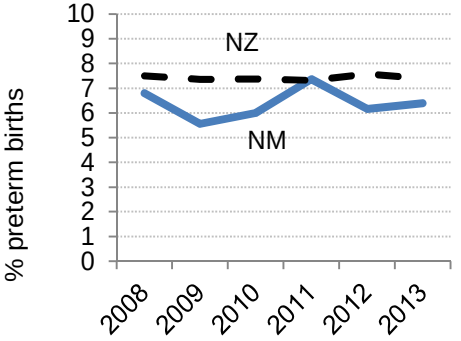
Nelson Marlborough

NM had 445 Caesarean deliveries in 2013, 30.5% of facility-based deliveries. The equivalent for NZ as a whole was 27%. The NM rate has risen steadily over the past five years. Wairau hospital at 33% has a higher rate than Nelson hospital at 30%, but it is Nelson hospital that has increased more. The difference to the NZ rate represents around 50 additional Caesarean sections per year – around one a week.

.

In 2013 there were 109 deliveries assisted with forceps or ventouse extraction for NM women. The rate has been consistently below the NZ average, particularly at Wairau Hospital – perhaps linked to the higher Caesar rate there. This represents 25 fewer instrumental deliveries per year than the NZ average.

Preterm delivery rates have been less than the NZ average:



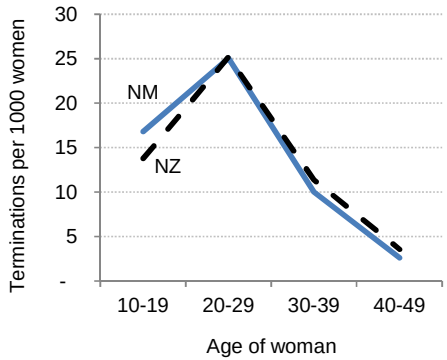
10.5 Terminations of pregnancy

Medical terminations NM and NZ, 2011/12 – 2013/14

	2011/12	2012/13	2013/14
NM numbers	430	401	328
NM rate	17.7	16.7	13.7
NZ rate	16.6	16.7	14.1

Rate per 1000 women aged 15-44

Medical termination age-specific rates, NM and NZ 2013/14



Termination rate ratio, NM 2013/14

Locality	rate ratio	
Marlborough	0.95	
Nelson	1.14	
Tasman	0.89	
Māori vs non-Māori	2.74	*

Teenage conceptions, NM 2013/14

	Māori	non-Māori	NM
Deliveries	38	40	78
Terminations	13	55	68
Miscarriages etc	8	10	18
Total	59	105	164
% Termination	22%	52%	41%

<20 year olds, deliveries from MAT, NMDS (ie public hospital recorded) for terminations and miscarriages. Not all miscarriages will be captured.

Source: NMDS, HPCG analysis

Why is this important?

Termination services are an important part of the maternity system, allowing the avoidance of harm to the mother in specific circumstances. The system is simultaneously looking for good local access to services while having the goal of as low a rate as possible – better contraception always being of better value. Nationally termination rates have been falling:

"We believe that increased education and importance placed [on] the use of contraception may provide some explanation for the falling abortion numbers" (ASC 2013, p6)

How is this measured?

Data used here relates to terminations recorded in the NMDS – that is at public hospitals. Some services do not report to the NMDS (eg Epson Day Clinic in Auckland) so the NZ rate presented here only includes DHBs with essentially fully included services. National and NM rates appear consistent with the ASC 2013 report. Some miscarriages require a hospitalisation for treatment so can be identified in the NMDS, allowing a partial 'conception' rate to be calculated. Early miscarriages and ECP ('morning after pill') will not be captured.

Nelson Marlborough

NM women had 328 medical terminations in 2013/14, of which 224 were at Nelson Hospital and 92 at Wairau Hospital (ie 96% combined). The termination rate at 13.7 per 1000 women was similar to the NZ average, and has been falling in a similar fashion since 2006 (Norrish 2014c), which is encouraging. Long-term contraceptive implants such as Jadelle may be assisting this trend.

The age profile of NM women getting a termination was nearly identical to that for NZ, with rates peaking in the 20-29 year old group. There was no significant difference in rates across localities in NM. While Māori had a higher rate of terminations per head, it was lower than the birth rate. The lowest table on the left shows an estimate of the teenage conception rate. On that measure Māori teens terminated 22% of their conceptions in 2013/14, less than half the 52% rate seen for non- Māori. The overall NM teenage termination rate of 41% was the same as that seen nationally (40%).

A continued focus on good contraception advice and availability will assist in maintaining the downward pressure on termination rates.

The NM termination rate is falling

See related: 10.1 (Teenage) Fertility

Section 11
Mental Health and Addictions

11 Mental health and addiction

Mental health and addiction disorders encompass a broad array of conditions across the life course. Social and environmental factors become implicated in illness progression and the recovery. The challenges of mental health and addiction illnesses carry some of the highest burdens for individuals, their families, their whanau and our communities. It can be associated with:

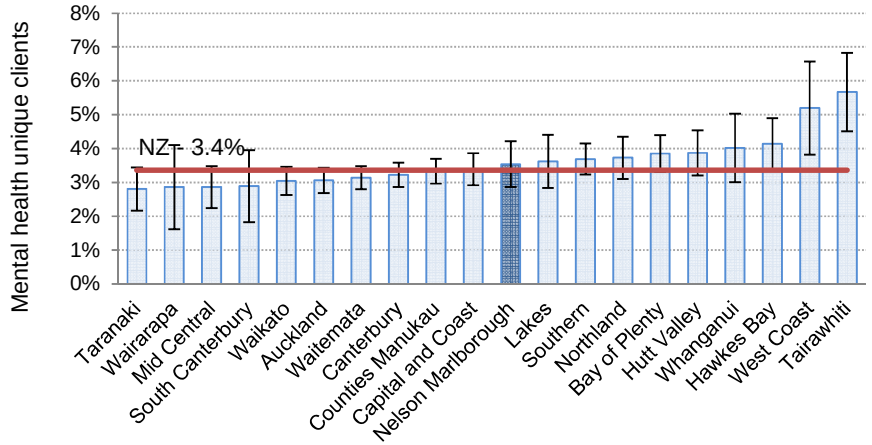
- Adverse life events in childhood and adolescence
- Adverse life circumstances such as poverty, unemployment, criminality and prisons
- Social and relationship difficulties
- Physical health issues.

Mental disorders at 11% were the third highest leading cause of health loss for New Zealanders at the condition group level behind cancers (17.5%) and vascular and blood disorders (17.5%) (MOH 2013).

11.1 Adults in NM are more likely to have been diagnosed with mood or anxiety disorders in the past than the NZ average – 21% of the adult population or 25,000 adults

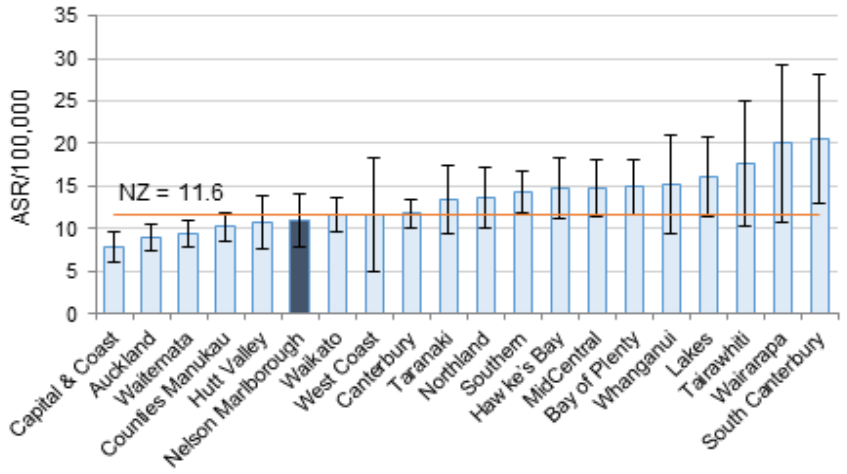
11.2 Current reported psychological distress in NM is lower than the NZ average (4% compared with 5.6%). Māori respondents have a higher rate than non-Māori in NM and nationally.

11.3 NM people have good access to mental health specialist services. Māori are higher users of services, as are males.

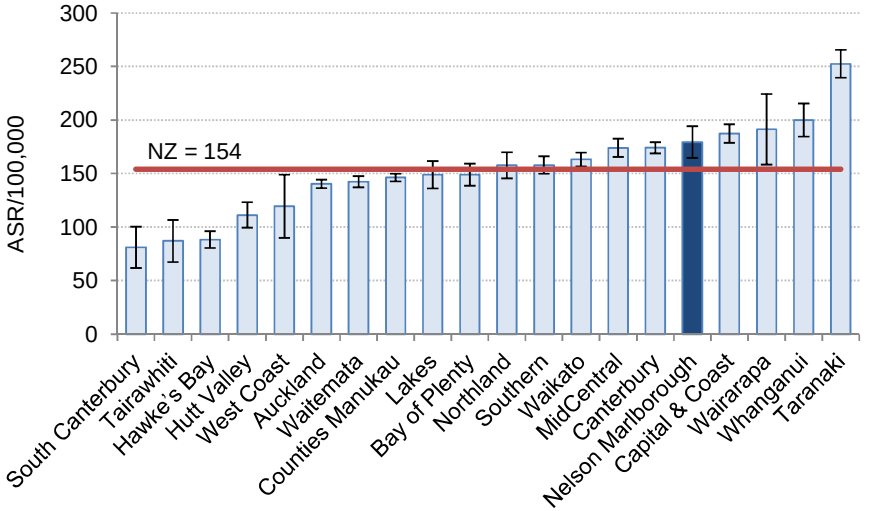


11.4 The majority of care for mental illness should occur in the community, with the appropriate balance of services reflected in low inpatient bed use. NM people have the lowest use of inpatient beds for mental health in NZ, but high numbers in supported accommodation.

11.5 In NM there was an average 16 suicides a year from 2008 to 2012, with an age-standardised rate similar to the national average.



NM people averaged 200 self-harm hospitalisations a year from 2010 to 2012, with an age-standardised rate slightly above the national rate.



11.1 Adults who have had mood or anxiety disorders

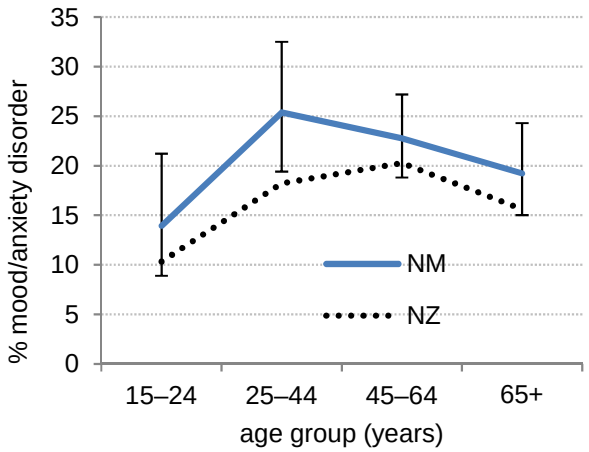
	2011/14	2006/07	change
NM	**21.4%***	15.6%	5.8%
NZ	17.0%*	12.7%	4.3%

NZ	rate ratio	
Men vs women	0.6	*
Māori vs non-Māori	1.0	
Most vs least deprived	1.4	*

* significant difference

An estimated 25,000 adults in NM have had a mood disorder diagnosis

Age distribution – mood or anxiety disorders NM and NZ 2011/14



Source: NZ Health Survey 2006/07 and 2011/14

Why is this important?

Mental health is an essential part of overall good health and wellbeing. People's ability to perform everyday tasks, manage socially and cope with anger or stress can be affected by mental health conditions. The NZ Burden of Disease study noted anxiety and depressive disorders as accounting for 5% of all illness, disability and premature mortality (MOH 2013).

How is it measured?

Data on mood disorders is collected by the New Zealand Health Survey (MOH 2014). It includes people who reported that at some time in their life a doctor has told them they have depression, bipolar disorder and/or anxiety disorder (including generalised anxiety disorder, phobias, post-traumatic stress disorder and obsessive-compulsive disorder). It is self-reported, so may underestimate the lifetime prevalence – note also that the person may not have the condition currently, and it may not necessarily be a good predictor of need for future services. The apparent large jump in prevalence since 2006/07 in NM and NZ overall may be due to people being more prepared to acknowledge and/or understand past diagnoses following national mental health awareness campaigns.

Nelson Marlborough

The rate of mood disorder and anxiety in NM is significantly higher than the NZ average, with 21% of all adults noting such a diagnosis in the past. The rate has risen over the past seven years, following the significant increase seen in NZ. An estimated 25,000 people living in NM had had a mood disorder or anxiety diagnosis in the past.

Men were much less likely to state that they had had a mood or anxiety disorder diagnosed than women with a rate ratio of 0.6 – that is 60% of the female rate. Māori standardised rates were the same as non-Māori nationally, and this was likely similar in the NM data where Māori had a 25% (unstandardised) rate compared to 21% for non-Māori. Deprivation was associated with a 40% increased risk of mood disorders (a rate ratio of 1.4).

Younger adults (15-24) are less likely to have been diagnosed with mood disorders, with rates peaking in the 25-44 age groups. NM was higher than NZ at each age group.

Adults in NM are more likely to have been diagnosed with mood or anxiety disorders than the NZ average

11.2 Psychological distress

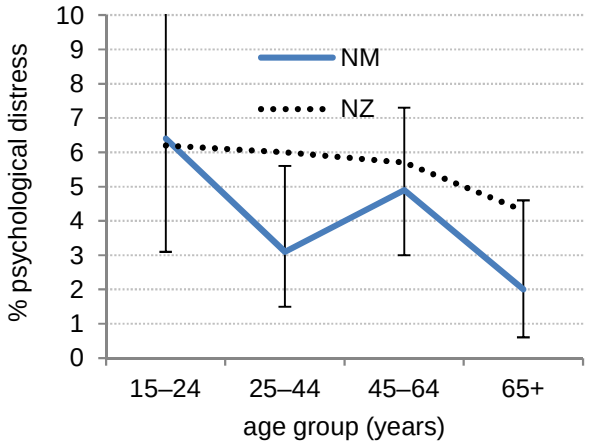
	2011/14	2006/07	change
NM	**4.0%**	8.5%	-4.5%
NZ	5.6%	6.6%	-1.0%

NZ	rate ratio	
Men vs women	0.7	*
Māori vs non-Māori	1.6	*
Most vs least deprived	1.7	*

* significant difference

An estimated 4,600 adults in NM have psychological distress at any one time

Age distribution – psychological distress NM and NZ 2011/14



Source: NZ Health Survey 2011/14 and 2006/07

Why is this important?

Mental wellness is difficult to measure and quantify. Psychological distress takes the opposite view, mental 'unwellness' if you will, equating to a person's experience of symptoms such as anxiety, confused emotions, depression or rage. It provides a marker for need for primary mental health services in a different manner than traditional mental illness diagnoses are able to do.

How is this measured?

The New Zealand Health Survey (MOH 2014) includes the Kessler-10 (K10) scale. Questions cover areas like feeling hopeless, feeling nervous or restless, depressed or feeling worthless. A score of 12 or more on the K10 scale indicates a high or very high probability of having an anxiety or depressive disorder in the past four weeks. It thus attempts to characterise current state rather than the past as for section 11.1.

NM has a relatively low rate of psychological distress

Nelson Marlborough

The rate of psychological distress in NM is lower than the NZ average, with 4% of all adults scoring 12 and above on the Kessler Scale compared with 5.6% nationally. The rate has dropped over the past seven years for both NM and NZ. At any one time an estimated 4,600 adults living in NM have psychological distress suggesting need for mental health care.

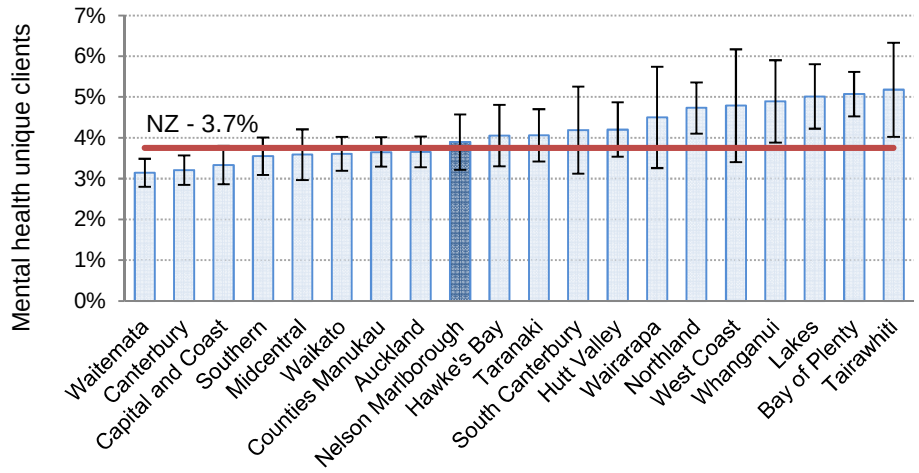
Men were 30% less likely to experience psychological distress than women nationally. Māori standardised rates of distress were 60% higher than non-Māori nationally. The NM survey data showed the same trend, where Māori had a 6.3% (unstandardised) rate compared to 3.8% for non-Māori. Deprivation was associated with a 70% increased risk of psychological distress – it may be that the relatively low NM rate of distress relates to the relatively low deprivation seen for the area – NM had the 6th lowest psychological distress rate of any DHB area.

Younger adults (15-24) tend to have higher rates of psychological distress, with rates dropping over the life span. NM rates were lower compared with NZ at each age group apart from 15-24.

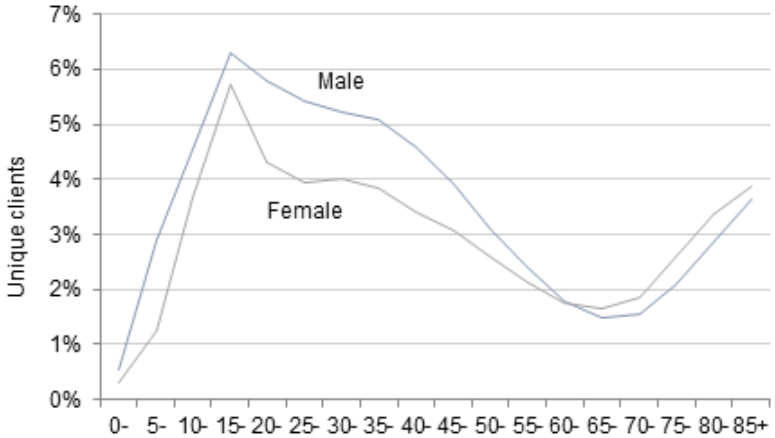
See related: 11.1 Mood disorders and anxiety

11.3 Mental health service clients

DHB comparison of mental health service unique clients, as percentage of the population, 2014



Mental health service unique clients as percentage of age group, NZ 2011/12



Source: PRIMHD data; 2011/12 is the latest data year available by age (MOH 2014c). Includes all DHB and NGO contacts recorded in PRIMHD. 99% confidence intervals shown.

Nelson Marlborough

A useful measure of access to specialised mental health services is a simple count of the number of different people accessing services in a year. This 'unique client' count is used by the Mental Health Commission (MHC) Blueprint planning process to assess service coverage. NM at 3.9% of the population accessing per year is just over the NZ average of 3.7% in 2014. Both are above the minimum standard suggested by the MHC of 3%. Over the past 4 years the NM rate has been stable, fluctuating between 3.9 and 4.1%.

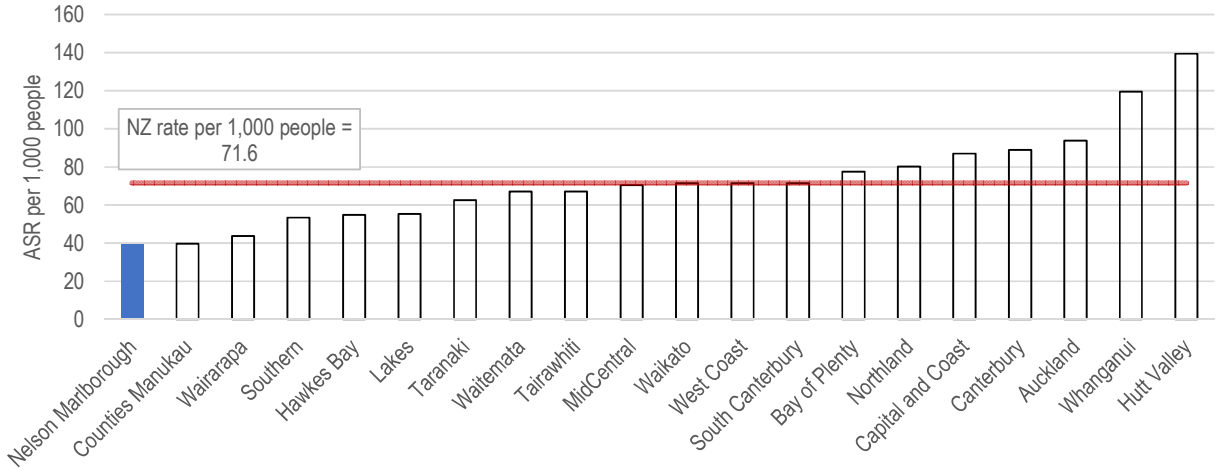
Mental health unique clients peak at the 15-19 age group with 6% of people of that age accessing services at least once in a year (6.3% males, 5.7% females). Rates tend to fall with age until the onset of age-related dementia and other conditions reverses the trend. Māori nationally had a 5.7% unique client rate, meaning the use of mental health services was around 70% more than the average. In contrast Pacific had a lower rate (2.9%) and Asian a very much lower rate (0.95%).

The mix of services in NM appears to be balanced, with the rate of inpatient care low (see 11.4 following).

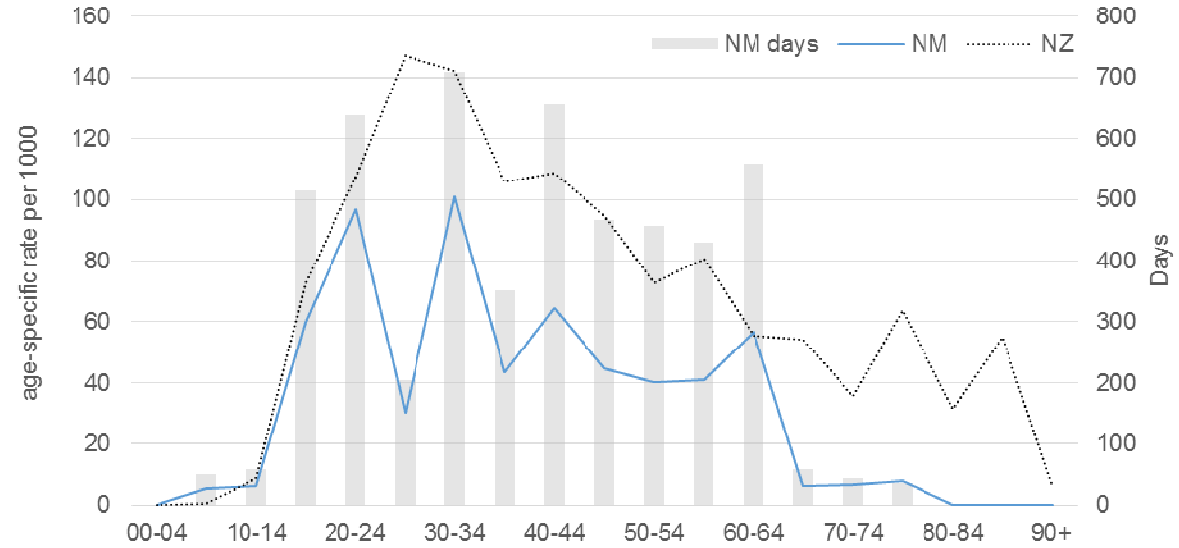
Māori people, and males, have a higher rate of use of mental health services

11.4 Hospitalisations for mental illness

DHB comparison of inpatient bed days for mental illness, age-standardised rate per 1000, 2013/14



Nelson Marlborough age-specific rates of mental health bed days compared with NZ 2013/14



Note: bars show actual numbers of days on right axis, lines are rates on left axis

Source: NMDS, HPCG analysis

Nelson Marlborough

NM residents, at 40 bed days per 1000 population per year, have the lowest public hospital inpatient occupancy rate for mental illness of any DHB area, significantly less than the national average of 72 bed days per 1000.

Hospitalisation rates jump steeply at the 15-19 year age group, then remain high to age 30-34 before tapering off somewhat in a similar fashion to that nationally. In the 20 to 34 age groups the equivalent of 0.5% of NM people of that age are admitted to hospital each year for mental health reasons (assuming each hospitalisation was for a different person).

Māori nationally had a 3-fold higher hospital bed day use than non-Māori, but the rate for Māori in NM was much lower – similar to the NZ non-Māori rate:

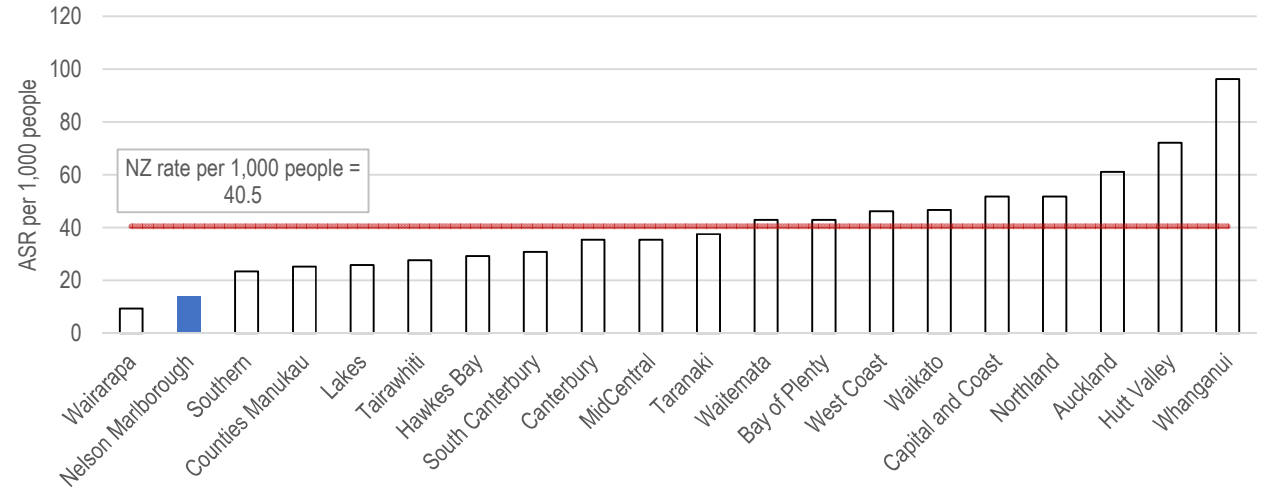
Mental health bed days age-standardised rate per 1000 persons 2013/14

Ethnicity	NM	NZ	Rate ratio
Māori	66.9	156.7	0.4
Non-Māori	36.9	56.0	0.7
Rate ratio	1.8	2.8	
Total	39.6	71.6	0.6

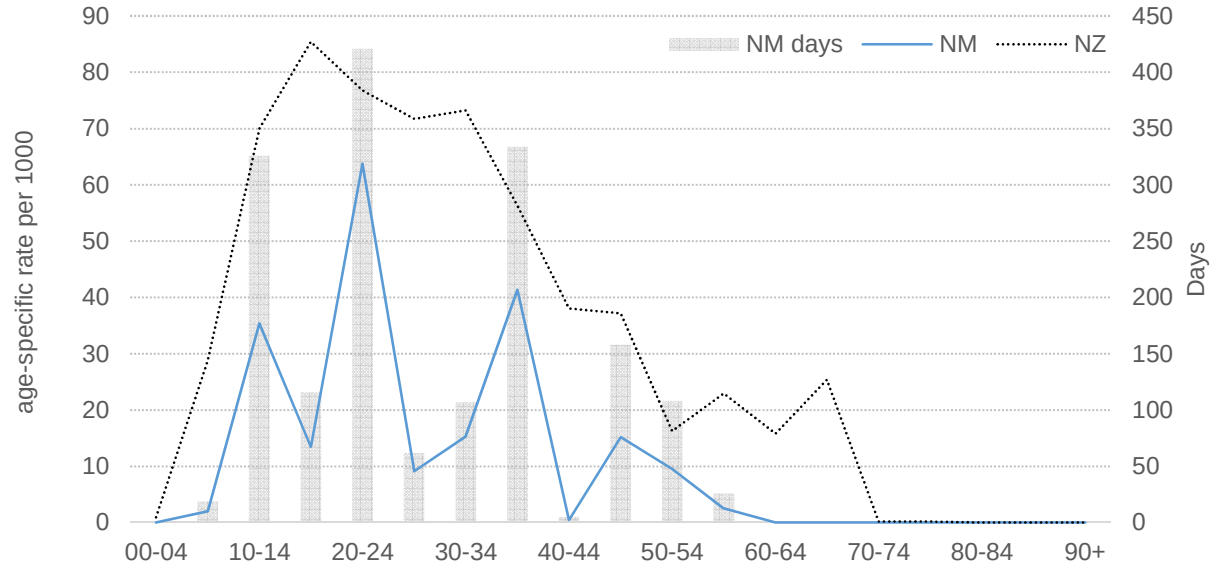
See related: 11.2 Psychological distress, 11.3 Mental health service clients

11.4.1 Hospitalisations for schizophrenia

DHB comparison of inpatient bed days for schizophrenia, age-standardised rates 2013/14



Nelson Marlborough age-specific rates of schizophrenia hospitalisation compared with NZ 2013/14



Source: NMDS, HPCG analysis. Note: in lower graph bars show actual numbers of days in hospital on right axis

Nelson Marlborough

Schizophrenia is the most severe of the mental illnesses. Early intervention treatment aims to moderate the worst aspects of the illness and avoid the need for acute hospitalisation. NM at 14 bed days per 1000 population per year has the second lowest public hospital inpatient occupancy rate for schizophrenia of any DHB area, significantly less than the national average of 40 bed days per 1000.

Hospitalisation rates jump steeply at the 20-24 year age group, consistent with the most common age of onset, remaining high to age 30-34.

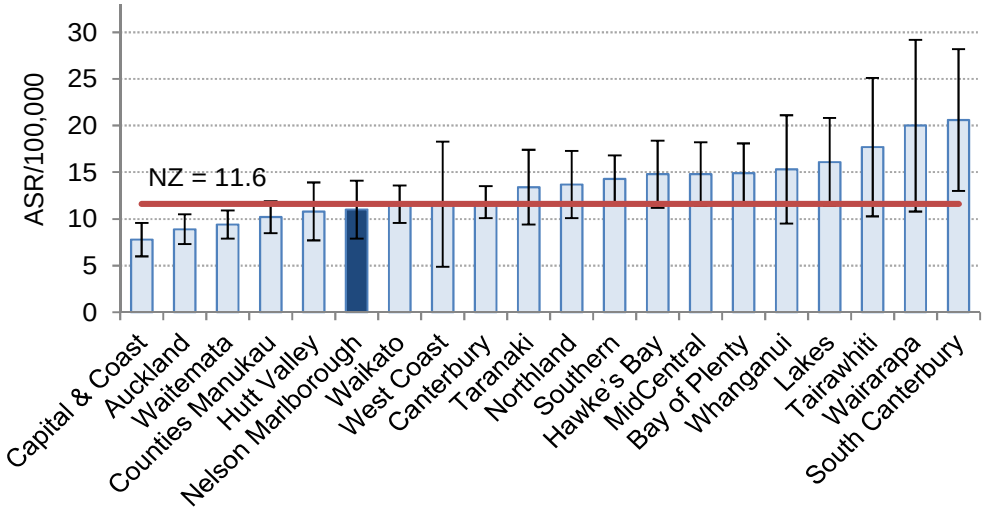
Māori nationally had a 3-fold higher hospital bed day use than non-Māori, numbers were too low in NM (14 hospitalisations in 2013/14) to calculate rates.

In the absence of any indication of low access to services or poor outcomes the picture of low use of hospital inpatient care for people with schizophrenia is a positive one, suggesting appropriately managed community-based care service provision and effective early intervention.

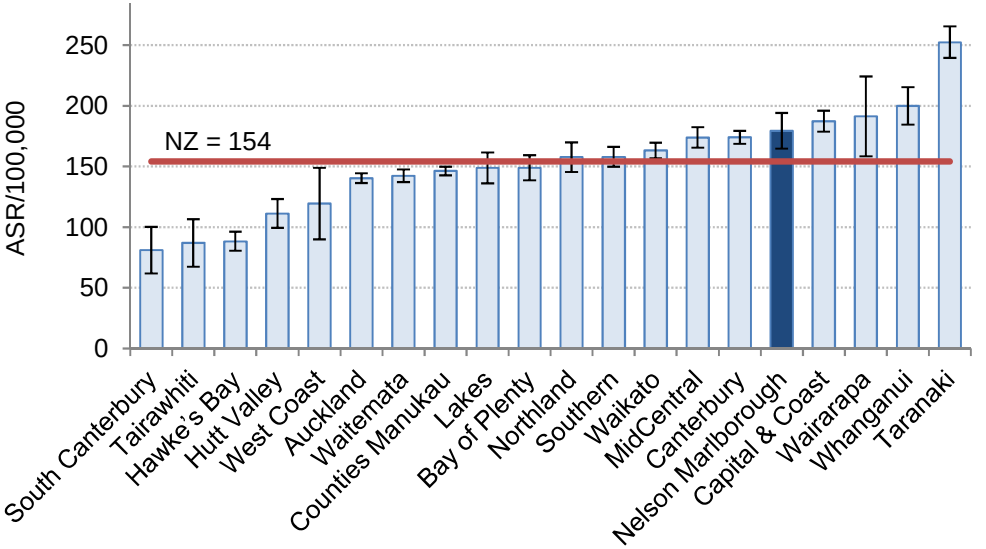
NM people have similar suicide rates to the NZ average. Males have a higher rates of suicide, as do Māori and those living in more deprived areas

11.5 Suicide and self-harm

DHB comparison of suicide rates, age-standardised per 100,000 population, 2008-12



DHB comparison of self-harm hospitalisations, age-standardised rates per 100,000 population, 2010-12



Source: Suicide Facts (MOH 2015b). Hospitalisations include ED only admissions. 99% confidence intervals shown. Age-standardised to the WHO standard population

Nelson Marlborough

While not specific to mental illness, suicide is often used as a marker for mental health, so is incorporated here. In reality suicide in a community is a wider public health issue and can reflect unemployment, social isolation, alcohol and drug problems among other issues.

Suicide is the second-highest cause of amenable mortality in NM (see 3.3). NM averaged 16 suicides a year from 2008 to 2012, 12 males and 4 females. The age-standardised rate was similar to the NZ average, though the lowest of the more rural DHBs. Of the 16 deaths per year, 2 were youth (age 15-24). Nationally the 15-24 age group had the highest suicide rate, males had three time the death rate of females, and Māori and those living in more deprived areas had higher suicide rates.

One can estimate intentional self-harm (falling short of death) from hospital data. This can vary by the way hospitals record them, and on whether people actually seek care following an incident, but on this measure NM with ~200 cases per year was slightly above the NZ average. Females were twice as likely to be hospitalised with self-harm, despite having one-third the suicide rate.

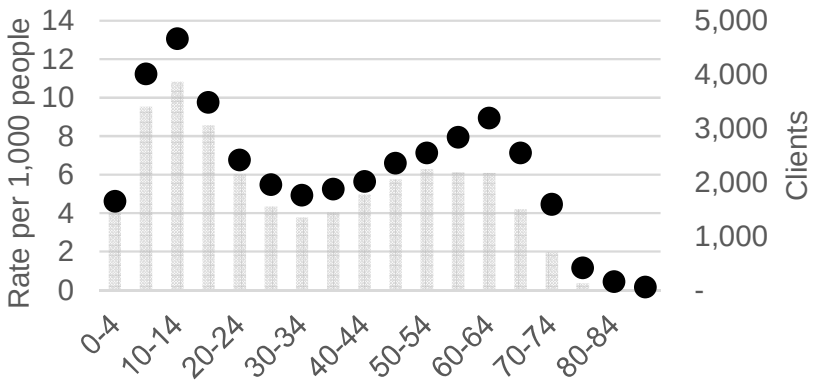
See related: 2 Population health drivers, 11.2 Psychological distress

Section 12
Disability support services

NM has a higher estimated Ministry of Health funded disability support service client rate per 1,000 people than the NZ average

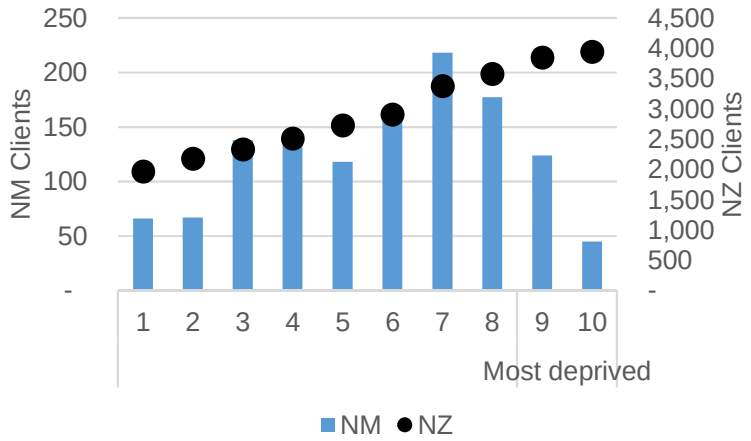
12.1 DSS <65 demography

NZ disability support clients – September 2013



Dots show age-specific rates (left axis), bars show client numbers, (right axis)

NM and NZ clients by deprivation level – 2013/14



Source: Ministry of Health (MOH 2015c), HPCG analysis

Why is this important?

Ministry of Health funded disability support services are available to people who have a physical, intellectual or sensory disability (or a combination of these) that:

- Is likely to continue for at least six months
- Limits their ability to function independently, to the extent that ongoing support is required.

These are mainly people under the age of 65 years (~92% nationally).

The Ministry of Health does not generally directly fund disability support services for people with disabilities related to personal health conditions, mental health & addictions, the ageing process and/or accident/injuries. These are covered through DHB general funding.

Disability support clients and their carers face significant challenges in many activities non-disabled people take for granted. Ensuring services provide appropriate support and opportunities for disabled people and their carers to lead ordinary lives is a key priority for government.

Nelson Marlborough

Unlike most other DHBs, NMDHB is a provider of Ministry funded disability support services including residential care for clients with high and complex needs.

There were around 1,250 Ministry of Health funded disability support clients in NM as at September 2013. This represents 4% of all disability support clients in NZ, a slightly higher rate than NM's share of the under 65 year's population (~3%).

The relatively higher share of disability support clients is reflected in NM's client rate per 1,000 people aged less than 65 years - 10.8 compared to 8.1 nationally.

The majority of disability support clients in NM live in Nelson – 703 or 62% of all NM clients.

Approximately 14% of NM disability support clients live in areas considered the most highly deprived. This compares to a NZ rate of 27%.

NM generally has higher rates of non-residential disability support services than NZ averages

12.2 Non-residential disability support services

Home & Community Services – September 2013

Area	Clients	Per 1,000 people
NM	554	4.8
NZ	14,969	3.9
Marlborough	214	6.1
Nelson	267	6.6
Tasman	73	1.8

Carer Support – September 2013

Area	Clients	Per 1,000 people
NM	471	4.1
NZ	15,890	4.1
Marlborough	159	4.5
Nelson	238	5.9
Tasman	74	1.9

Respite care – September 2013

Area	Clients	Per 1,000 people
NM	82	0.7
NZ	1,637	0.4
Marlborough	37	1.0
Nelson	37	0.9
Tasman	8	0.2

Note all rates per 1,000 people calculated using under 65 years population numbers as denominator
Note clients may receive more than one type of service

Source: Ministry of Health (MOH 2015c), HPCG analysis

Why is this important?

Disabled people and their carers want to lead as ordinary lives as possible. The government and disability sector recognise this aspiration.

An ordinary life includes living in home settings, where this is feasible and does not jeopardise the safety and well-being of disabled people and their carers.

Key Ministry of Health funded disability support services intended to help disabled people live in home settings include but are not limited to:

- Home & Community Services (eg, home support for tasks of daily living)
- Carer Support (subsidy for unpaid full-time carers of disabled people. Reimburses cost of temporary caregiving so that unpaid carers can have personal time)
- Respite care (community-based designed services to provide short-term breaks for carers of disabled people).

Nelson Marlborough

NM disabled residents receiving Ministry of Health funded services are more likely to have access to non-residential disability support services than NZ averages. Around 550 NM residents received some form of non-residential community based service as at September 2013.

The rate of NM disability clients receiving some form of non-residential based service was generally highest in Nelson, with Tasman residents having a much lower rate than elsewhere in NM.

12.3 Residential disability support services

Community residential – September 2013

Area	Clients	Per 1,000 people
NM	361	3.1
NZ	6,475	1.7
Marlborough	63	1.8
Nelson	279	6.9
Tasman	19	0.5

Supported Independent Living – September 2013

Area	Clients	Per 1,000 people
NM	188	1.6
NZ	2,797	0.7
Marlborough	61	1.7
Nelson	116	2.9
Tasman	11	0.3

All rates per 1,000 people calculated using under 65 years population numbers as denominator
Note that clients may receive more than one type of service

Source: Ministry of Health HPCG analysis

Why is this important?

Community residential services are for people who have been assessed as requiring 24/7 support. Typically these services are provided in home-like settings within the community. The vast majority of clients - ~75% - have an intellectual disability as their main disability.

In recent years, the Ministry of Health has implemented and trialled a range of actions to enable some disabled people, who may have otherwise required residential services, to live more independently in the community.

Supported Independent Living ('SIL') is one important service the Ministry has introduced to enable more disabled people to live independently in their communities. SIL provides support for but is not limited to:

- Using community facilities
- Shopping, budgeting or cooking
- Help with dealing with agencies such as Work & Income NZ and/or banks.

Nelson Marlborough

There are around 360 Ministry funded disability support clients residing in some form of community residential care. The majority of these clients reside in Nelson.

NM's rate per 1,000 people in community residential care is almost twice the NZ average – 3.1 compared with 1.7. This likely reflects the legacy of Ngawhatu and Braemar hospitals in Nelson, where historically people with moderate to complex disability needs resided. Following the de-institutionalisation process in the 1990s, residents of the hospital would have primarily been relocated to community residential homes (there are ~60 in Nelson today).

NM also has a much higher rate of SIL than the NZ average. Coupled with the areas higher rate of non-residential disability support services, suggests that strong efforts are being made to support disabled in non-residential settings. This is in-line with the stated preferences of many disabled people, the government and the disability sector.

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Further information

Nelson Marlborough District Health Board

www.**nmdhb**.govt.nz

NZ Health Survey

www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/surveys/current-recent-surveys/new-zealand-health-survey

Census 2013

www.stats.govt.nz/Census/2013-census.aspx

Pacific health

www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/pacific-health-data-and-stats.

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Asian health

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Glossary

ALOS Average length of stay – the number of days spent as an inpatient. Same day = zero days, overnight = 1 day, etc. See *hospitalisation*.

amenable mortality Deaths aged 0-74 years potentially avoidable through health care. See Section 3.4; appendix for codes.

ASH Ambulatory sensitive hospitalisations – based on the principal diagnosis a set of conditions thought to be potentially avoidable through access to good primary care over time for ages 0-74 years. See Section 7.2, definitions in appendix. Compare with *PPH*

ASR Age-standardised rate - matches the age structure of different areas, allowing comparisons to be made between different populations.

AT&R Assessment, Treatment and Rehabilitation or Health of the Elderly inpatient care, also known as geriatric care, refers to care that normally follows an acute hospitalisation of an elderly person in need of more treatment and recuperation prior to returning home

B4SC B4 School Check - A nationwide programme offering a free health and development check for four-year-olds

BMI Body-Mass Index – weight in kg divided by height in metres squared – a measure of body size, with the normal range accepted as 20-24

CHD Coronary heart disease, also known as ischaemic heart disease *(IHD).* Includes angina and myocardial infarction (heart attacks) – diseases of reduced blood flow to the heart

CHF Congestive heart failure – the heart progressively is unable to pump enough blood around the body. Often the end stage of *CHD*

CVD Cardiovascular disease - heart and blood vessel disease, this is a grouping that includes CHD, stroke and peripheral vascular disease. For the purposes of this report CHF has been included

CWD Case-weighted discharges - a measure of complexity and resource intensity for *hospitalisations*; also used for IDF funding

CYF Child, Youth and Family – a service line of the Ministry for Social Development, responsible for vulnerable children and their families

deprivation see NZDep

DHB District Health Board – the Crown entity responsible for improving the health of their populations by delivering high quality and accessible health care. DHB functions include both funding and planning of health services such as medicine, surgery, mental health, maternity, age-related care; and provision of services, which may include *DSS* services funded by MOH.

DMF Decayed, missing, filled – a measure of tooth ill-health – the lower the better, ideally zero

DSS Disability Support Services – services funded by the Ministry of Health to support people with disabilities including intellectual disability, accessed through *NASCs*. In funding terms is distinct from people with medical, mental health or age-related conditions, which are the responsibility of *DHBs,* or conditions resulting from accidents (ACC). Some DSS services can be provided by DHBs through direct funding from the MOH.

ED Emergency department - formerly known as Accident and Emergency (A&E), are public hospital-run facilities generally operating 24 hours a day that assess and treat patients who have serious injuries or illnesses. See *triage*

ED attendance A visit to an ED. If treatment lasts longer than 3 hours the person is considered admitted. See *hospitalisation*

ERP Estimated resident population - is calculated by Statistics New Zealand, based on the census counts with additions for the estimated undercount in the census, and for people temporarily overseas at the time of the census

follow up Specialist assessments in the public system subsequent to a FSA. See *FSA*

FSA First Specialist Assessment – a person's first outpatient visit (for their current condition) to see a specialist physician or surgeon in the public system. See *follow up*

hospitalisation – Also referred to as admission (on entry), discharge (on exit), or inpatient stay. Time spent in hospital in excess of 3 hours treatment (compare *ED attendance, outpatient attendance*). See Section 7. For this report is restricted to publicly-funded

life expectancy The number of years a person could expect to live if they had the same age-specific mortality as holds at present throughout their life. A summary measure of current mortality

health loss Health burden or loss measures the gap between a population's current state of health and that of an ideal population in which everyone experiences long lives free from illness or disability. It is measured using the disability-adjusted life year (DALY), which combines information on both fatal outcomes (premature mortality) and non-fatal (illness or disability) outcomes

Health Targets Specific *MOH*-set targets for *DHB* performance management

HQSC Health Quality and Safety Commission - responsible for assisting providers across the whole health and disability sector (private and public) to improve service safety and quality

IDF inter-district flow – care for residents of one *DHB* by a different DHB. *CWDs* are used to determine the price of the event for funding purposes

IHD Ischaemic heart disease - see *CHD*

inpatient see *hospitalisation*

MOH Ministry of Health - responsible for funding and managing the quality, safety and sustainability of the health care health system

NASC Needs Assessment Service Coordinator – access assessment for *DSS* services. NASCs work with disabled people to help identify their needs and to outline what disability support services are available. They allocate Ministry-funded support services and assist with accessing other supports

NGO non-government organisation – in the context of this report referring to services provided by non-*DHB* providers

NM Nelson Marlborough – the area covered by NMDHB, used in this report to refer to the people living in the area; divided into the localities Marlborough, Nelson and Tasman areas

NMDHB The DHB covering the population of the Nelson Marlborough area

NMDS National Minimum Data Set – the nationally collected public hospital *inpatient* data set

NNPAC National Non-Admitted Patient Collection – the nationally collected data set for publicly provided *outpatient*, *ED* and community visits. See Section 8.

NZDep New Zealand Deprivation Index – run every Census, the latest version is NZDep13. Uses nine different socio-economic variables to categorise small geographic areas, often shown in deciles – 1 least deprived to 10 most deprived

NZHS New Zealand Health Survey. Ministry of Health-funded survey with a continuous rolling methodology, allowing large samples to build up over time. For this report the 2011/14 cycle is used – see Section 4.0

outpatient attendance visit to see a DHB clinician, including medical specialists (see *FSA, follow up*). In contradistinction to inpatients (see *hospitalisation*) where treatment is for a period greater than 3 hours

planned admission Also known as elective, care that is scheduled in advance and is non-emergency, such as a cataract operation or a knee replacement. See *hospitalisation.* Opposite of *unplanned.*

PHO Primary Health Organisation - A not-for-profit community-based health care provider covering a grouping of primary care providers such as general practitioners, nurses and other health care providers.

PPH Potentially preventable hospitalisations – based on the principal diagnosis a set of conditions thought to be potentially avoidable through preventive care over time. Includes ASH conditions, but adds ones with longer prevention periods. Used in HIU analysis, see Section 7.8. Compare with *ASH*

primary care Health services delivered by providers as the first point of contact within a health care system, such as general practitioners, practice nurses or pharmacists

PRIMHD Programme for the Integration of Mental Health Data – pronounced 'primed', the national collection of activity and outcomes data for mental health services provided by *DHBs* and *NGOs*

rate ratio one rate divided by the other, for example a rate of 1 represents the same rate, 1.3 represents a 1.3 times or 30% higher rate, and 0.8 represents a rate 20% lower.

respite care Respite is designed to provide short-term breaks for the carers of a disabled person, while also providing a positive and worthwhile experience for the disabled person.

Socrates the nationally collected data set for MOH *DSS* direct-funded support services

triage Categories of urgency in *EDs*, from 1 urgent, to 5 non-urgent. Triage categories 4 and 5 patients often would be able to be seen in primary care or alternate community facilities

unplanned admission Also known as acute, care that is not scheduled in advance (eg heart attack, appendicitis). For this report includes 'acute arranged' – care required within the week. See *hospitalisation*

VDR virtual diabetes register, a combining of health utilisation data sets such as *NMDS* and *NNPAC* to establish an proxy register in the national collections for people with diabetes

Appendix

Amenable mortality

Condition	ICD-10-AM codes	Condition	ICD-10-AM codes
Pulmonary tuberculosis	A15–A16	Complications of pregnancy	O00–O96, O98–O99
Meningococcal disease	A39	Complications of perinatal period	P01–P03, P05–P94
Pneumococcal disease	A40.3, G00.1, J13	Cardiac septal defect	Q21
HIV/AIDS	B20–B24	Diabetes	E10–E14
Stomach cancer	C16	Valvular heart disease	I01, I05–I09, I33–I37
Rectal cancer	C19–C21	Hypertensive diseases	I10–I13
Bone and cartilage cancer	C40–C41	Coronary disease	I20–I25
Melanoma of skin	C43	Pulmonary embolism	I26
Female breast cancer	C50	Heart failure	I50
Cervical cancer	C53	Cerebrovascular diseases	I60–I69
Prostate cancer	C61	COPD	J40–J44
Testis cancer	C62	Asthma	J45–J46
Thyroid cancer	C73	Peptic ulcer disease	K25–K27
Hodgkin lymphoma	C81	Cholelithiasis	K80
Acute lymphoblastic leukaemia	C91.0	Renal failure	N17–N19

Ambulatory sensitive hospitalisations

Condition	ICD-10-AM codes	Condition	ICD-10-AM codes
Angina and chest pain	I20, R072-R074	Hypertensive disease	I10-I15, I674
Asthma	J45-J46	Kidney/urinary infection	N10, N12, N136, N309, N390
Bronchiectasis	J47	Myocardial infarction	I21-I23;I241
Cellulitis	H000, H010, J340, L01-L04, L08, L980	Nutrition deficiency and anaemia	D50-D53, E40-E46, E50-E64, M833
Cervical cancer	C53	Other ischaemic heart disease	I240, I248,I249, I25
Congestive heart failure	I50, J81	Peptic ulcer	K25-K28
Constipation	K590	Respiratory infections - pneumonia	J13-J16, J18
Dental conditions	K02, K04, K05	Rheumatic fever/heart disease	I00-I02,I05-I09
Dermatitis & eczema	L20-L30	Sexually transmitted infections	A50-A59,A60, A63, A64, I980, M023, M031, M730, M731, N290, N341
Diabetes	E10-E14, E162	Stroke	I61, I63-I66
Epilepsy	G40-G41, O15, R560, R568	Upper respiratory tract and ENT infections	J00-J04, J06, H65-H67
Gastroenteritis/dehydration, GORD	A02-A09, K21, R11, K529	Vaccine-preventable disease	A33-A37, A403, A80, B05, B06, B16, B18 B26, M014, P350

Other codes

Condition	ICD-10	AR-DRG	Condition	ICD-10	AR-DRG
Total cardiovascular disease	I00–I99	Fxxx	Liver cancer	C22	
Ischaemic heart disease	I20–I25		Lung cancer	C33–C34	
Congestive heart failure	I50	F62x	Prostate cancer	C61	
Total stroke	I60–I69	B69x, B70x	Breast cancer (female only)	C50	
Pneumonia	J12–J18	E62x	Uterine cancer	C54–C55	
Chronic obstructive pulmonary disease (COPD)	J40–J44	E65x	Cervical cancer	C53	
Asthma	J45-J46	E69x	All injuries	V01–Y98	
Diabetes	E10–E14	K60x	Unintentional injuries (Accidents)	V01–X59	
All cancers	C00–C97		Suicide and self-harm	X60–X84	
Stomach cancer	C16		Bariatric surgery		K04x, K08
Colorectal cancer	C18–C21		Arthritis hospitalisation		I03-05x, I29Z, I31x, I32x, I66x, I67x


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