
Section 3: Health and Independence Report 2014

Purpose of this report

The *Health and Independence Report* gives an overview of the public health system performance and the current state of health in New Zealand. The report fulfils the responsibility of the Director-General of Health under section 3C of the Health Act 1956 to report annually to the Minister of Health on the current state of public health in New Zealand. The report accompanies the Ministry of Health's *Annual Report for the year ended 30 June 2014*.

This year's report contains the following sections:

- Health system performance
- Changing health needs
- Non-communicable diseases
- Risk factors for non-communicable diseases
- Infectious diseases.

Summary of findings from this year's report

This year's report includes a wealth of information about the health of New Zealanders and the performance of the health and disability system. Some highlights, challenges and opportunities are presented below.

The New Zealand health system is high performing and continues to improve

The health system plays an important role in helping people stay healthy through preventive care, treating acute and serious illness, and managing long-term conditions. The New Zealand health and disability system is high performing, and achieves good results by international standards. For example, life expectancy at birth is now around 80 years for males and 83 years for females, which is above the OECD average. The strong performance and results are significant given that our expenditure in health is lower than in many other countries.

Most New Zealanders are happy with the services they receive

Four out of five people have a high level of confidence and trust in their general practitioner (GP), and are satisfied with the care provided by their usual medical centre. Almost all adults (97 percent) report that their GP and practice nurse treats them with respect and dignity. Most people who recently visited an emergency department or medical specialist also reported a good patient experience.

There is good coordination between primary and secondary care

New Zealand ranks highly by international standards for coordinated care. Nine out of ten adults report that their doctor or staff at their usual medical centre seemed up to date about their last visit to an emergency department, hospital or medical specialist. Good and improving technology for sharing information within the health system is a key driver of well-coordinated care.

Health services are generally provided where and when people need them

Nearly all New Zealanders (95 percent) are enrolled in a primary health care organisation (PHO). Every year four out of five adults and three out of four children visit a GP. Around 85 percent of adults and children are able to get an appointment at their usual medical centre within 24 hours of wanting one. New Zealand ranks highly by international standards for people being able to see a doctor or nurse the same or next day.

Wait times for emergency care have improved and are low by international standards. A recent international survey showed New Zealand's average waiting times in emergency departments to be the lowest; only 14 percent of people waited two hours or more in New Zealand emergency departments, compared with 50 percent for the worst performing country (Canada). These results are consistent with results for the New Zealand Government's health target 'shorter stays in emergency departments'. The latest data show that 94 percent of people were admitted, discharged or transferred from an emergency department within six hours against the target of 95 percent.

The number of elective surgical discharges being performed has exceeded the government health target. Waiting times for major elective procedures, including hip replacements, coronary bypasses and cataract surgery, have all declined since 2010. The combination of increased access to elective surgery and reduced waiting times for elective surgery is very positive; more people are being seen and treated, faster.

Preventive health services are becoming more accessible

Preventive health initiatives help people stay well and live well, reducing the need for treatment. Several indicators show that preventive health services are becoming more accessible.

- Immunisation rates in children aged eight months and two years are as high as they have ever been (at 92 and 93 percent respectively) since the introduction of the National Immunisation Register in 2008. Immunisation rates have improved for all ethnic groups, although the rate for Māori children is lower than for other children.
- Overall since 2005 more children are caries-free when they start and finish primary school, although Māori and Pacific children are less likely to be caries-free than other children.
- Breast and cervical cancer screening rates have improved for all ethnic groups. The breast screening rate for Pacific women is now higher than the rate for the total population, although the rate for Māori women is lower than for other women.

Health services are generally safe and effective

Survival from leading causes of health loss such as acute myocardial infarction, stroke and some cancers is increasing, which indicates that the health system is becoming more effective at preventing, detecting and treating these conditions.

There has been a steady decline in the amenable mortality rate, which refers to deaths that could have been prevented if health services had been delivered more effectively, or if patients had accessed services earlier.

The health system needs to adapt to meet new challenges

The health system needs to adapt to meet the challenges that lie ahead. These challenges include meeting the needs of a changing population, dealing with a large and increasing burden of non-communicable diseases (NCDs), managing ongoing and new infectious disease threats and reducing health inequities.

Our population is growing and changing

The New Zealand population is growing by about 110 people per day. The size of all major ethnic groups is increasing, with particularly fast growth in the Asian ethnic group. New Zealand has a high proportion of overseas-born people. The 2013 Census showed that one in four New Zealanders (25 percent) was born overseas, up from one in five (20 percent) in 2001.

The number of people aged 65 years or older is projected to nearly double by 2031, reaching about 1.1 million. While structurally youthful, the number of Māori aged 65 years or older has grown substantially in the last decade. In the short term, the biggest increase in numbers will be in the 65–74-year age group, as the cohort of ‘baby boomers’ ages. This will be closely followed by growth in the 75–84-year age group. To minimise the impact of an ageing population, we need to ensure that prevention and early intervention occurs much earlier in the life course.

Life expectancy is increasing, but some of the extra life is being spent in poor health

As people live longer, they are more likely to develop long-term conditions such as cardiovascular diseases, cancers, diabetes, chronic respiratory diseases, arthritis and dementia. By age 65 years, half of adults have two or more long-term conditions.

A person with multiple long-term conditions is more likely to experience physical impairment. Over 1 million New Zealanders now have a disability, up from around 600,000 in 2001. While population ageing has contributed to the increase, it does not account for it all. On a positive note, a high and increasing proportion of older people live independently in their own home.

Cancers are becoming more prominent

Cancers are replacing cardiovascular diseases as the leading cause of health loss. Total cancer incidence and mortality rates are declining slowly; however, declines are slower for Māori than non-Māori. Due to the growing older population, the number of people developing cancer is increasing each year.

Cancer trends vary by cancer type and sex. Colorectal cancer incidence and mortality rates are declining in both males and females. Lung cancer incidence and mortality is declining in males but not females. Breast and prostate cancer incidence rates have been relatively stable over the last decade, and mortality rates are declining.

Cardiovascular diseases remain a priority

Ischaemic heart disease and stroke mortality rates have fallen by 75 percent over the last four decades. This success story shows what can be achieved through a combination of primary prevention (eg, reduced smoking and lower saturated fat intake), early detection of disease and better medical care. However, cardiovascular diseases still account for one in three deaths and one in six years of life lost to illness, disability or premature mortality.

Mental health conditions cause considerable health loss in young and middle-aged adults

Mental health conditions are the third-highest cause of total health loss in New Zealand, after cancers and cardiovascular diseases. Most of this health loss is non-fatal but can cause severe functional impairment and occurs in young and middle-aged adults. For about half of adults with mental illness, their condition will have developed before the age of 15 years. Therefore, early detection and treatment is important.

Suicide death rates remain relatively high in New Zealand, showing only a small decline for males and no change for females over the last decade. Suicide rates are twice as high for Māori as for non-Māori; this gap is wider for youth.

Diabetes rates are increasing in all population groups

Nearly 245,000 New Zealanders have diabetes; this figure represents a 75 percent increase in numbers since 2005. In the last year the number of people with diabetes grew by 17,400, which is nearly 50 people per day. Most of these people have type 2 diabetes, which is largely preventable. Many more New Zealanders have pre-diabetes.

Some of this growth reflects increased screening, improved survival and demographic change. However, diabetes rates have increased in all population groups, and there have been larger (relative) increases in younger adults. This trend is consistent with increases in obesity, including the finding that New Zealanders are becoming obese at younger ages.

Lifestyle changes involving weight loss, improved diet and increased physical activity can prevent or delay the onset of type 2 diabetes and reduce diabetes complications. Currently, only half of adults with type 2 diabetes received advice about their weight, diet or exercise from their usual medical centre in the last year.

Infectious disease challenges are ongoing

Although NCDs account for most of the burden of disease in New Zealand, communicable (or infectious) diseases still account for many outbreaks and avoidable hospitalisations. Immunisation rates in young children have improved markedly since the introduction of the health target 'increased immunisation', however lower coverage in the past usually explains these outbreaks.

Infectious disease threats to population health include re-emerging and new infections such as Ebola, avian influenza A (H7N9) and Middle East respiratory syndrome coronavirus (MERS-CoV). In response to these new threats, New Zealand has made human infection with influenza A (H7N9) a notifiable disease, and MERS-CoV a notifiable and quarantinable disease. New Zealand continues to work with international health authorities to monitor the progress of the recent Ebola outbreak. The New Zealand health system has the capacity and capability to manage and control the situation, including protocols for border response, contact tracing, patient transport, isolation, laboratory testing and infection prevention and control measures.

Antibiotic resistance is a recognised global threat to the effective prevention and treatment of some common infections. New Zealand has relatively good surveillance of antimicrobial resistance, and contributes to global action to mitigate its effects.

Equity has improved but significant gaps remain

In New Zealand, Māori, Pacific peoples and socioeconomically disadvantaged groups generally experience worse health outcomes than other New Zealanders. The causes of these differential outcomes are complex, but include differences in access, use and experience of health services, as well as differences in exposure to risk factors.

Life expectancy for Māori has improved over the past 15 years, reducing the gap between Māori and non-Māori. However, Māori life expectancy at birth is currently about seven years lower than it is for non-Māori. As a group, Māori have poorer health outcomes than non-Māori for many other indicators, including higher mortality rates for ischaemic heart disease, stroke and cancers and a higher prevalence of diabetes and chronic respiratory diseases. Some of these differences are due to higher exposure to a range of risk factors, including smoking. Variation in access to – and subsequent use and experience of – health services is also likely to play a role. Māori are more likely than non-Māori to experience unmet need for primary health care, which is likely to contribute to higher rates of potentially avoidable hospitalisations and deaths.

Pacific peoples also fare less well for some health indicators. For example, they have very high rates of obesity and diabetes. Pacific peoples experience higher levels of unmet need for primary care, with the cost of GP visits and prescriptions identified as being key barriers. Pacific children have poorer dental health than other children, and gaps are widening as dental health improves in non-Pacific children.

The health system is focusing on opportunities for health gain and improved wellness

The health system needs to continue to focus on treating people when they are acutely unwell. In addition, the health system needs to proportionately shift its focus to help people to stay well. This requires a stronger focus on the prevention and early detection of NCDs and their risk factors, as well as ongoing improvements to the quality and safety of health services. Addressing risk factors requires the health system to work with other public service agencies, local authorities and in partnership with individuals, whānau/families and communities.

Halting the increase in obesity

An estimated 1.2 million New Zealanders are now obese. High body mass index (including obesity) is projected to overtake smoking as the leading risk to health by 2016. As of 2012/13, there was no sign that obesity rates were stabilising in any population group. There are considerable inequities in obesity, with the highest rates among Pacific peoples, Māori and people living in deprived areas. Unless obesity rates are reduced, the burden of diabetes and other obesity-related diseases will be a major challenge for the health sector in the years to come.

Early intervention to prevent obesity in children and young people needs to go hand in hand with interventions for the many New Zealanders who are currently obese. There may be scope to improve the management of obesity in primary care. Currently, less than half of adults who are already obese had their weight measured at their usual medical centre in the past year, and only one in four received advice about their weight, diet or physical activity. Community based approaches to reduce exposure to obesogenic environments are being trialled internationally. Healthy Families NZ, which is a new initiative to prevent and reduce lifestyle risk factors such as obesity, is being implemented in ten communities across New Zealand.

Smoking rates are declining but challenges remain

The recent reduction in smoking rates is a good example of what can be achieved when a wide range of population and individual focussed initiatives is sustained over many years. The daily smoking rate has declined by one-third over the last decade, from 23 to 15.5 percent. This is due to fewer young people starting to smoke and more smokers quitting. Despite this success, daily smoking rates remain high for Māori adults (36 percent) and adults living in the most deprived areas (28 percent). If this trend continues, inequities in smoking and related diseases could increase. Initiatives underway to increase the smoking cessation rate include the health target 'better help for smokers to quit', improved smoking cessation services, further tobacco tax increases, and new media campaigns.

Preventing and treating cardiovascular disease and high blood pressure

An ongoing focus on the prevention, early detection and effective management of cardiovascular diseases remains a priority. The health target 'more heart and diabetes checks' will help with the detection of cardiovascular diseases, and reducing exposure to key risk factors such as smoking and high blood pressure will help to prevent them.

High blood pressure is a major risk factor for cardiovascular disease. Almost one in three New Zealand adults has hypertension, with much higher rates in older adults (two-thirds are affected). Many of these people have undiagnosed or poorly-controlled high blood pressure. Among adults with hypertension, two out of five are undiagnosed. Among adults currently taking medication for high blood pressure, nearly half have poorly-controlled blood pressure.

The quality and safety of health care continue to improve

The New Zealand health and disability system has a continuous focus on improving the quality and safety of health care. Overall, the health system achieves good results for a range of quality indicators. However, more work and focus on areas such as medication management, falls, hospital acquired infections remains a high priority. This report highlights another area where there may be scope for improved safety. New Zealand has relatively high rates of post-operative complications compared with some OECD countries. While this might be partly explained by reporting differences, it may also represent an opportunity for improvement. The Health Quality and Safety Commission is making this an area of priority.

Caring for all New Zealanders

High-quality health and disability services respond to the needs and aspirations of diverse population groups. The health system must work to eliminate barriers to accessing high-quality health care. Infrastructural, financial, physical and other barriers to high-quality health care also exist between health and other sectors. Strong cross-sectoral collaboration is therefore critical for achieving health equity for all New Zealanders.

Some gains have been made towards health equity. For example, immunisation rates for Māori and Pacific children have improved markedly over the last few years. However, more work needs to be done especially for vulnerable groups and those living in lower socioeconomic communities.

Equity is a cross-cutting dimension of quality. High-quality health care results from the simultaneous implementation of three quality dimensions: improved quality, safety and experience of care, improved health and equity for all populations, and best value for public health system resources.

Health system performance

Key messages

- The New Zealand health and disability system is high performing, and achieves good results by international standards for its level of expenditure.
- Most people are happy with the health care they receive. Over 90 percent of people report being treated with respect and dignity by their GP, practice nurses, emergency department staff and medical specialists.
- There is good coordination between primary and secondary care, which is facilitated by good and improving technology for sharing technology.
- Services are generally provided where and when people need them. Nearly all New Zealanders are enrolled in a PHO, and most are able to get an appointment at their usual medical centre when they need one. However, around one in four adults and one in five children experienced one or more types of unmet need for primary care in 2012/13. Māori and Pacific peoples report higher levels of unmet need.
- Preventive health services, such as immunisation and breast screening, are becoming more accessible for all New Zealanders.
- Timeliness is improving. Wait times for emergency care have improved and are low by international standards. More people are being seen and treated more quickly for elective services.
- Health services are more effective. Deaths preventable by health care are declining steadily. Survival from some of our leading causes of health loss – acute myocardial infarction, stroke and some cancers – is improving.
- Indicators of efficiency and productivity are improving. There has been growth in the use of generic medicines. The average length of stay in hospitals has decreased.

The health and disability system plays an important role in helping people stay healthy through preventive care, treating acute and serious illness, managing long-term conditions, and providing support services when needed. Continuous quality improvement is an important focus for the health sector, even when very good work is already taking place.

This section presents information on the following internationally recognised aspects of health system quality and performance:

- **people-centred:** health services respond to patients' needs
- **access to services:** health services are accessible to everyone
- **timeliness:** people receive health services when they need them
- **effectiveness:** health services and treatments are effective
- **patient safety:** health services do not cause harm to patients
- **efficiency and sustainability:** health services are efficient and provide value for money to ensure the long-term sustainability of the health system.

Equity is a cross-cutting dimension of quality. High-quality health care results from the simultaneous implementation of three quality dimensions: improved quality, safety and experience of care, improved health and equity for all populations, and best value for public health system resources.

People-centred health care

A high-quality health and disability system is people-centred, is based on care and compassion, is responsive to patients' needs, and provides a positive patient experience. Such a system treats patients with respect and dignity, involving them and their whānau/families in decision-making about their own care, protecting their privacy and making sure they understand their conditions and treatments.

Most people are satisfied with health services

The 2011/12 New Zealand Health Survey found that 80 percent of adults were satisfied with the care they had received at their usual medical centre in the past 12 months (Ministry of Health 2013c). People aged 75 years and over were most likely to report being satisfied with their usual medical centre (95 percent) and people aged 25–34 years were least likely to be satisfied (72 percent).

Health professionals are trusted

Most adults (81 percent) and parents of children (82 percent) who had visited their GP in the past three months reported high levels of confidence and trust in their GP, according to the 2011/12 New Zealand Health Survey (Ministry of Health 2013b). Māori adults (76 percent) and parents of Māori children (74 percent) were less likely to have confidence and trust in their GP.

Good results for patient experience indicators

Almost all adults who had visited a GP in the past three months (97 percent) felt that their GP had treated them with respect and dignity, according to the 2011/12 New Zealand Health Survey (Ministry of Health 2012b). Similar levels of satisfaction were reported by those who had visited a practice nurse (without seeing a GP at the same time) in the past three months (see Table 3.1).

A relatively high proportion of adults also reported that their GP and/or practice nurse were good at explaining conditions and treatments to them, and at involving them in decisions about their care, as well as a range of other patient experience indicators.

Rates of satisfaction with emergency department doctors and medical specialists were also relatively high in adults, although after-hours doctors elicited somewhat lower results. There could be many reasons for this, including a lack of continuity of care, which is valued by patients and clinicians alike.

Table 3.1: Patient experience indicators for adults, 2011/12

| Patient experience indicator | Percentage of adults (among those who had recently visited)* | | | | |
|---|--|----------------|--------------------|-----------|--------------------|
| | GP | Practice nurse | After-hours doctor | ED doctor | Medical specialist |
| Good at treating patient with respect and dignity | 97 | 97 | 76 | 91 | 94 |
| Good at explaining conditions and treatments | 93 | 94 | 67 | 84 | 89 |
| Good at involving patient in decisions | 90 | 92 | – | – | 86 |
| Patient had confidence and trust | 84 | 90 | 58 | 72 | 82 |
| Good at asking about patient's symptoms | 93 | 94 | – | – | – |
| Good at listening to patient | 94 | 96 | – | – | – |
| Good at taking patient's problems seriously | 94 | 95 | – | – | – |
| Good at giving patient enough time | 93 | 95 | – | – | – |

Notes:

– Data not collected in the survey.

* This refers to those who had visited a GP or practice nurse (without seeing a GP at the same visit) in the past three months, and those who had visited an after-hours doctor, emergency department and/or medical specialist in the past 12 months.

Source: 2011/12 New Zealand Health Survey (Ministry of Health 2013c)

International comparisons of patient-centred health care

Patient-centred health care is care that is delivered 'with the patient's needs and preferences in mind' (Davis et al 2014). Measures of patient-centred care cover communication, continuity and feedback, and engagement and patient preferences.

New Zealand ranked sixth out of eleven OECD countries in an overall measure of patient-centred care in the Commonwealth Fund 2014 *Mirror, Mirror* report (Davis et al 2014). Table 3.2 summarises selected individual measures of patient-centred care.

Table 3.2: Patient-centred care measures: New Zealand performance in Commonwealth Fund surveys

| Indicator | Year | Score (percent) | Rank |
|--|------|-----------------|------|
| Patients reporting always or often getting telephone answer from doctor the same day (base: have a regular doctor and tried to contact by phone) | 2013 | 80 | 5 |
| Doctor always or often explains things in a way that is easy to understand | 2013 | 91 | 3 |
| Regular doctor always or often knows important information about patient's medical history | 2011 | 89 | 4 |
| Specialist always or often involves patient as much as they want in decisions about care and treatment (base: saw or needed to see specialist in past two years) | 2011 | 75 | 6 |
| Specialist always or often tells patient about treatment choices (base: saw or needed to see specialist in past two years) | 2011 | 78 | 5 |
| Regular doctor always or often encourages patient to ask questions | 2011 | 70 | 5 |
| Doctor or health care professional gives clear instructions about symptoms, when to seek further care (base: has chronic condition) | 2011 | 63 | 8 |

Note: Rank is out of 11 countries (1=best performer, 11=worst performer).

Source: Commonwealth Fund International Health Policy Surveys, 2013 (general population) and 2011 (sicker adults) (Davis et al 2014).

Most people experience continuity and coordination of care

Continuity and coordination of health care are other aspects of putting patients at the centre of service delivery, and contribute to better outcomes for patients. Continuous, coordinated care can ensure resources are used more effectively, reducing duplication and fragmentation.

Patients who consistently visit the same medical centre are more likely to experience continuity and coordination of care. The 2011/12 New Zealand Health Survey found that almost all children (97 percent) and adults (93 percent) had a GP clinic or medical centre they usually went to when they were feeling unwell or injured (Ministry of Health 2013c). Nine out of ten children (91 percent) went to the same GP clinic or medical centre as their parent/caregiver.

Improving the links between primary health care and secondary health care (such as hospitals and specialists) can enhance patient experience and improve the quality of care. In the 2011/12 New Zealand Health Survey, 91 percent of adults reported that, after their last visit to an emergency department, hospital or medical specialist, their doctor or staff at their usual medical centre seemed up to date about their care (Ministry of Health 2013c).

In the Commonwealth Fund 2014 *Mirror, Mirror* report (Davis et al 2014), New Zealand ranked second out of eleven countries in an overall measure of coordinated care. Table 3.3 summarises selected individual measures of coordinated care.

Table 3.3: Coordinated care measures: New Zealand performance in Commonwealth Fund surveys

| Indicator | Year | Score (percent) | Rank |
|---|------|-----------------|------|
| When primary care physicians refer a patient to a specialist, they always or often receive a report back with all relevant health information | 2012 | 96 | 1 |
| Specialist did not have information about medical history | 2011 | 10 | 2 |
| Primary care physician always or often receives notification that patient is being discharged from hospital | 2012 | 89 | 2 |
| Regular doctor or place always or often helps coordinate and arrange care from other doctors or places | 2011 | 56 | 6 |
| Receive written care plan after discharge (base: those hospitalised or having surgery in past two years) | 2011 | 66 | 7 |

Note: Rank is out of 11 countries (1=best performer, 11=worst performer).

Source: Commonwealth Fund International Health Policy Surveys, 2012 (primary care physicians) and 2011 (sicker adults) (Davis et al 2014).

Improving technology for sharing information between health professionals

Better information sharing between health professionals can enable more coordinated and patient-centred care. The 2012 Commonwealth Fund International Health Policy Survey of primary care physicians showed that New Zealand made good use of health information technology compared with other participating countries (Commonwealth Fund 2012). Almost all New Zealand doctors reported using electronic medical records in their practice (97 percent); this rate was similar to that in the United Kingdom (97 percent) and higher than those in Australia (92 percent) and Canada (56 percent).

In addition, over half of New Zealand doctors (55 percent) reported that they could electronically exchange patient summaries and test results with doctors outside their practice – this was the highest rate of the 11 OECD countries in the study, and much higher than equivalent rates in the United Kingdom (38 percent) and Australia (27 percent).

The *National Health IT Plan* (National Health IT Board 2010) outlines priority programmes required to enable secure access to clinical information. Such access will help clinicians deliver improved patient care, and support patients' ability to care for themselves. All four regions are currently working to share primary care information with emergency departments and after-hours care. In addition, all four regions are starting work on patient portals, which will allow patients access to their own records. The *Annual Report* provides further information on progress with improved information sharing.

Access to services

Good access to health care includes being able to obtain affordable and appropriate health care in a timely manner. At the present time, health services are generally provided where and when New Zealanders need them. However, there are some barriers to accessing primary care and different patterns of utilisation by ethnic group.

Almost everyone is enrolled in a PHO and every year most New Zealanders visit a GP

People enrolled with a PHO are able to access cheaper GP visits and reduced prescription charges. Most New Zealanders (95 percent) were enrolled in a PHO as at 1 July 2014; this continues a generally stable trend over the last five years.

Every year, most New Zealanders visit a GP. The 2012/13 New Zealand Health Survey found that 79 percent of adults and 75 percent of children had visited a GP in the past 12 months (Ministry of Health 2013b). The use of GPs showed little variation by ethnic group or neighbourhood deprivation.

The survey also found that about 30 percent of adults and 25 percent of children had visited a practice nurse (without seeing a GP at the same time) in the past 12 months.

Unmet need for primary health care is an issue for some

The 2012/13 New Zealand Health Survey found that around one in four adults (27 percent) and one in five children (21 percent) experienced one or more types of unmet need for primary care (Ministry of Health 2013b). The most common types of unmet need were patients being unable to get an appointment at their usual medical centre within 24 hours and being unable to visit a GP due to cost (see Table 3.4). About one in twenty reported the cost of after-hours clinics and being unable to collect a prescription as reasons for unmet primary health care needs. Māori and Pacific peoples reported higher levels of unmet need than the total population.

Table 3.4: Percentage of adults and children reporting unmet need for primary care, 2012/13

| Indicator | Adults | | | Children | | |
|--|--------|-------|---------|----------|-------|---------|
| | All | Māori | Pacific | All | Māori | Pacific |
| Any unmet need | 27 | 39 | 31 | 21 | 28 | 24 |
| Unable to get an appointment at usual medical centre within 24 hours | 16 | 21 | 11 | 13 | 16 | 11 |
| Unable to visit GP due to cost | 15 | 25 | 21 | 6 | 9 | 8 |
| Unable to visit after-hours clinic due to cost | 7 | 15 | 10 | 5 | 7 | 8 |
| Unable to collect prescription due to cost | 6 | 15 | 15 | 4 | 9 | 10 |

Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

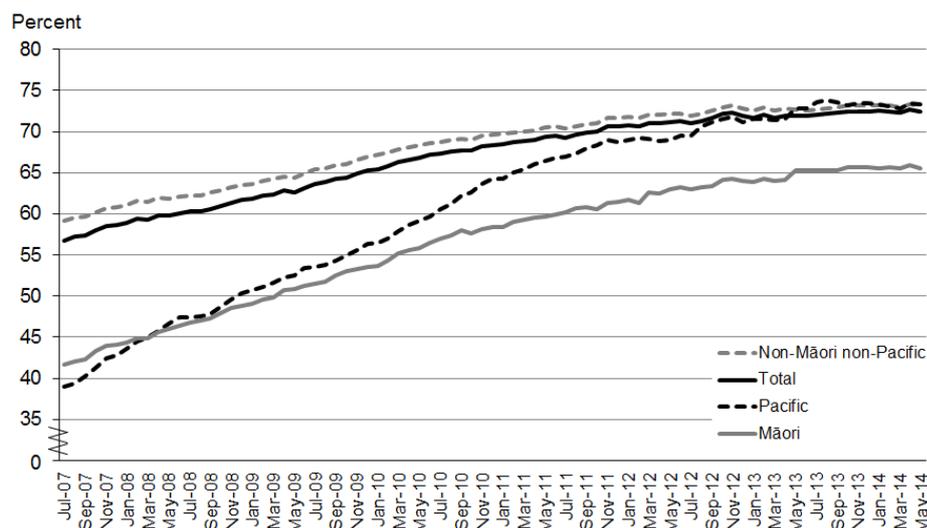
People living in the most deprived areas are more likely to experience unmet need for primary care due to cost. The 2012/13 New Zealand Health Survey found that adults and children living in the most deprived areas were about twice as likely to report cost as a reason for not visiting a GP or after-hours clinic, and more than six times as likely to report cost as a reason for being unable to collect a prescription (Ministry of Health 2013b).

Breast and cervical screening rates improving for all ethnic groups

Cancer screening involves a test to identify individuals at risk of a specific type of cancer, with the aim of preventing cancer from developing or detecting the cancer at an early enough stage to treat it effectively. In New Zealand breast screening is free for eligible women, but most women pay a primary health care fee for a cervical smear. A colorectal (bowel) screening programme is currently being piloted in the Waitemata District Health Board area.

Breast screening rates continue to improve. As at May 2014, 72 percent of women aged 45–69 years reported having had a breast screen in the past two years, up from 58 percent in 2007. Breast screening rates increased for both Māori women (from 43 to 66 percent) and Pacific women (from 41 to 73 percent) during this period. The breast screening rate for Pacific women is now similar to the rate for non-Māori non-Pacific women, although the rate for Māori women remains lower (see Figure 3.1).

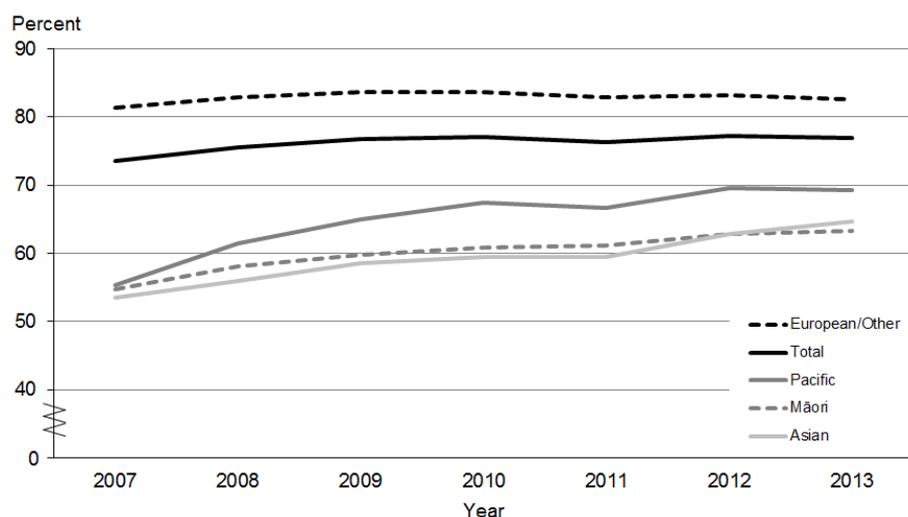
Figure 3.1: Breast screening coverage rates in the past 24 months, women aged 45–69 years, by ethnic group, July 2007–May 2014



Source: BreastScreen Aotearoa

Cervical screening rates have also improved since 2007, but are still below the target of 80 percent coverage by 2014. As at December 2013, 77 percent of women aged 25–69 years had been screened in the past three years, up from 74 percent in 2007. Although cervical screening rates have improved for all ethnic groups, they remain lower in women of Māori (63 percent), Pacific (69 percent) and Asian (65 percent) ethnicity (Figure 3.2).

Figure 3.2: Cervical screening coverage rates in the past three years, women aged 25–69 years, by ethnic group, 2007–2013



Notes:

Coverage includes eligible women screened by the National Cervical Screening Programme in the previous 36 months.

Populations are Statistics New Zealand 2006 Census population projections for 2012 and adjusted for hysterectomy prevalence.

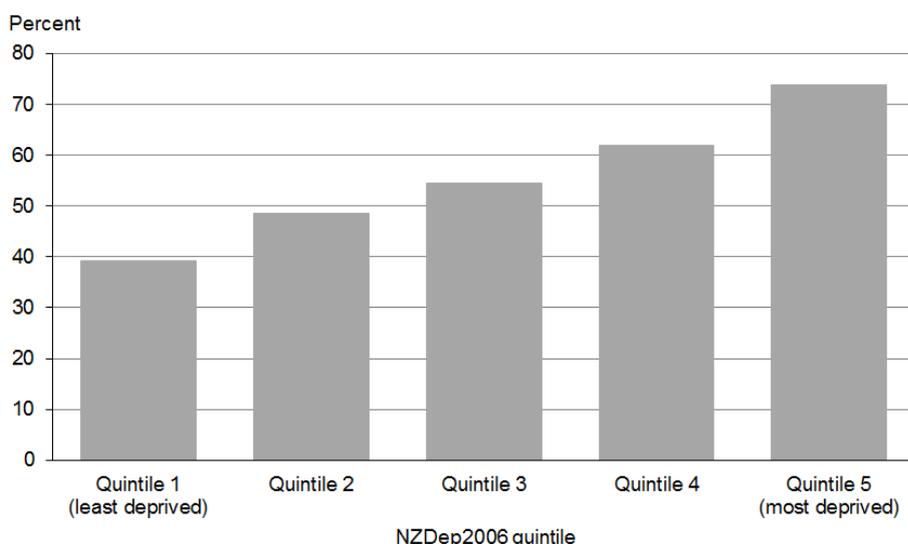
Source: National Screening Unit, Ministry of Health

Gaps in dental care for adults

Regular dental visits are important for the early detection of dental problems such as decay. The Ministry of Health and the New Zealand Dental Association recommend regular dental checks as one way to keep teeth and gums healthy. In New Zealand, basic oral health services are funded for children and adolescents from birth up until their 18th birthday.

The 2012/13 New Zealand Health Survey found that 55 percent of adults only visit a dental health care worker when they have dental problems, or never visit at all (Ministry of Health 2013b). A 2010 national survey showed that these people were much more likely to have untreated dental decay than people who usually visit for a check-up (Ministry of Health 2010b). Only visiting for dental problems (or never) was more common among adults living in the most deprived areas (see Figure 3.3), and was also more common among Māori (76 percent) and Pacific peoples (78 percent).

Figure 3.3: Percentage of adults only visiting a dental health care worker for a problem (or never visiting), by neighbourhood deprivation, 2012/13



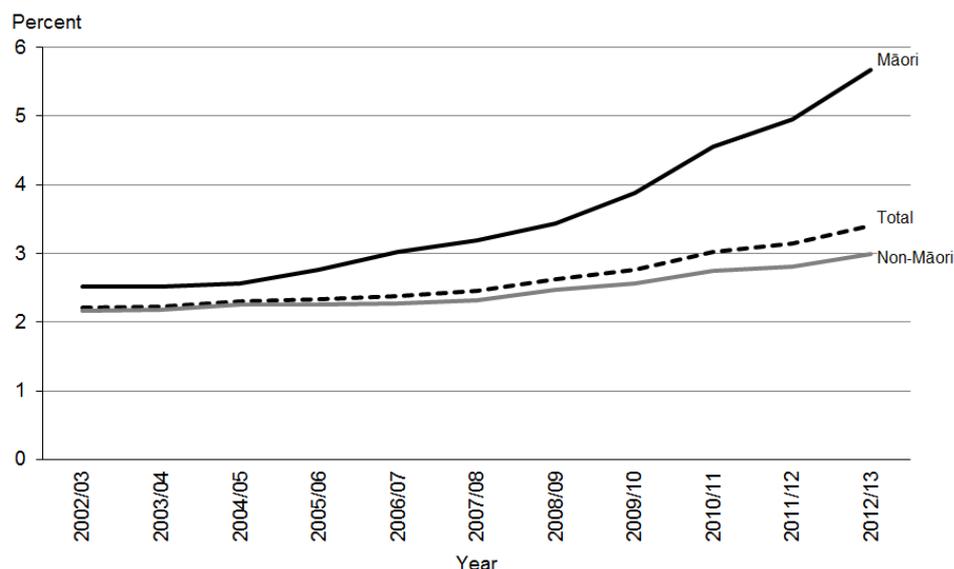
Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

In the 2013 Commonwealth Fund International Health Policy Survey, 41 percent of New Zealand adults reported that they had not visited a dentist/hygienist/dental clinic in the last two years (ranking New Zealand last of eleven OECD countries). One in three New Zealand adults (32 percent) reported that they had skipped dental care because of the cost in the last year (ranking New Zealand tenth of eleven) (Osborn and Schoen 2013).

More people are accessing mental health and addiction services

It is important that people experiencing mental illness and addictions can access specialist services. Since 2002/03, the use of specialist mental health services in New Zealand has increased. A higher proportion of the Māori population uses specialist mental health services than the non-Māori population (see Figure 3.4). The level of access to specialist services has increased at a faster rate for Māori than for non-Māori, particularly since 2004/05.

Figure 3.4: Percentage of total population accessing mental health and addiction services, Māori and non-Māori, 2002/03–2012/13



Notes: The number of NGOs reporting to PRIMHD has increased from 50 in 2008 (when PRIMHD was implemented) to 228 currently. Therefore some of the increase in access rates is due to more complete reporting. Because services for older persons are funded differently across the country, not all older persons mental health services report to PRIMHD.

Source: Mental Health Information National Collection – until 2008; Programme for the Integration of Mental Health Data (PRIMHD) – since 2008.

Timeliness

Timely access to health care when it is needed is an important dimension of service quality, and may affect outcomes. Delays in access to health care can lead to emotional distress and worse health outcomes, particularly if the delay results in later diagnosis or treatment.

Good results for urgent appointments in primary care

Primary health care providers are generally people’s first point of contact with the health care system; it is important that people can access primary care when they need to. Currently, most New Zealanders are able to access primary care within 24 hours of needing it.

In the 2012/13 New Zealand Health Survey, 84 percent of adults and 87 percent of children were able to get an appointment at their usual medical centre within 24 hours of wanting one (Ministry of Health 2013b). Results were slightly lower for Māori adults (79 percent) and Māori children (84 percent). The result for adults overall was an improvement from 2006/07, when the equivalent figure was 82 percent (no time trends were available for children).

New Zealand ranks highly by international standards for people being able to see a doctor or nurse the same or next day. In 2013, nearly three out of four New Zealand adults (72 percent) reported being able to get a same- or next-day appointment with a doctor or nurse when they needed care, compared with only 58 percent in Australia and 52 percent in the United Kingdom (Osborn and Schoen 2013).

Wait times for emergency care have improved and are low by international standards

The Commonwealth Fund 2014 *Mirror, Mirror* report (Davis et al 2014) showed that New Zealand's average waiting times for emergency care were lowest compared with 10 other OECD countries. Only 14 percent of those who had attended an emergency department in the past two years waited for more than two hours, in contrast to the worst performing country (Canada), where nearly half waited two hours or more.

These results are consistent with progress towards the New Zealand Government's health target 'shorter stays in emergency departments'. The latest data show that 94 percent of people were admitted, discharged or transferred from an emergency department within six hours against the target of 95 percent. See the 'Health targets' section in the *Annual Report* for further information.

More people are being seen and treated more quickly for elective services

Elective services are medical or surgical services for people who do not need to be treated right away. In February 2011 the Ministry of Health introduced a multi-year programme that specified maximum waiting-time expectations for elective services. The goal is that by December 2014 no patients will have been waiting for elective services for over four months.

In the last two years there has been a marked reduction in the number of patients waiting over four months for an elective first specialist assessment and over four months for elective treatment following their first specialist appointment (see Table 3.5).

Table 3.5: Number of people waiting over four months for elective first specialist appointment and elective treatment, 2012–2014

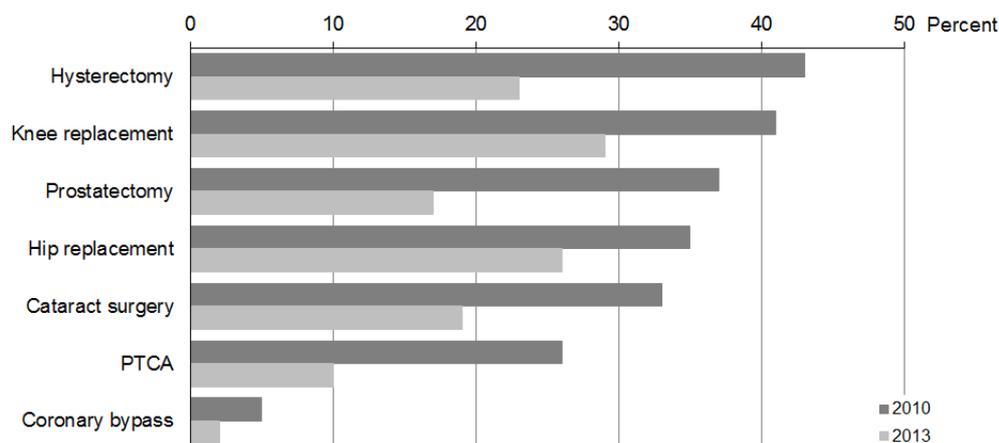
| Month ending | Waiting over four months for first specialist appointment | Waiting over four months for treatment |
|--------------|---|--|
| June 2012 | 9197* | 4192 |
| June 2013 | 4988 | 2260 |
| June 2014 | 3547 | 2030 |

Notes: * District health boards commenced monthly reporting this measure in July 2012, so June 2012 data is not available; this figure relates to July 2012.

Source: National Booking and Reporting System

From 2010 to 2013, the percentage of patients waiting more than three months declined for seven key elective procedures (see Figure 3.5).

Figure 3.5: Percentage of patients waiting more than three months for elective procedures, by procedure type, 2010 and 2013



Notes:

1. The time elapsed from the date of referral from a GP to the date of specialist assessment is excluded.
2. PTCA refers to percutaneous transluminal coronary angioplasty.

Source: National Booking and Reporting System

The number of elective surgeries being performed has exceeded the government health target. By the fourth quarter of 2013/14, district health boards (DHBs) had achieved the target of increasing the volume of elective surgery by at least 4000 discharges per year: they provided 161,933 elective surgical discharges against a target of 152,287, which is an additional 9646 discharges. See the ‘Health targets’ section in the *Annual Report* for further information.

The combination of increased access to elective surgery and reduced waiting times for elective surgery is very positive; more people are being seen and treated, faster.

Effectiveness

The health system’s effectiveness is measured by the extent to which patients receive services that are effective and appropriate for preventing or treating their health conditions, both in the community and in hospitals.

Immunisation levels have increased for all ethnic groups

Immunisation is one of the most effective and cost-effective interventions to protect people against harmful infections that can cause serious complications, including death. The National Immunisation Programme comprises a series of vaccines that are offered at no cost, providing protection from diseases such as pertussis and measles.

One of the government health targets is increased immunisation for children. Until June 2012 the target was to fully immunise 95 percent of two-year-olds. As a result, the immunisation coverage for two-year-olds improved markedly, from 67 percent in quarter one of 2007/08 to 93 percent in quarter four of 2013/14.

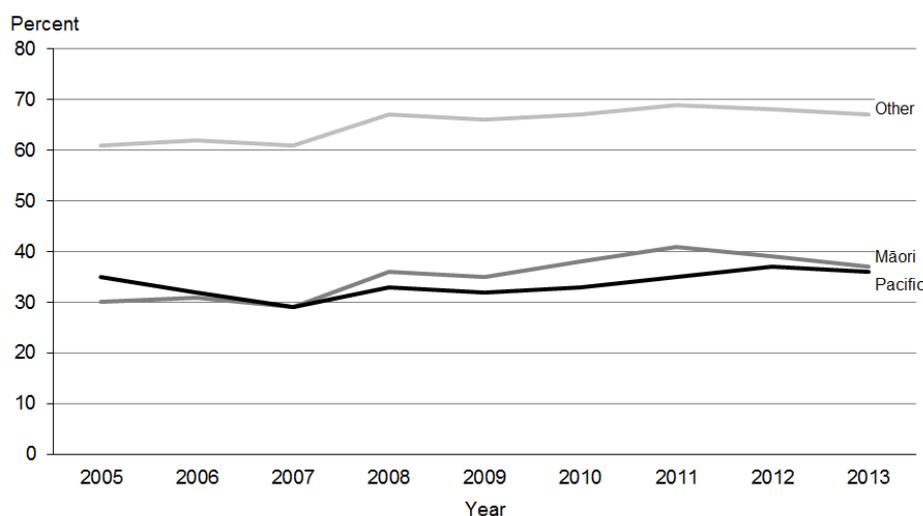
The more recent target aimed to ensure that 90 percent of all eight-month-olds will be fully immunised (ie, that they will have had their primary course of immunisations at six weeks, three months and five months on time) by July 2014. This target was exceeded: 92 percent of eight-month-olds were fully immunised in quarter four of 2013/14. Coverage rates for vulnerable groups improved substantially from quarter one of 2012/13 to quarter four of 2013/14: Māori children (78 to 88 percent), Pacific children (87 to 95 percent), and children living in the most deprived areas (81 to 89 percent). See the 'Health targets' section in the *Annual Report* for further information.

More children caries free overall but there are large differences between ethnic groups

In 2013, 57 percent of children were caries-free (that is, they had no dental decay, missing teeth or fillings due to decay in their primary teeth) when they started school. This was an improvement since 2000, when 52 percent were caries-free. Similarly, there was an increase in the proportion of children who were caries free in their permanent teeth at the end of Year 8 (age 12–13 years) between 2000 and 2013 (from 42 to 54 percent).

Pacific and Māori children are less likely to be caries-free than other children, particularly as five-year-olds. In 2013, 36 percent of Pacific children and 37 percent of Māori children were caries-free when they started school, compared with 67 percent of other children (see Figure 3.6).

Figure 3.6: Caries-free (fluoridated and non-fluoridated) five-year-olds, by ethnic group, 2005–2013

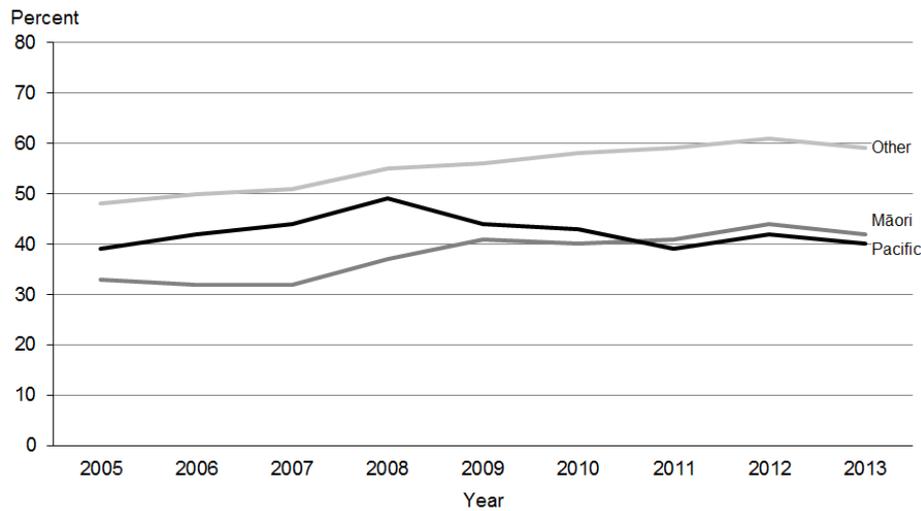


Note: Figures pertain to primary teeth for five-year-olds.

Source: District health board reporting from the Community Oral Health Service

In Year 8, 40 percent of Pacific children and 42 percent of Māori children were caries-free, compared with 59 percent of other children (see Figure 3.7). In contrast to the Māori and 'Other' ethnic groups, there has been very little improvement in the proportion of caries-free Pacific children in Year 8 since 2005.

Figure 3.7: Caries-free (fluoridated and non-fluoridated) Year 8 students, by ethnic group, 2005–2013



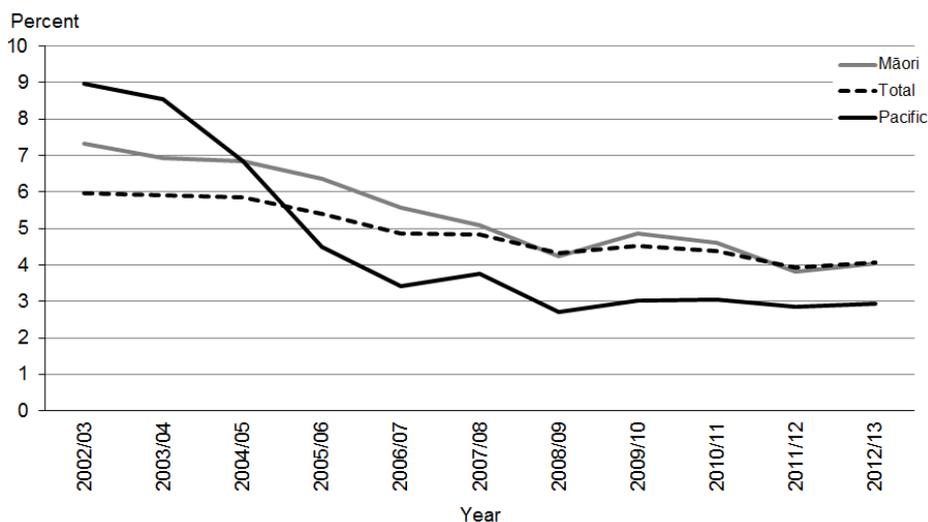
Note: Figures pertain to permanent teeth for Year 8 students.

Source: District health board reporting from the Community Oral Health Service

Fewer new admissions directly to acute inpatient mental health services

Ideally people with mental health conditions are managed in the community, rather than in hospital. The proportion of new mental health clients first seen in acute inpatient mental health services decreased from 6.0 percent in 2002/03 to 4.1 percent in 2012/13. The decrease for Māori and Pacific was greater than for the total population over this period (see Figure 3.8). This suggests that community mental health services became more accessible and effective over that period across all ethnic groups.

Figure 3.8: Proportion of new clients seen in acute inpatient mental health services (rather than specialist community mental health services), by ethnic group, 2002/03–2012/13



Note: 'New clients' are defined as people who were seen at a service for the first time in the previous 12 months.

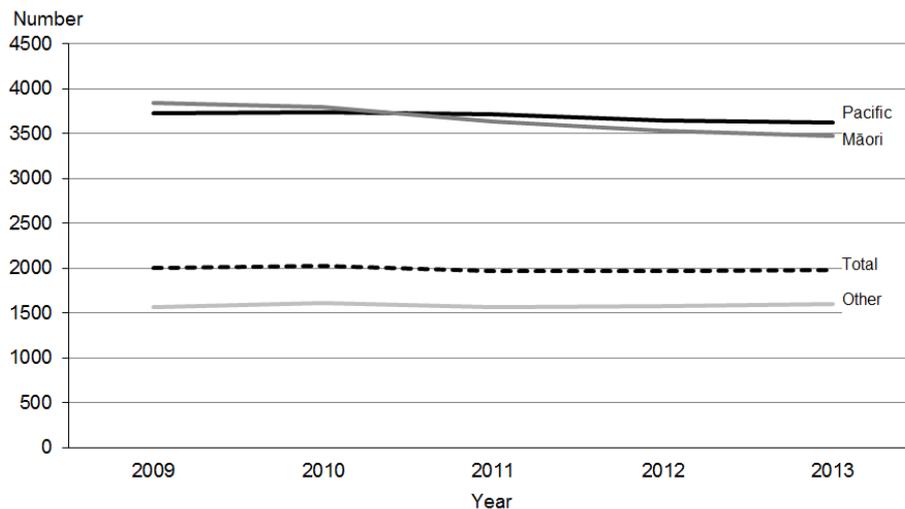
Source: PRIMHD

Ambulatory sensitive hospitalisations

Ambulatory sensitive hospitalisation (ASH) rates measure the number of people who appear in hospital with conditions that could have been prevented or treated in out-of-hospital settings such as primary health care. Therefore, ASH is a measure of both effectiveness and efficiency.

From 2009 to 2013 ASH rates have been relatively stable for the total population, but they have declined by 10 percent for Māori and 3 percent for Pacific peoples (see Figure 3.9). However, ASH rates in Māori and Pacific peoples remain over double the rate for the 'Other' ethnic group.

Figure 3.9: Ambulatory-sensitive hospitalisation admission rates per 100,000 people aged 0–74 years, by ethnic group, 2009–2013



Notes:

1. The data for Pacific peoples is taken from the seven DHBs with a substantial Pacific population: Waitemata, Auckland, Counties Manukau, Waikato, Capital & Coast, Hutt and Canterbury. All other DHBs' Pacific populations are grouped into the 'Other' ethnic group. Rates are age-standardised to the World Health Organization (WHO) world population.
2. As there are some limitations to the denominator measure, it is difficult to interpret trends by ethnicity with certainty.

Source: National Minimum Dataset, Ministry of Health

The specific conditions contributing to the overall ASH rate vary by age and ethnic group (see Table 3.6). For Māori, dental conditions predominate in children, cellulitis (a bacterial skin infection) in adults aged up to 64 years and pneumonia in adults aged 65–74 years. For Pacific peoples, cellulitis is the predominant condition affecting the ASH rate in all age groups except adults aged 65–74 years, where pneumonia is most common. For non-Māori, non-Pacific peoples, gastroenteritis/dehydration is the most common condition affecting the ASH rate in children under five years, dental conditions in older children, cellulitis in adults aged 15–44 years and angina and chest pain in adults aged 45–74 years.

Table 3.6: Most common conditions causing ambulatory sensitive hospitalisations, by age and ethnic group, 2011–2013

| Age group (years) | Māori | Pacific | Non-Māori, non-Pacific |
|-------------------|------------------------------------|------------------------------------|-----------------------------|
| 0–4 | Dental conditions | Cellulitis | Gastroenteritis/dehydration |
| 5–14 | Dental conditions | Cellulitis | Dental conditions |
| 15–24 | Cellulitis | Cellulitis | Cellulitis |
| 25–44 | Cellulitis | Cellulitis | Cellulitis |
| 45–64 | Cellulitis | Cellulitis | Cellulitis |
| 65–74 | Respiratory infections – pneumonia | Respiratory infections – pneumonia | Angina and chest pain |

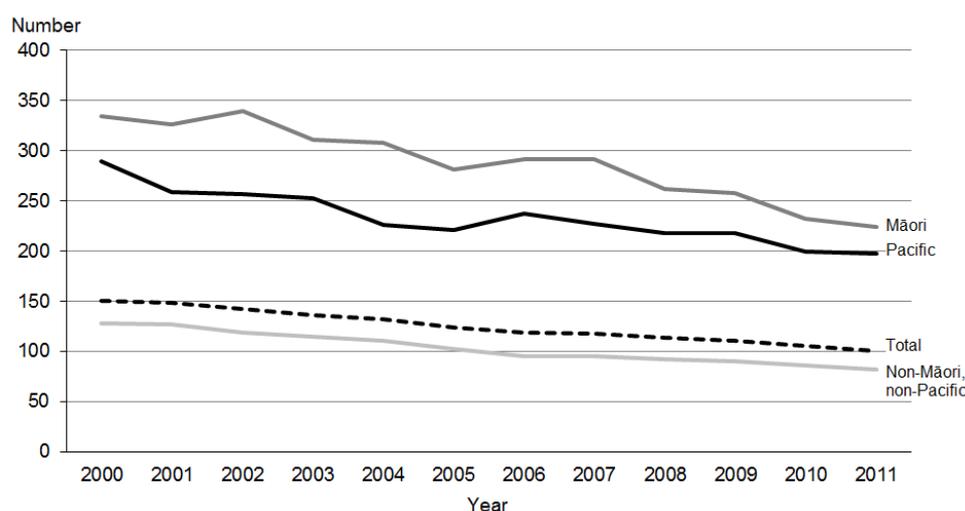
Source: National Minimum Dataset, Ministry of Health

Deaths preventable by health care declining steadily

‘Amenable mortality’ refers to deaths that might have been prevented if health services had been delivered more effectively or if patients had accessed services earlier (either in primary care or in hospital).

From 2000 to 2011 New Zealand’s amenable mortality rates decreased across all ethnic groups; the greatest decline was seen for Māori, followed by Pacific peoples (see Figure 3.10). However, in 2011, rates for Māori were still 2.7 times higher, and for Pacific peoples 2.4 times higher, than they were for non-Māori, non-Pacific peoples.

Figure 3.10: Amenable mortality rate per 100,000 people aged 0–74 years, by ethnic group, 2000–2011



Notes: Amenable mortality includes deaths from some types of infection and cancer; maternal, perinatal and infant conditions/ complications; injuries; and a range of chronic disorders. Rates are age-standardised to the WHO world population.

Source: National Minimum Dataset, Ministry of Health

The most common conditions contributing to deaths amenable to health care vary by age group, but are largely consistent across ethnic groups (see Table 3.7). Over the three-year period from 2009 to 2011, injuries were the leading cause of deaths amenable to health care for people aged 5–44 years, except for Pacific adults aged 25–44 years where cardiovascular diseases and diabetes were the leading cause. Cardiovascular diseases and diabetes were the leading cause of deaths amenable to health care across for adults aged 45–75 years.

Table 3.7: Most common condition contributing to deaths amenable to health care, by age and ethnic group, 2009–2011

| Age group (years) | Māori | Pacific | Non-Māori, non-Pacific |
|-------------------|----------------------|----------------------|------------------------|
| 0–4 | Maternal and newborn | Maternal and newborn | Maternal and newborn |
| 5–14 | Injuries | Injuries | Injuries |
| 15–24 | Injuries | Injuries | Injuries |
| 25–44 | Injuries | CVD and diabetes | Injuries |
| 45–64 | CVD and diabetes | CVD and diabetes | CVD and diabetes |
| 65–74 | CVD and diabetes | CVD and diabetes | CVD and diabetes |

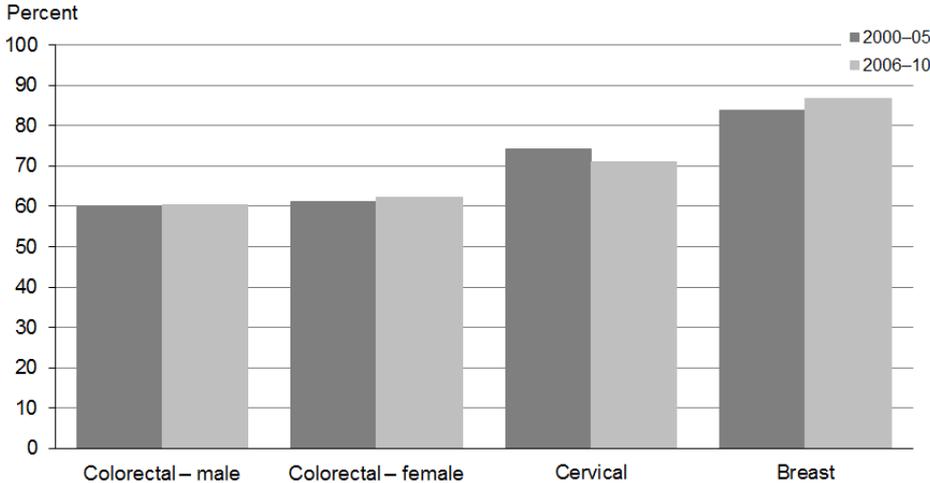
Source: National Minimum Dataset, Ministry of Health

People are more likely to survive cancer

Cancer survival rates are a key measure of the effectiveness of the health system in delivering early detection, diagnosis and treatment. Cancer survival is measured using the five-year relative survival ratio, which compares observed survival of cancer patients after five years from diagnosis to that of comparable cancer-free individuals in the general population. This section looks at cancer survival for three specific cancers – colorectal, breast and cervical cancers – as indicators for the effectiveness of the health system in improving cancer survival overall.

Between 2000 and 2010 there were improvements in survival for colorectal cancer (in both males and females) and breast cancer, but not for cervical cancer (see Figure 3.11). The trend of declining cervical cancer survival over this period (from 74.1% to 71.0%) is explained by two factors: an increasing proportion of cervical cancers caused by a subtype that is both more aggressive (less curable) and less detectable through screening; and an increasing proportion of cervical cancers that have already spread to other parts of the body at the time of diagnosis and therefore do not respond as well to treatment. There is no evidence that the quality of cervical cancer treatment is worsening. Note that trends in cancer survival are not an indicator of the coverage or quality of cervical cancer screening.

Figure 3.11: Five-year relative survival, by cancer type and sex, 2000–05 and 2006–10

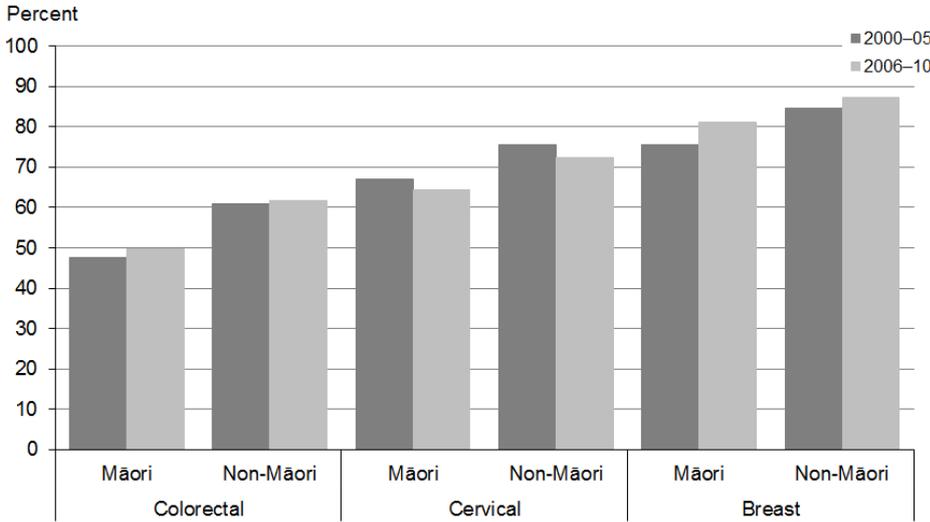


Note: Age-standardised survival (%).

Source: New Zealand Cancer Registry and the Mortality Collection, Ministry of Health

Although colorectal and breast cancer survival have improved for Māori, survival for colorectal, cervical and breast cancer remains lower in Māori compared with non-Māori (see Figure 3.12).

Figure 3.12: Five-year relative survival, by cancer type, Māori and non-Māori, 2000–05 and 2006–10

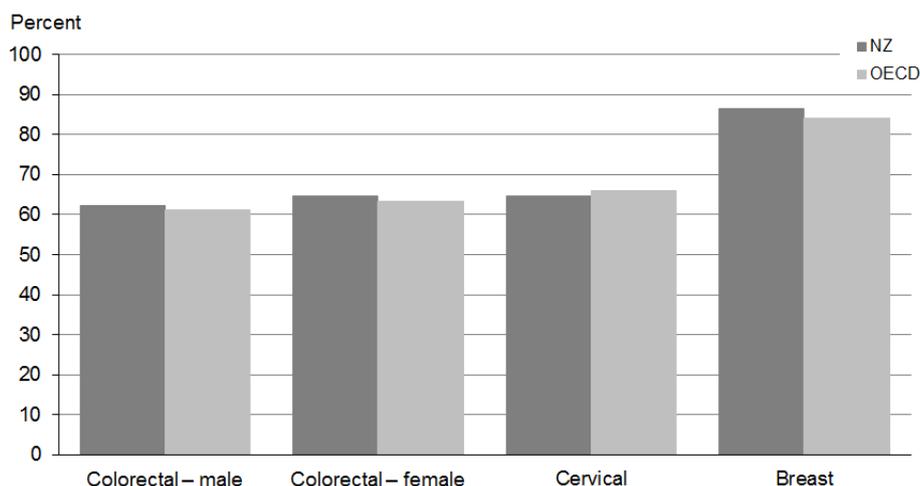


Note: Age-standardised survival (%).

Source: New Zealand Cancer Registry and the Mortality Collection, Ministry of Health

New Zealand’s survival for colorectal and breast cancer are slightly above the OECD average (see Figure 3.13). However, our survival rates for cervical cancer are slightly below the OECD average.

Figure 3.13: Five-year relative survival, by cancer type, New Zealand and OECD average, 2006–11 (or nearest period)



Note: Age-standardised survival (%).

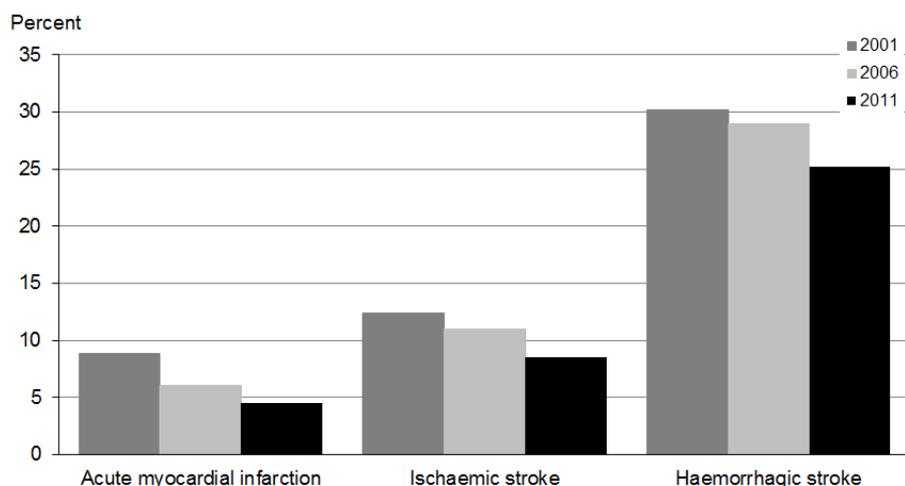
Source: OECD 2013

Better survival after heart attacks and strokes

Survival after admission to hospital for acute myocardial infarction or stroke is a measure of the effectiveness of health services at delivering treatment for these conditions. A commonly used indicator of survival is the mortality rate from acute myocardial infarction and stroke within 30 days of admission, for adults aged 45 years or older.

From 2001 to 2011, 30-day mortality rates declined by about 50 percent for acute myocardial infarction, 30 percent for ischaemic stroke and 17 percent for haemorrhagic stroke (see Figure 3.14). These improvements can be attributed to better treatments in the acute phase of myocardial infarction and improved access to diagnosis and optimal treatment for stroke patients (partly due to the introduction of dedicated stroke units).

Figure 3.14: Mortality rate within 30 days of admission to hospital with an acute myocardial infarction or stroke, adults aged 45 years or older, 2001, 2006 and 2011



Note: Age-sex standardised rate per 100 patients.

Source: OECD 2013

New Zealand's 30-day mortality for acute myocardial infarction (4.5 percent) is lower than the OECD average (7.9 percent). Our 30-day mortality rate for ischaemic stroke is similar to the OECD average, but our 30-day mortality rate for haemorrhagic stroke (25 percent) is higher than the OECD average (22 percent) (OECD 2013).

Most older people live independently in their own homes

Effective health care and support services enable people to live independently for longer. There is evidence that older people who continue to live in their own home – with personal care and home management support if necessary – experience greater wellbeing.

In 2013/14, 23 percent of people aged 85 years or older lived in aged residential care, down from 28 percent in 2006/07 (see Table 3.8). This means that a high and increasing proportion of older people live independently in their own home.

Table 3.8: Percentage and number of older people living in aged residential care, adults aged 85 years and older, 2006/07–2013/14

| Year | People aged 85+ years living in aged residential care | | Estimated population aged 85+ years |
|---------|---|--------|-------------------------------------|
| | Percentage | Number | Number |
| 2006/07 | 28 | 16,707 | 59,685 |
| 2007/08 | 26 | 16,445 | 62,408 |
| 2008/09 | 26 | 16,647 | 64,623 |
| 2009/10 | 26 | 17,195 | 67,120 |
| 2010/11 | 25 | 17,576 | 69,708 |
| 2011/12 | 25 | 18,069 | 71,943 |
| 2012/13 | 23 | 17,282 | 74,248 |
| 2013/14 | 23 | 17,930 | 76,868 |

Source: Aged Residential Care Demand Planner; population estimates from Statistics New Zealand

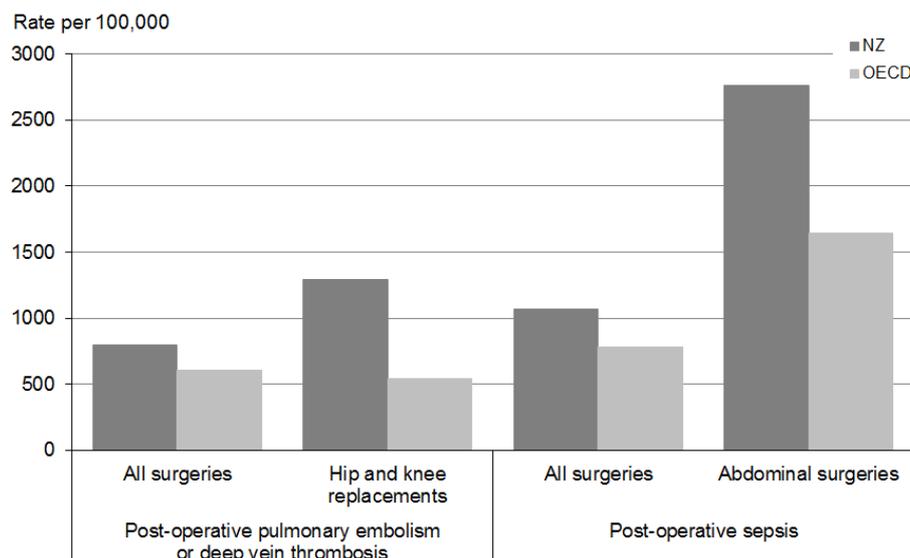
Patient safety

Patient safety is one of the main dimensions of health system performance. Patients are sometimes unintentionally harmed in a health care setting, resulting in a longer length of stay, permanent injury or even death. A multitude of interactions with different providers can make it difficult to ensure safe health care. Recognising the importance of patient safety and maintaining a focus on prevention can help improve the performance of the health system.

International benchmarking suggests post-operative complications could be reduced

Compared with other OECD countries, New Zealand has relatively high rates of two types of adverse events: post-operative pulmonary embolism and deep vein thrombosis, and post-operative sepsis (see Figure 3.15).

Figure 3.15: Post-operative complication rate, New Zealand and OECD average, 2011 or nearest year



Note: Adjusted rate per 100,000 hospital discharges.

Source: OECD 2013

Pulmonary embolism (a blockage of the main lung artery) and deep vein thrombosis (a blood clot in a deep vein; usually in the legs) cause pain and can cause death. Both complications can be prevented by the administration of anticoagulants and other measures before, during and after surgery. Sepsis (a potentially life-threatening bloodstream infection) can lead to organ failure and death. Sepsis can be prevented or minimised by appropriate prophylactic antibiotics, surgical measures and post-operative care.

While these post-operative complication findings might be partly explained by reporting differences, it may also represent an opportunity for improvement. The Health Quality and Safety Commission is making post-operative complications an area of priority through its peri-operative harm programme. This programme includes promoting use of the WHO safe surgery checklist, an approach shown to reduce post-operative complications.

Safe care measures

‘Safe care’ is care that proactively minimises injuries to patients. In the 2012 Commonwealth Fund International Health Policy Survey, nine out of ten New Zealand primary care doctors (89 percent) said that they routinely receive information to assist in the provision of safe care; that is they receive a prompt about a potential problem with drug dose or interaction (Davis et al 2014). In the same survey, just over half of doctors (53 percent) routinely received reminders about guideline-based interventions and/or tests.

Efficiency and sustainability

A high-performing health system will be able to meet the substantial challenges that lie ahead. The overarching challenge for health care in the future will be raising the quality of health and disability services within a constrained funding path.

Within this context, it will continue to be important to improve the efficiency and productivity of health and disability services and organisations, to ensure that New Zealand is obtaining the best value for money for the investment in health care.

Good overall systems outcomes for expenditure

Despite lower relative health spending than some countries, New Zealand achieves relatively good health and systems outcomes. In the Commonwealth Fund 2014 *Mirror, Mirror* report (Davis et al 2014), New Zealand ranked seventh highest out of 11 OECD countries for performance overall across four main dimensions of systems performance: quality care (with four sub-domains for effective, safe, coordinated and patient-centred care), access (with two sub-domains for cost-related problems and timeliness of care), efficiency and equity. New Zealand performed very well on the two sub-dimensions of effective care and coordinated care (ranking second best for both). In contrast, New Zealand has consistently spent less per capita since 1980 on health care than all of the other 10 OECD countries represented in the report.

Growth in generic medicines

Generic medicines have the same active ingredient, dose and strength as an original branded medicine, and are manufactured to the same international quality standards, but are less expensive.

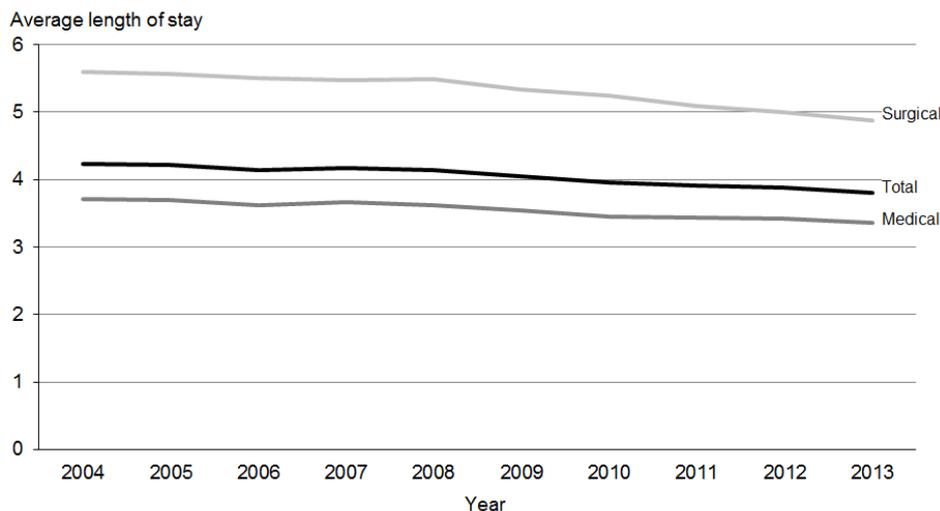
There has been a growth in the use of generic medicines in New Zealand. In 2013, generic medicines accounted for 77 percent of the total volume and 34 percent of the dollar value of medicines reimbursed by the Government. This placed New Zealand as the third highest ranking country in the OECD on the volume measure from 16 countries submitting data; the OECD average for the measure was 45 percent (OECD 2014c). This reflects the efficiency of the New Zealand pharmaceutical purchasing model, which encourages a focus on effectiveness and generic competition.

Average length of stay in hospital has decreased

Longer stays increase the cost of care and can reduce patient wellbeing. Average length of stay can be decreased by measures such as advances in treatment technologies (eg, new and less invasive surgical techniques), more effective drugs, improved community and follow-up care, and more effective hospital administration.

From 2004 to 2013, the average length of stay for total medical and surgical procedures decreased from 4.2 to 3.8 days (see Figure 3.16). During the same period average length of stay for surgical procedures decreased from 5.6 to 4.9 days, and for medical procedures it decreased from 3.7 to 3.4 days.

Figure 3.16: Average number of days spent in hospital by inpatients: medical, surgical and total, 2004–2013



Source: National Minimum Dataset, Ministry of Health

The challenge for hospital staff is to ensure that minimising length of stay – thus potentially achieving benefits to patient wellbeing and efficiency gains for providers – does not result in reduced quality of care or unnecessary readmissions.

The elective day case rate is increasing

In many cases, admitting and discharging a patient for a surgical procedure on the same day can result in a less disruptive hospital visit for the patient and ensure hospital resources are used more efficiently. Day surgery is most effective for less complex surgery.

From 2003 to 2013 there was an increase in the proportion of all surgical procedures that were carried out as day case procedures, from 53 to 58 percent. This is in line with international trends, and suggests that hospitals are becoming more efficient at patient management.

Changing health needs

Key messages

- The health system needs to adapt to meet the challenges that lie ahead. These challenges include changes in our population and patterns of disease.
- The population is growing by about 110 people per day. The population size has increased in all ethnic groups, with the largest growth in the Asian ethnic group.
- The population is ageing. The number of people aged 65 years or older is projected to nearly double by 2031. While structurally youthful, the proportion of Māori aged 65 years or older has increased over the last decade.
- New Zealanders are living longer than ever before, although some of the extra years of life are spent in poor health.
- Patterns of disease are changing. As the burden of cardiovascular disease declines, cancers are becoming more prominent.
- Multimorbidity is common in older adults: half of adults aged 65 years or older have two or more long-term conditions.
- Disability rates are increasing in all age groups. The most common causes of impairment are diseases, injuries and ageing.

The health system needs to adapt to meet the challenges that lie ahead. This section provides an overview of challenges associated with population change and changing patterns of disease. Some of the other challenges facing the health system, such as workforce development and advances in medicines and technologies, are covered in the *Annual Report*.

Population growth and change

Our population is growing and changing. The increasing size, diversity and age of the New Zealand population will impact on the health sector by increasing the demand for services.

Increasing population size and diversity

At June 2014, New Zealand's resident population was 4.5 million; this figure has increased by 325,300 people since 2006 (Statistics New Zealand 2014b), and equates to an increase of about 110 people per day. The increase is due to both natural increase (births minus deaths) and net migration.

The New Zealand population has a high proportion of people born overseas. The 2013 Census found that about 25 percent of New Zealanders were born overseas, up from 20 percent in 2001.

All major ethnic groups have increased in size since 2006; the fastest growth has occurred in the Asian and Middle Eastern/Latin American/African (MELAA) ethnic groups (see Table 3.9).

Table 3.9: Population of major ethnic groups, 2006 and 2013

| | Estimated resident population at 30 June | | | | Increase from 2006 to 2013 | |
|--|--|-----------|---------|------|----------------------------|---------|
| | Count | | Percent | | Count | Percent |
| | 2006 | 2013 | 2006 | 2013 | | |
| European or Other | 3,213,300 | 3,312,100 | 76.8 | 74.6 | 98,800 | 3 |
| Māori | 624,300 | 692,300 | 14.9 | 15.6 | 68,000 | 11 |
| Asian | 404,400 | 541,300 | 9.7 | 12.2 | 136,900 | 34 |
| Pacific | 301,600 | 344,400 | 7.2 | 7.8 | 42,800 | 14 |
| Middle Eastern/Latin American/African | 38,600 | 53,100 | 0.9 | 1.2 | 14,500 | 38 |
| Total | 4,184,600 | 4,442,100 | – | – | 257,500 | 6 |

Notes: People who identify with more than one ethnic group are included in each group they identify with. Therefore, individual ethnic population counts and percentages do not sum to the total.

Source: Statistics New Zealand (Statistics New Zealand 2014b).

As well as increasing in size, the Asian ethnic group is becoming more heterogeneous. The fastest growing Asian subgroups are Indian and Filipino. The health status of Asian subgroups is hugely variable, so data for the total Asian ethnic group often masks important differences. For example, all-cause mortality for the Indian ethnic group is about 40 percent higher than for the Chinese ethnic group (Jatrana et al 2014). This difference is partly explained by higher rates of diabetes and cardiovascular diseases in the Indian ethnic group.

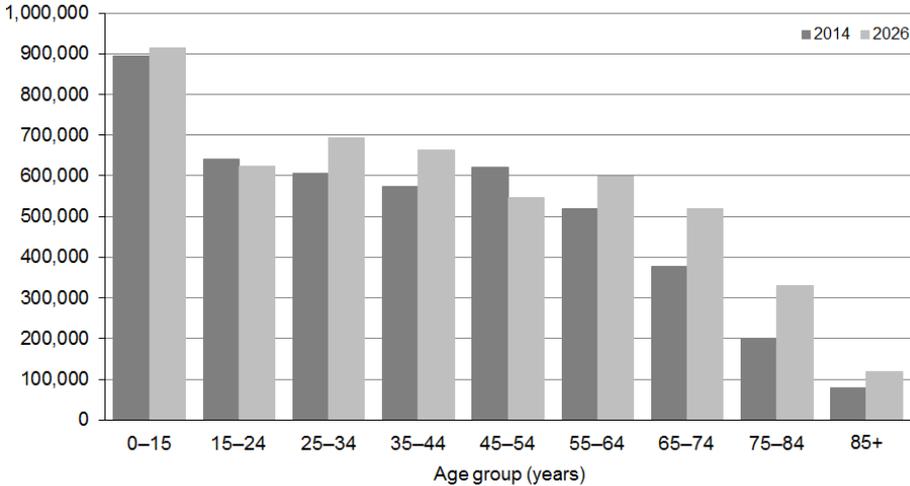
Māori and Pacific populations have a younger age structure than the European and Asian ethnic groups: in 2013 the median age was 23.9 years for Māori, 22.1 years for Pacific peoples, 41.0 years for European and 30.6 years for Asian. The median age of Māori and Pacific populations has increased since 2006, when it was 22.7 years and 21.1 years respectively (Statistics New Zealand 2013a).

Our population is ageing

Population ageing is the shift in the distribution of a population towards older ages. It occurs due to a combination of increasing life expectancy and decreasing fertility. Population ageing will put pressure on the health system due to the increased health needs of older people. To minimise this impact, we need to improve the health of middle-aged and older adults. One way to achieve this is to ensure that prevention and early intervention occurs much earlier in the life course.

At June 2013, about 14 percent of the population were aged 65 years or older (650,400), up from 11 percent in 1994 (Statistics New Zealand 2014b). The number of people aged 65 years or older is projected to nearly double by 2031, reaching about 1.1 million (21 percent of the population) (Statistics New Zealand 2012). While the population size is increasing in most age groups, the biggest growth will be in the 65–74 and 75–84-year age groups (see Figure 3.17), as the cohort of ‘baby boomers’ ages. The proportion of Māori aged 65 years or older has increased from 4.1 percent in 2006 to 5.4 percent in 2013 (Statistics New Zealand 2013b).

Figure 3.17: Population counts, by age group, 2014–2026 (projected)



Source: Statistics New Zealand projections for Ministry of Health

Changing patterns of disease

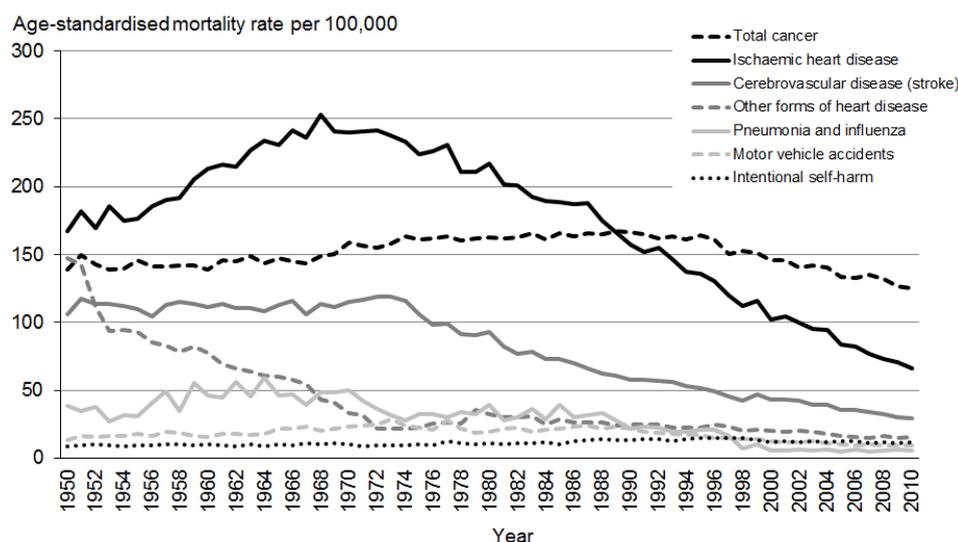
The pattern of health and illness in the population influences the demand for health services. This section summarises long-term trends in mortality and life expectancy, as well as more recent trends in health expectancy, multimorbidity and disability.

Change in causes of death over time

Trends in major causes of death are key drivers of changes in life expectancy. Figure 3.18 shows changing causes of death over the last 60 years for the total New Zealand population.

Ischaemic heart disease mortality rates peaked from the late 1960s to the mid-1970s, and have declined steadily since. The pattern is similar for cerebrovascular disease (stroke), for which mortality rates peaked from the late 1950s to the early 1970s. These large declines in ischaemic heart disease and stroke mortality (about 75 percent in each case) are a success story for the health system: they show what can be achieved with a combination of population-based initiatives (eg, reduced smoking and saturated fat intake), early detection of disease and better medical care. It is thought that increasing rates of obesity and diabetes may slow or reverse the decline in cardiovascular disease mortality rates; however, there was no evidence of this happening as of 2010.

Figure 3.18: Leading causes of mortality, 1950–2010



Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health (Ministry of Health 2014b).

As cardiovascular disease mortality rates have declined, cancers have become more prominent as a cause of death. In the mid-1990s, mortality rates for all cancers combined started to decline (see Figure 3.18). This decline is due to a combination of primary prevention (eg, through reduced smoking), early detection (eg, through screening) and more timely and effective medical care.

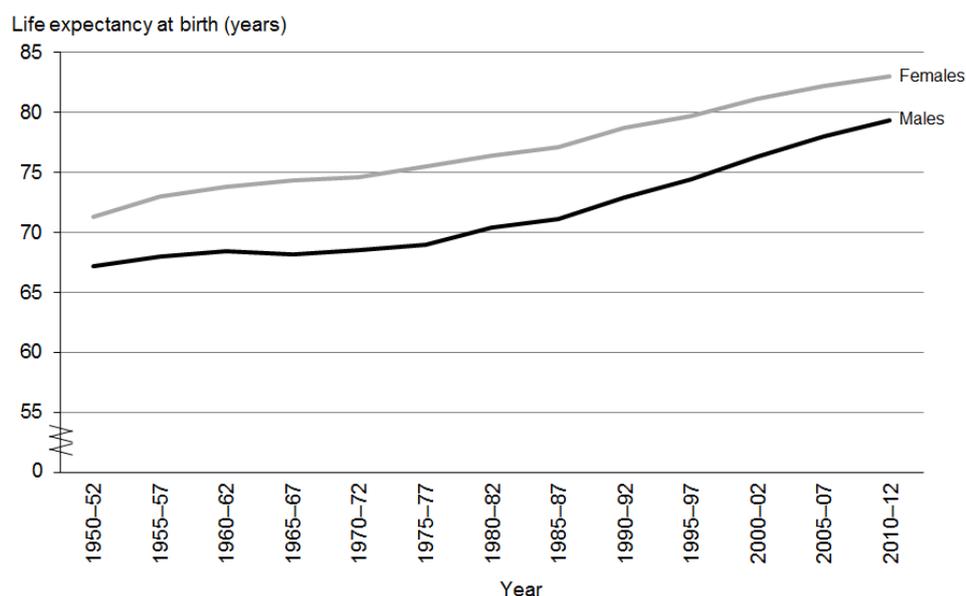
Other important trends include declining mortality rates for pneumonia and influenza since the 1960s and declining motor vehicle accidents since the mid-1970s. In contrast, mortality rates from intentional self-harm (suicide) increased slightly over this period, peaking in the mid-1990s.

New Zealanders are living longer than ever before

Life expectancy is the number of years a person can expect to live, given age-specific mortality patterns. If mortality rates are declining, as they are in New Zealand, actual life spans will be even longer.

New Zealanders are living longer than ever before. A boy born in 2012 could expect to live 79.7 years, and a girl 83.2 years (Statistics New Zealand 2014a). Since the 1950s, life expectancy at birth has increased by an average of two years per decade; there have been increases of about 2.5 years per decade (or three months per year) in more recent years. The gap in life expectancy between males and females has reduced since the mid-1970s, from 6.5 years to 3.5 years (see Figure 3.19).

Figure 3.19: Life expectancy at birth, by sex, 1950–52 to 2011–13



Source: Statistics New Zealand 2014d

New Zealand's life expectancy compares well with similar countries. For New Zealand males, life expectancy at birth in 2012 was 2.2 years above the OECD average (77.5 years). For New Zealand females, it was 0.4 years above the OECD average (82.8 years) (OECD 2014d).

In 2011, life expectancy at birth was 72.8 years for Māori males and 76.5 years for Māori females. While improvements in Māori life expectancy over the past 15 years have narrowed the gap between Māori and non-Māori, the current gap of 7.3 years is still wider than it was in the mid-1980s (about 4.5 years) (Statistics New Zealand 2014a).

Once a person has reached the age of 65 years, they can expect to live another 20 years (up from about 15 years in the early 1980s). In 2012, New Zealand males aged 65 years could expect to live to the age of 84.1 years (another 19.1 years), while females aged 65 years could expect to live to 86.4 years (another 21.4 years) (Statistics New Zealand 2014a).

Health expectancy is increasing, although not as quickly as life expectancy

Health expectancy is the number of years that a person can expect to live in good health; that is without functional limitation (disability) requiring assistance. Health expectancy is an important indicator of health system performance, reflecting the contribution of all sectors to keeping people healthy and independent throughout their lives.

Independent health expectancy is calculated using data from the Disability Survey run in Census years, so it cannot be updated every year. The latest estimates of health expectancy are for 2006, although an update based on 2013 data will be available next year.

Overall, New Zealanders are living longer in good health. Between 1996 and 2006 health expectancy at birth improved by 2.7 years for males and by 1.7 years for females (Ministry of Health and Statistics New Zealand 2009). A boy born in 2006 could expect to live 67.4 years in good health, and a girl 69.2 years. While health expectancy has improved for Māori, Māori health expectancy remains about 6.5 years lower than it is for non-Māori.

Although both life expectancy and health expectancy have improved, the increase in health expectancy has not kept pace with the increase in life expectancy. This means that while we are living longer, we are spending some of that extra time in poor health. This expansion of morbidity is projected to continue to at least 2016 (Ministry of Health 2013a). Turning this trend around will require a greater focus on preventing or delaying the onset of long-term conditions, and on slowing the rate of progression of disease in those already diagnosed.

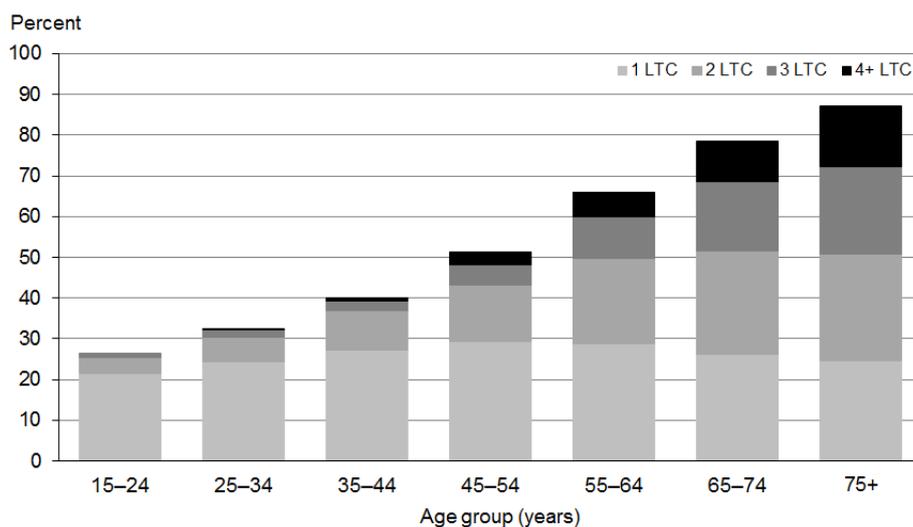
Multimorbidity is common in older adults

Many long-term conditions (such as cardiovascular diseases, diabetes and arthritis) are more common in older people. As people live longer, there is likely to be an increase in the number of people with one or more long-term condition (ie, multimorbidity). People with multiple long-term conditions place a larger burden on the health system, and require more integrated care.

In the 2012/13 New Zealand Health Survey, nearly one in four adults (about 816,000, or 23 percent) reported two or more of the following long-term conditions: ischaemic heart disease (angina, heart attack), stroke, high blood pressure (medicated), diabetes, asthma (medicated), arthritis, mental disorders (depression, anxiety and bipolar disorder) and chronic pain. Some adults reported multiple conditions; 6.4 percent (226,500) had three and 3.7 percent (129,800) had four or more. The true prevalence of multimorbidity is likely to be higher, given that only a limited number of conditions were covered in the survey.

The rate of multimorbidity increases with age (see Figure 3.20). By age 65–74 years, just over half of adults have two or more long-term conditions: 25 percent have two, 17 percent have three and 10 percent have four or more. By age 75 years, nearly two-thirds of adults have two or more long-term conditions: 26 percent have two, 21 percent have three and 15 percent have four or more.

Figure 3.20: Adults with one or more long-term condition, by age group, 2012/13



Note: This measure included eight long-term conditions: ischaemic heart disease (angina, heart attack), stroke, high blood pressure (medicated), diabetes, asthma (medicated), arthritis, mental disorders (depression, anxiety and bipolar disorder) and chronic pain.

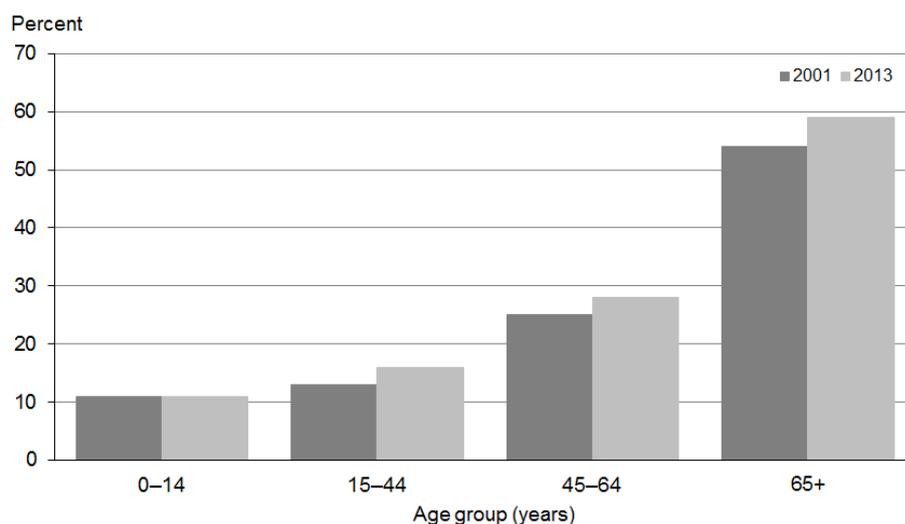
Source: 2012/13 New Zealand Health Survey

Disability rates are increasing in all age groups

Disability is defined as long-term limitation resulting from impairment in a person's ability to carry out daily activities. The impairment or limitation may be physical, sensory, neurological, psychiatric or intellectual. People with disabilities require varying levels of support, based on their need for assistance and/or special equipment relating to their disability.

The 2013 Disability Survey found that 24 percent of New Zealanders (1.1 million) reported a disability (Statistics New Zealand 2014c). This represents a significant increase since 2001, when 20 percent of people reported a disability. Disability rates have increased in all adult age groups, and especially in those aged 65 years or older (see Figure 3.21). While population ageing has contributed to the increase, it does not account for all of it.

Figure 3.21: Percentage of people with disability, by age group, 2001 and 2013



Source: 2013 Disability Survey (Statistics New Zealand 2014c)

People aged 65 years and older had the highest disability rate in 2013: 59 percent, up from 54 percent in 2001. The age-adjusted disability rate was higher for Māori (32 percent) and Pacific peoples (26 percent).

For adults, the most common types of impairment were physical limitations, whereas for children it was learning difficulties. Just over half of disabled people (53 percent) had more than one type of impairment.

For adults, the main underlying cause of impairment was disease or illness (42 percent), followed by accident or injury (34 percent) and ageing (31 percent).²² For adults aged 65 years or older, the main cause of impairment was ageing (53 percent), closely followed by disease or illness (50 percent). For children, the main causes of impairment were conditions that existed at birth (49 percent), followed by other developmental or behavioural conditions (33 percent).

²² More than one cause is possible, so percentages add to more than 100.

Non-communicable diseases

Key messages

- Non-communicable diseases account for a large and increasing burden of ill health, disability and premature mortality across the world.
- In New Zealand, nearly 60 percent of all health loss is caused by the following conditions: ischaemic heart disease, stroke, diabetes, chronic respiratory diseases, cancers, musculoskeletal disorders, mental health disorders and dementia.
- Total cancer incidence and mortality rates are declining slowly, although declines are slower for Māori. Due to population ageing the number of people with cancer is increasing.
- Despite large declines over the last four decades, cardiovascular diseases still account for one in three deaths and about one in six years of life lost from illness, disability and premature mortality.
- Nearly 245,000 New Zealanders have diabetes; an approximately 75 percent increase in numbers since 2005. Diabetes rates are increasing in all age and ethnic groups. Diabetes rates are highest in Indian (11 percent) and Pacific peoples (9.6 percent), followed by Māori (6.1 percent) and European/Other (5.1 percent).
- One in six New Zealanders (15 percent) has arthritis; half of adults aged 75 years or older are affected.
- Nearly 600,000 adults have been diagnosed with a mental health disorder at some time in their lives. Most health loss from mental health disorders is non-fatal but can cause severe functional impairment and occurs in young and middle-aged adults.
- Suicide death rates remain high in New Zealand; rates are twice as high for Māori as for non-Māori.
- An estimated 48,000 New Zealanders have dementia. The number of people affected is projected to triple by 2051.

Globally, non-communicable diseases (NCDs)²³ account for more than half of all deaths (Lozano et al 2012), and a large and increasing proportion of all ill health, disability and premature mortality (Lim et al 2012). Recently there has been a renewed focus on NCDs, because the number of people affected is growing very quickly across the world. This has major health and economic implications, and has led to the development of a Global Monitoring Framework for the Prevention and Control of NCDs.

In 2012, all countries committed to a 25 percent reduction in premature mortality from major NCDs (cardiovascular diseases, cancers, chronic respiratory diseases and diabetes) by 2025 (the 25 x 25 target). In 2013, all countries agreed to a set of nine voluntary targets to accelerate action towards the 25 x 25 target. The targets focus on reducing exposure to risk factors for NCDs (tobacco use, harmful use of alcohol, salt intake, obesity, physical inactivity, raised blood pressure, raised blood glucose) and strengthening health system responses (treating people at high risk of heart attack and stroke, and ensuring the availability of drugs to treat NCDs).

²³ NCDs are conditions that are not acquired by transmission between people. Most NCDs are long-term conditions, which are defined as ongoing, long-term or recurring conditions.

This section covers the four main types of conditions covered by the Global Framework: cardiovascular diseases (ischaemic heart disease and stroke), cancers, diabetes and chronic respiratory diseases. It also covers other long-term conditions that account for considerable health loss in New Zealand but are not major causes of death (musculoskeletal and mental health conditions) and a condition that will become more common as the population ages (dementia). Collectively, these conditions account for about 60 percent of illness, disability and premature mortality in New Zealand (Ministry of Health 2013a).

Cancers

Cancers accounted for 17.5 percent of all health loss in 2006, mostly due to premature mortality (Ministry of Health 2013a). In 2011 cancers accounted for 29 percent of all deaths (Ministry of Health 2014a). Cancers have become more prominent as the burden of cardiovascular diseases has declined (see Figure 3.18).

A person's chance of surviving cancer depends on a number of factors, including age at diagnosis, type of cancer, cancer stage at diagnosis and availability of specialist cancer treatment and follow-up care. Potentially modifiable risk factors for cancer include smoking, poor diet, physical inactivity, obesity and harmful use of alcohol. For most cancers, a person's chance of surviving cancer is improved by early detection and timely and effective treatment. The *Annual Report* provides more information on the health target 'shorter waits for cancer treatment'.

Total cancer incidence rates are declining slowly

A total of 21,050 new cancers²⁴ were registered in New Zealand in 2011, up from 17,991 registrations in 2002. Just over half (53 percent) of all cancer registrations in 2011 were for males.

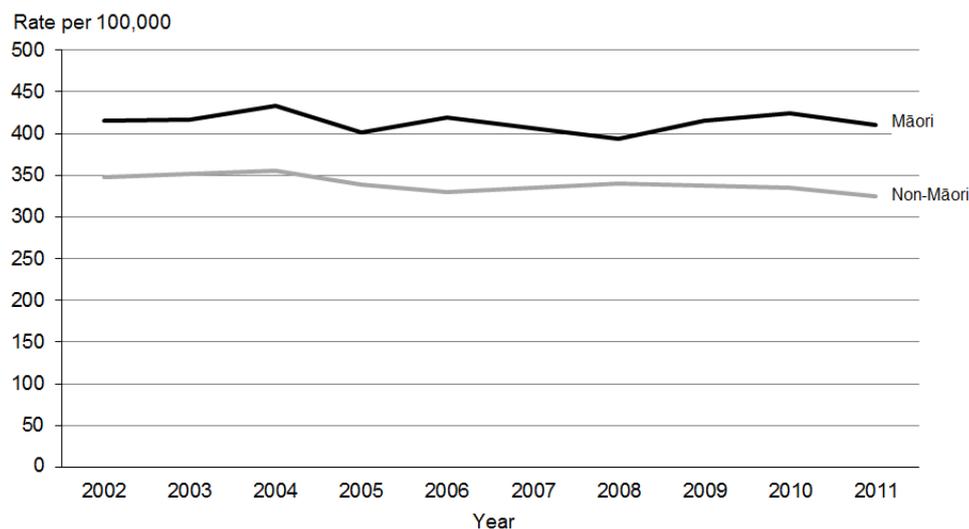
The most commonly registered cancers in 2011 were colorectal or bowel cancer (3030), prostate cancer (3023), breast cancer (2894), melanoma (2204) and lung cancer (2016). These five cancers accounted for 63 percent of all cancer registrations.

The incidence of all cancers combined is declining slowly for the total population, but trends differ by sex and ethnic group. From 2002 to 2011 the age-standardised registration rate for total cancers decreased by 6 percent for the total population (from 351 to 331 per 100,000); there were larger declines for males (8 percent) than females (5 percent).

For Māori, the incidence rate for all cancers combined declined by only 1 percent between 2002 and 2011, compared with a 7 percent decline for non-Māori (see Figure 3.22). In 2011, the total cancer registration rate was 30 percent higher for Māori (410 per 100,000) than for non-Māori (324 per 100,000), after standardising for age.

²⁴ This figure excludes non-melanoma skin cancers, which are not registered in New Zealand.

Figure 3.22: Cancer registration rate, Māori and non-Māori, 2002–2011



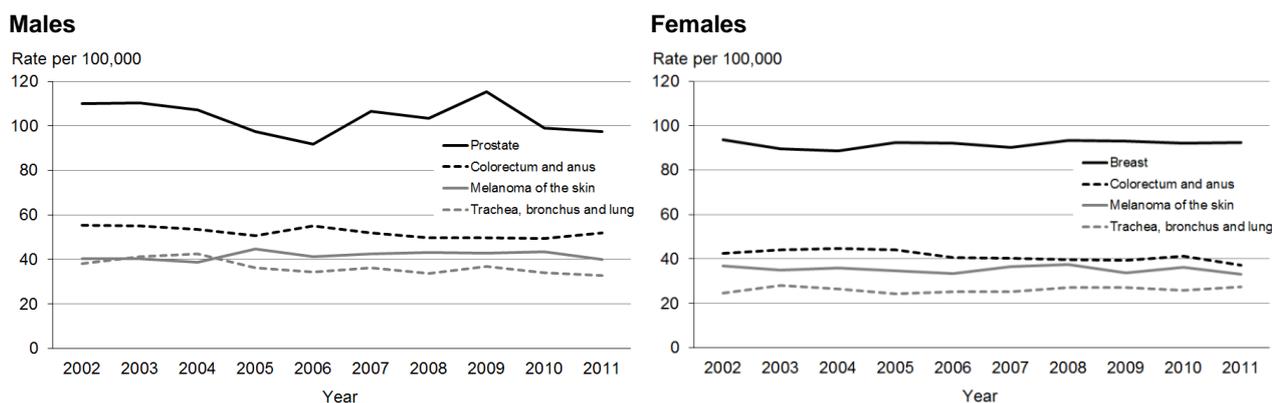
Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Cancer Registry, Ministry of Health

Trends in cancer incidence differ by cancer type

For males, age-standardised incidence rates for lung cancer and colorectal cancer declined between 2002 and 2011, but there was no change for melanoma (see Figure 3.23). Prostate cancer incidence fluctuated during this period, although rates were lower in 2011 than 2002. For females, incidence rates for colorectal cancer and melanoma declined between 2002 and 2011, but there was no change in incidence rates for breast cancer and lung cancer.

Figure 3.23: Cancer registration rate, by cancer type and sex, 2002–2011



Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health

Total cancer mortality is declining

In 2011 there were 8891 deaths from cancer: a rate of 126 per 100,000. Nearly half (47 percent) of cancer deaths were in people aged 75 years or older. Due to the growing older population, the number of cancer deaths is increasing each year.

The most common causes of cancer mortality in 2011 were lung cancer (1682 deaths), colorectal cancer (1191), female breast cancer (636), prostate cancer (585) and melanoma (359). These five cancers accounted for 50 percent of all cancer deaths.

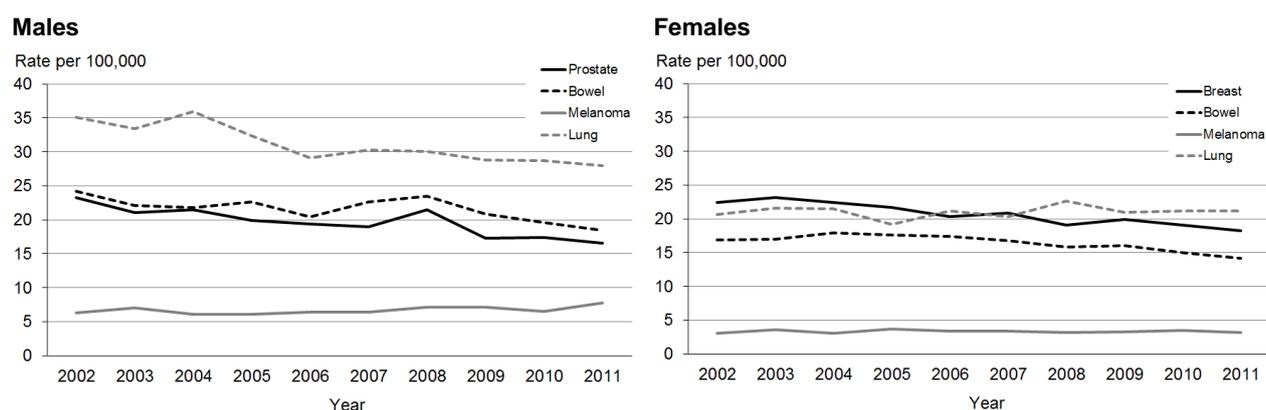
From 2002 to 2011, the age-standardised total cancer mortality rate declined by 11 percent. The decline was larger for males (15 percent) than females (7 percent). The larger decline in cancer mortality among males has helped to reduce the gap in life expectancy between the sexes (see the 'Life expectancy' section of this report).

For Māori, the age-standardised mortality rate for total cancer declined by 7 percent between 2002 and 2011, compared with a 12 percent decline for non-Māori. In 2011, the total cancer mortality rate was 72 percent higher for Māori (205 per 100,000) than non-Māori (119 per 100,000), after standardising for age.

Cancer mortality trends differ by cancer type

Between 2002 and 2011, the age-standardised mortality rate for colorectal cancer declined in both males and females; prostate cancer mortality declined in males; and breast cancer mortality declined in females (see Figure 3.24). The lung cancer mortality rate decreased for males, but not for females. There was little change in the mortality rate for melanoma in either males or females.

Figure 3.24: Cancer mortality rate, by cancer type and sex, 2002–2011



Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health

Cancer survival has improved over the past decade, due in part to early detection (eg, through screening) and more timely and effective care. The 'Health system performance' section of this report discusses cancer survival in more detail.

Cardiovascular diseases

The term 'cardiovascular disease' covers a range of diseases related to the circulatory system, including ischaemic heart disease (also known as coronary heart disease) and cerebrovascular disease (or stroke). Up to 80 percent of illness, disability and premature mortality from cardiovascular diseases is potentially avoidable through a combination of prevention and treatment. Modifiable risk factors include smoking, high blood pressure, poor diet, physical inactivity, obesity and diabetes. A person's chance of surviving ischaemic heart disease and stroke is improved by early detection, effective treatment and rehabilitation. The *Annual Report* provides more information on the health target 'more heart and diabetes checks'.

Despite large declines in incidence and mortality over the last four decades, cardiovascular diseases still account for one in three deaths (Ministry of Health 2014b) and about one in six years of life lost from illness, disability and premature mortality (Ministry of Health 2013a). Therefore, an ongoing focus on the prevention and management of cardiovascular diseases remains a priority.

One in five older adults has ischaemic heart disease

About 5 percent of adults (175,600 people) have been diagnosed with ischaemic heart disease, according to the 2012/13 New Zealand Health Survey (Ministry of Health 2013b). This is likely to be an underestimate, because only angina and heart attacks requiring admission to hospital were included in the measure. The rate of self-reported ischaemic heart disease has not changed since 2006/07 (Ministry of Health 2013b).

Ischaemic heart disease is much more common in older adults; 22 percent of those aged 75 years or older are affected (Ministry of Health 2013b). Rates of diagnosed ischaemic heart disease are higher in men (6 percent) than women (4 percent).

In 2012/13, Māori adults were 80 percent more likely to be diagnosed with ischaemic heart disease than non-Māori adults, after adjusting for age and sex differences. Adults living in the most deprived areas were about 70 percent more likely to be diagnosed with ischaemic heart disease than adults living in the least deprived areas.

One in twenty older adults has had a stroke

The 2012/13 New Zealand Health Survey found that 2 percent of adults (69,800 people) had been diagnosed with a stroke at some time in their life (Ministry of Health 2013b). This estimate excludes transient ischaemic attacks, which are sometimes referred to as mini-strokes. Strokes were more common in older adults; 10 percent of those aged 75 years or older had had a stroke.

In 2012/13, stroke rates did not vary significantly by ethnic group or neighbourhood deprivation, after adjusting for differences in age, sex and ethnicity. Men were slightly more likely to have had a stroke than women (2.2 and 1.7 percent respectively). The rate of stroke has not changed significantly since 2006/07 (Ministry of Health 2013b).

Cardiovascular disease mortality rates continue to decline

Cardiovascular diseases accounted for 10,542 deaths in 2011 (35 percent of all deaths). Just over half (53 percent) of cardiovascular disease deaths were in females (reflecting higher numbers of older females). The leading causes of cardiovascular disease deaths were ischaemic heart disease (5534 deaths) and stroke (2665 deaths).

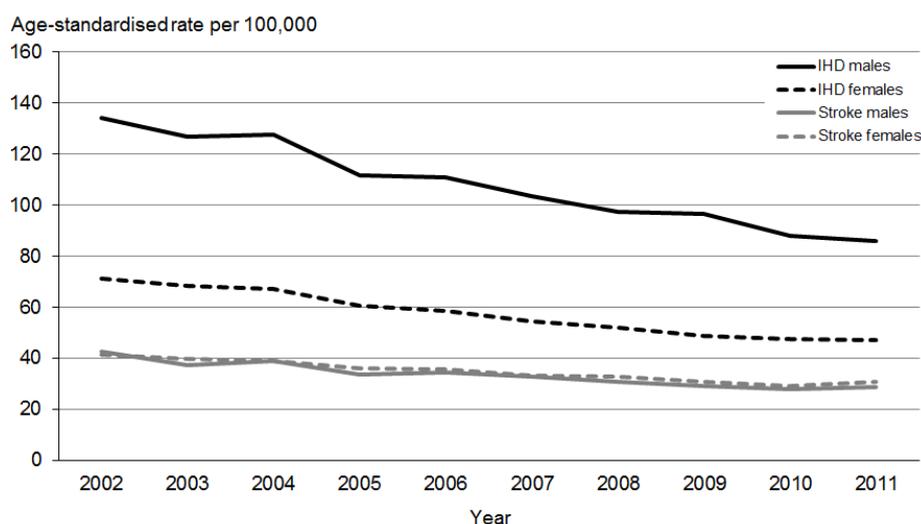
About one in four ischaemic heart disease deaths (26 percent) and one in five stroke deaths (19 percent) occurred in people aged less than 75 years (Ministry of Health 2014a). Males are more likely than females to die prematurely (that is, before age 75 years) from ischaemic heart disease (37 and 14 percent respectively) and stroke (27 and 15 percent).

From 2002 to 2011, the age-standardised total cardiovascular disease mortality rate declined by nearly one-third, from 178 to 124 per 100,000. Population ageing meant that the number of cardiovascular disease deaths declined more slowly (by about 8 percent) during this period.

Mortality rates for ischaemic heart disease declined by about one-third in both males and females between 2002 and 2011 (see Figure 3.25). Over that decade, the aged-standardised ischaemic heart disease mortality rate declined from 134 to 85.9 per 100,000 in males and from 71.4 to 47.3 per 100,000 in females. However, males experienced a larger absolute decline in mortality from ischaemic heart disease over this period (due to their having a higher rate to begin with), which helped to reduce the gap in life expectancy between the sexes (see the 'Life expectancy' section of this report).

From 2002 to 2011, the age-standardised mortality rate for stroke declined by 33 percent for males (falling from 42.7 to 28.7 per 100,000) and by 26 percent for females (falling from 41.3 to 30.6 per 100,000).

Figure 3.25: IHD and stroke mortality rate, by sex, 2002–2011



Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health

In 2011, the age-standardised ischaemic heart disease mortality rate was 1.7 times higher for Māori males and 2.2 times higher for Māori females than for non-Māori males and females respectively. Ethnic differences in stroke mortality were smaller, with rates 1.1 times higher in Māori males and 1.3 times higher in Māori females, after adjusting for age. These ethnic differences have not changed over the last 10 years.

One of the reasons for declining mortality rates for ischaemic heart disease and stroke is better health care. The 'Health system performance' section of this report discusses improved survival from acute myocardial infarction and stroke in more detail.

Diabetes

Diabetes accounted for nearly 5 percent of all illness, disability and premature mortality in 2006 (Ministry of Health 2013a). Diabetes can cause blindness and nerve damage, and may eventually require amputation of a foot or lower leg. It can lead to other health conditions, such as heart disease, stroke and kidney disease.

There are two main types of diabetes. Type 1 diabetes is less common, and generally develops in childhood. Type 2 diabetes is more common, is largely preventable, and usually develops in adulthood. Risk factors for type 2 diabetes include being obese or overweight, a lack of physical activity and poor diet. Type 2 diabetes can be controlled through weight loss, diet and regular physical activity and, in some cases medication (including insulin).

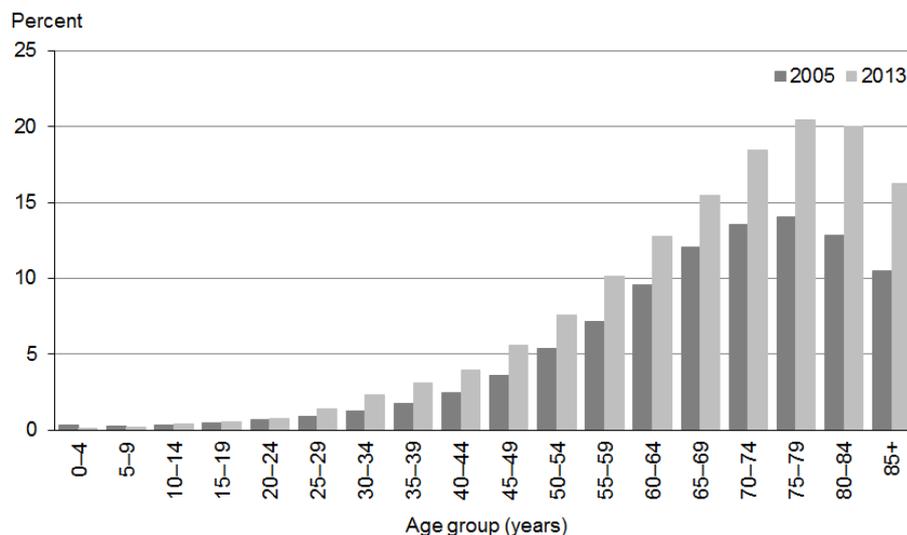
Nearly all adults with type 2 diabetes are either obese or overweight. In the 2011/12 New Zealand Health Survey, three out of four adults with type 2 diabetes (77 percent) reported that someone at their usual medical centre had checked their weight in the previous 12 months. However, less than half reported that someone at their usual medical centre had talked to them, or arranged for someone else to talk to them, about weight (42 percent), healthy food/nutrition (45 percent) or exercise/physical activity (43 percent) in the previous 12 months.

Diabetes is increasing in all population groups

About 243,125 people had diabetes as at 31 December 2013, according to the New Zealand Virtual Diabetes Register. This represents a 75 percent increase since 2005, when 138,200 people had diabetes. In the last year the number of people with diabetes grew by 17,400, which is nearly 50 people per day. Some of the rise reflects increased screening, meaning we are detecting more cases. The *Annual Report* provides more information on the health target 'more heart and diabetes checks'.

In 2013, the rate of diabetes in the PHO-enrolled population was 5.7 percent, up from 3.7 percent in 2005. The rate of diabetes has increased in all adult age groups (see Figure 3.26). The largest (relative) increases have occurred in young adults aged 30–39 years. Diabetes rates are highest in adults aged 75–79 years; about one in five adults (20 percent) in this age group were affected in 2013, up from one in seven (14 percent) in 2005.

Figure 3.26: Prevalence of diabetes, by age group, 2005 and 2013

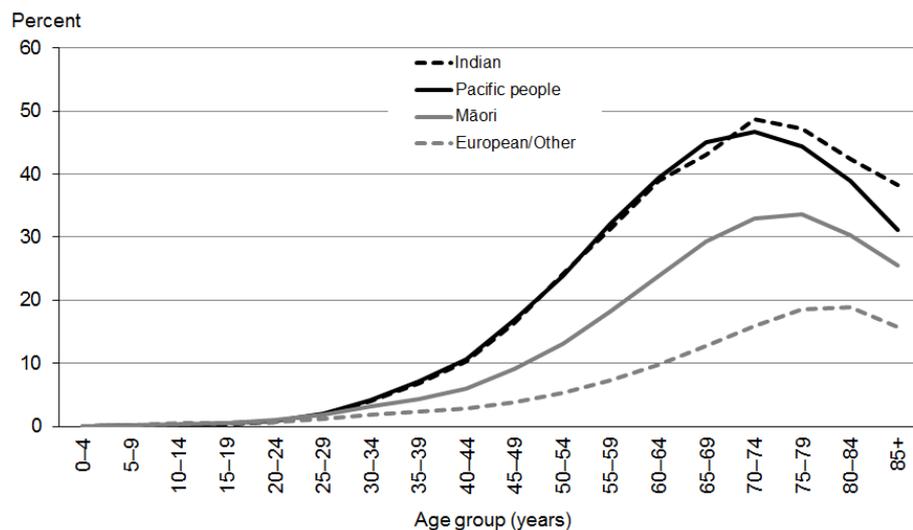


Note: Annual data is measured at 31 December each year from among the PHO-enrolled population.

Source: Virtual Diabetes Register, Ministry of Health

Since 2005, diabetes rates have increased by about 50 percent in all ethnic groups. In 2013, the highest rate of diabetes was in the Indian ethnic group (11.0 percent), followed by Pacific peoples (9.6 percent), Māori (6.1 percent) and European/Other (5.1 percent). Diabetes rates start to increase about 10–15 years earlier in Indian and Pacific adults than in European/Other adults. Nearly half of all Indian and Pacific adults aged 70–74 years have diabetes (see Figure 3.27).

Figure 3.27: Prevalence of diabetes, by ethnic group, 2013



Note: Annual data is measured at 31 December each year from among the PHO-enrolled population.

Source: Virtual Diabetes Register, Ministry of Health

The increasing rate of diabetes is due to rising incidence (new cases), as well as slower progression from uncomplicated to late-stage disease (which means that mortality rates are lower). Some of the rise in incidence reflects increased screening and population change. However, diabetes rates have increased in all age and ethnic groups, with larger (relative) increases in younger adults. The increase in diabetes in all population groups is consistent with trends in obesity (see the 'Obesity' section of this report).

More people have undiagnosed diabetes or are at risk of diabetes

Some people have undiagnosed diabetes, and many more have pre-diabetes. The 2008/09 Adult Nutrition Survey found that about 2 percent of adults had undiagnosed diabetes – that is, they had not been told by a doctor that they had diabetes, but levels of glycated haemoglobin (HbA1c) in their blood indicated that they had diabetes (University of Otago and Ministry of Health 2011). This meant that about one-quarter of all people with diabetes were undiagnosed.

Furthermore, one in four adults (25 percent) has 'pre-diabetes', meaning their HbA1c levels were above normal but below that defined for diabetes (Coppell et al 2013). Obese adults were more likely to have pre-diabetes than healthy weight adults (32 and 20 percent respectively). The progression from pre-diabetes to type 2 diabetes can be slowed by lifestyle interventions involving weight loss, improved diet and increased physical activity (Yudkin 2014).

Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a lung disease that prevents normal breathing. Common types of COPD include chronic bronchitis and emphysema, which are permanent conditions that are usually caused by smoking. Chronic obstructive pulmonary disease accounted for nearly 4 percent of all illness, disability and premature mortality in New Zealand in 2006 (Ministry of Health 2013a).

One in ten older adults has chronic obstructive pulmonary disease

The 2006/07 New Zealand Health Survey (Ministry of Health 2008) found that about 7 percent of New Zealand adults aged 45 years or older had been diagnosed with COPD. Rates of COPD are higher in older adults; about 10 percent of people aged 75 years or older are affected.

Among adults aged 45 years and over, rates of diagnosed COPD were twice as high for Māori as for other adults, but significantly lower for Asian ethnic groups, after adjusting for age. Rates were nearly three times higher for women living in the most deprived areas compared with women in the least deprived areas; for men the higher rate in high deprivation areas was much less pronounced. The higher rates of COPD in Māori and adults living in deprived areas mirror rates of smoking (see the 'Smoking' section of this report).

Arthritis and other musculoskeletal conditions

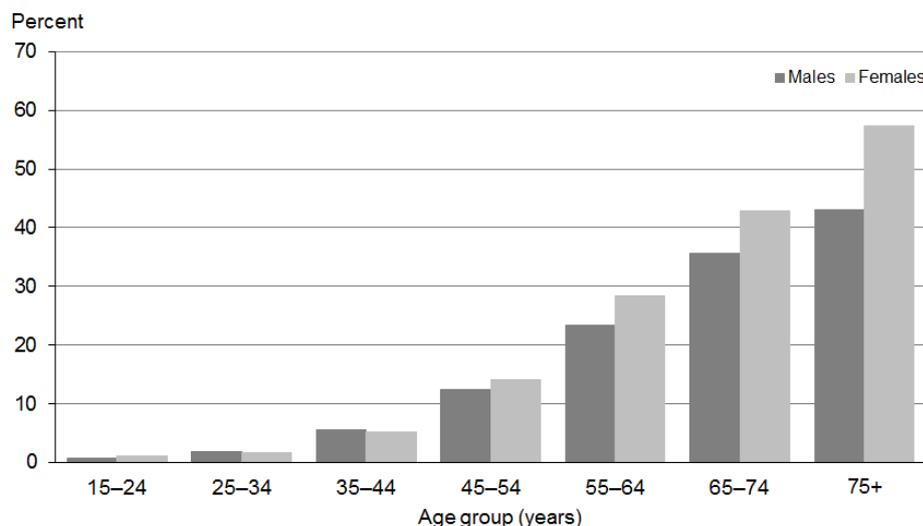
Arthritis and other musculoskeletal disorders, such as back disorders, are large contributors to poor health and disability. Musculoskeletal disorders accounted for 9.1 percent of all health loss in 2006, mainly from illness and disability (Ministry of Health 2013a).

More than 500,000 adults have arthritis

About 539,900 adults (15 percent) have been diagnosed with arthritis, according to the 2012/13 New Zealand Health Survey (Ministry of Health 2013b). Arthritis was more common in women (17 percent) than men (13 percent). After adjusting for age and sex differences, Māori adults were about 30 percent more likely to have arthritis compared with non-Māori adults. Asian adults were much less likely to have arthritis.

The rate of arthritis increases markedly with age (see Figure 3.28). Half of all adults aged 75 years or older have been diagnosed with arthritis.

Figure 3.28: Prevalence of arthritis in adults, by age group and sex, 2012/13



Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

Osteoarthritis is the most common type of arthritis, affecting 8.7 percent of adults in 2012/13 (Ministry of Health 2013b). Osteoarthritis can cause extensive joint damage, severe pain and disability. Patients may require joint replacement surgery.

Osteoarthritis accounted for 2.2 percent of health loss in 2006, mainly from illness and disability. About 60 percent of this health loss was attributable to high body mass (including obesity) (Ministry of Health 2013a).

Chronic pain affects over 600,000 adults

Chronic pain is recognised as a condition in its own right. Chronic musculoskeletal pain syndromes accounted for 1.3 percent of illness, disability and premature mortality in New Zealand in 2006 (Ministry of Health 2013a).

The 2012/13 New Zealand Health Survey found that 18 percent of adults (633,000) experienced chronic pain, defined as pain that is present almost every day and has lasted, or is expected to last, more than six months (Ministry of Health 2013b). Rates of chronic pain were slightly higher in women (19 percent) than men (16 percent). Chronic pain was more common in older adults; one in three adults aged 75 years or older (34 percent) were affected. Māori adults were 30 percent more likely to have chronic pain compared with non-Māori adults, after adjusting for age and sex differences. Asian adults were much less likely to have chronic pain.

A more in-depth analysis of the 2006/07 New Zealand Health Survey found that the most common reasons for pain reported by respondents were injury or accident (42 percent), a health condition (28 percent) and age (11 percent) (Dominick et al 2011). The most common pain sites were joints (30 percent), back (24 percent), neck (12 percent) and pelvic region (8 percent). Two out of three adults (65 percent) reported only one pain site; 20 percent reported two; and 16 percent reported three or more. Health-related quality of life declined significantly as the number of pain sites increased.

Mental health conditions

Mental health conditions accounted for 11.1 percent of all health loss in New Zealand in 2006 (Ministry of Health 2013a). Nearly all of this health loss was non-fatal (ie, functional impairment) and occurred in young and middle-aged adults.

Mental health conditions have a major impact on individuals, their families and society as a whole. Poor mental health can cause disability, affect quality of life and reduce productivity. The direct and indirect costs of mental disorders are estimated to account for at least 4 percent of gross domestic product (OECD 2014a).

Nearly 600,000 adults have been diagnosed with a mental health disorder

The 2012/13 New Zealand Health Survey found that about one in six adults (582,200 people, or 16 percent) had been diagnosed with depression, anxiety disorder or bipolar disorder at some time in their life (Ministry of Health 2013b). This is an increase since 2006/07, when 13 percent of adults reported they had been diagnosed with depression, anxiety disorder or bipolar disorder.

The survey found that diagnosed mental health disorders were more common in women (20 percent) than men (13 percent). Rates of mental health disorders were highest in middle-aged adults; almost 20 percent of adults aged 45–64 years reported they had been diagnosed with depression, anxiety disorder or bipolar disorder at some time in their life.

Adults living in the most deprived areas were 60 percent more likely to have a diagnosed mental health disorder than adults living in the least deprived areas, after adjusting for age, sex and ethnic differences (Ministry of Health 2013b).

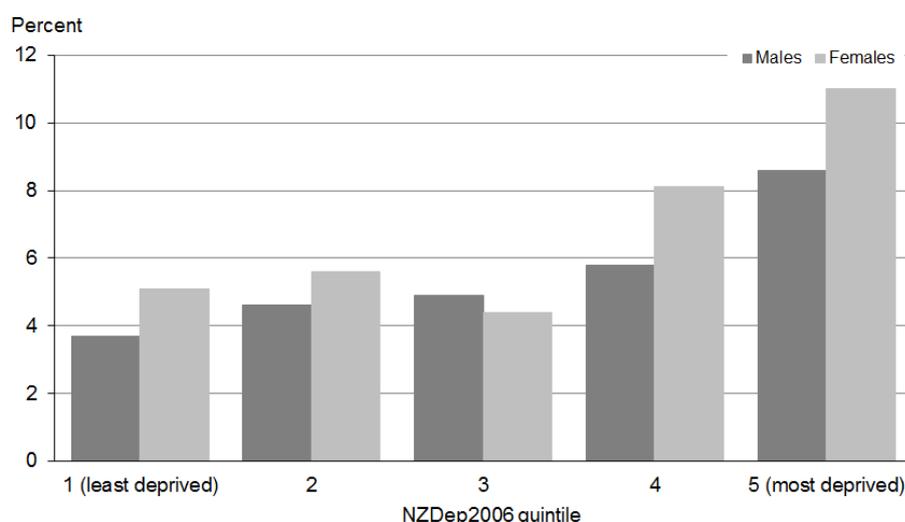
Psychological distress is more common in deprived areas

Psychological (mental) distress refers to a person's experience of symptoms such as anxiety, confused emotions, depression or rage. It is measured using the 10-question Kessler Psychological Distress Scale (Kessler et al 2003). High levels of psychological distress indicate a high or very high probability of having an anxiety or depressive disorder.

The 2012/13 New Zealand Health Survey (Ministry of Health 2013b) found that 6 percent of adults (218,000) had experienced high or very high levels of psychological distress in the four weeks preceding their survey interview. The rate of psychological distress has not changed significantly since 2006/07 (Ministry of Health 2013b).

Rates of psychological distress were higher in Māori (9.6 percent) and Pacific (8.9 percent) adults, and adults living in deprived areas (see Figure 3.29). After adjusting for age, sex and ethnic differences, adults living in the most deprived areas were 2.5 times as likely to experience psychological distress as adults living in the least deprived areas (Ministry of Health 2013b).

Figure 3.29: Prevalence of psychological distress in adults, by neighbourhood deprivation and sex, 2012/13



Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

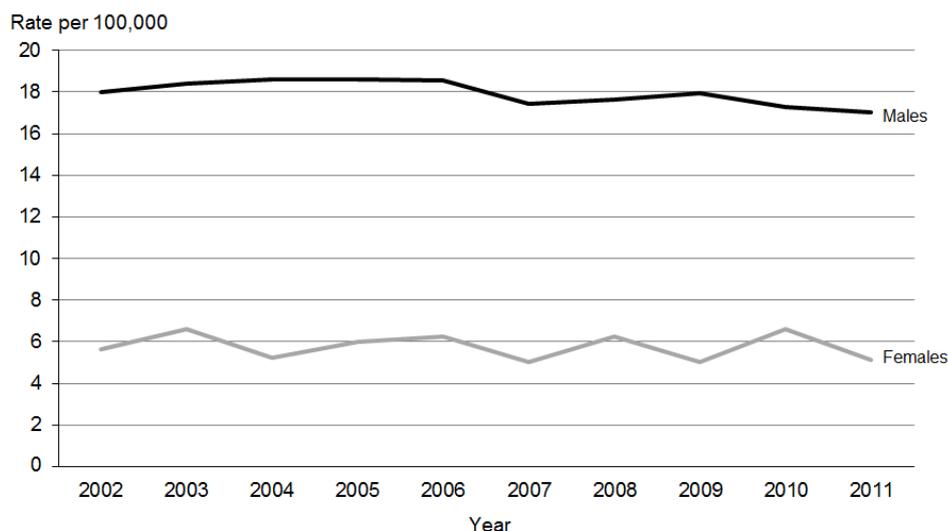
Depression and self-harm in secondary school students

For about half of adults with mental illness, their condition will have developed before the age of 15 years; early detection and treatment is important (OECD 2014a). In a 2013 national survey of the health and wellbeing of secondary school students, 16 percent of female students and 9 percent of male students reported symptoms of depression that were likely to have an impact on their daily life (using the Reynolds Adolescent Depression Scale – Short Form) (Clark et al 2013). The survey found that 29 percent of female students and 18 percent of male students had deliberately harmed themselves in the previous 12 months (Clark et al 2013).

Suicide and self-inflicted injury

In 2011, a total of 493 New Zealanders died by suicide, an age-standardised rate of 10.9 deaths per 100,000 people. The suicide death rate was more than three times higher among males (377 suicides: 17.0 per 100,000) than females (116 suicides: 5.1 per 100,000). The suicide death rate for males has declined slightly since the mid-2000s, whereas the rate for females has fluctuated but not changed significantly (see Figure 3.30).

Figure 3.30: Suicide death rate, by sex, 2002–2011



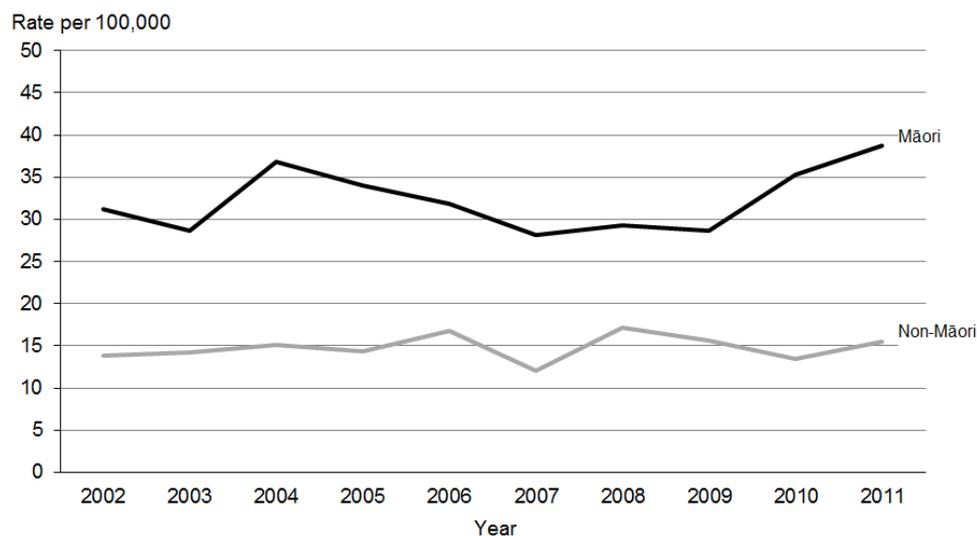
Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health

In 2011, about one in four suicide deaths (129) were in young people aged 15–24 years. The youth suicide rate was 20.1 per 100,000; there was a higher rate in males (29.0 per 100,000) than females (10.0 per 100,000).

Suicide death rates in 2011 were higher for Māori than non-Māori, with a larger gap for females than males. Suicide death rates were nearly two times higher for Māori (17.5 per 100,000) than non-Māori (9.4 per 100,000), after adjusting for age. Youth suicide death rates were 2.5 times higher for Māori (38.8 per 100,000) than non-Māori (15.5 per 100,000). This gap closed a little around 2008, but has since widened (see Figure 3.31).

Figure 3.31: Suicide death rate for youth, Māori and non-Māori, 2002–2011



Note: Rates are age-standardised to the WHO world population.

Source: New Zealand Mortality Collection, Ministry of Health

In 2011 there were 2926 intentional self-harm hospitalisations in New Zealand (an age-standardised rate of 67.3 per 100,000). The intentional self-harm rate in females (86.9 per 100,000) was almost twice as high as the rate in males (47.7 per 100,000). Young people aged 15–19 years had the highest rate of intentional self-harm hospitalisations in 2011 (155.2 per 100,000).

Dementia

In 2011, it was estimated that about 48,000 New Zealanders had dementia (Deloitte Access Economics 2012). The number of people with dementia is expected to increase in the coming decades as the cohort of 'baby boomers' ages. By 2050, an estimated 150,000 New Zealanders will have dementia. These estimates are conservative, because not everyone with early-stage dementia will be diagnosed.

The main types of dementia are Alzheimer's disease, vascular dementia and mixed dementia (both types). Dementia usually occurs in those aged 65 years and over, but can affect those as young as 45 years. Risk factors for dementia are the same as those for cardiovascular diseases: hypertension, smoking, obesity, diabetes and dyslipidaemia (Rizzi et al 2014). Currently there are no effective treatments for dementia, so prevention is important.

Risk factors for non-communicable diseases

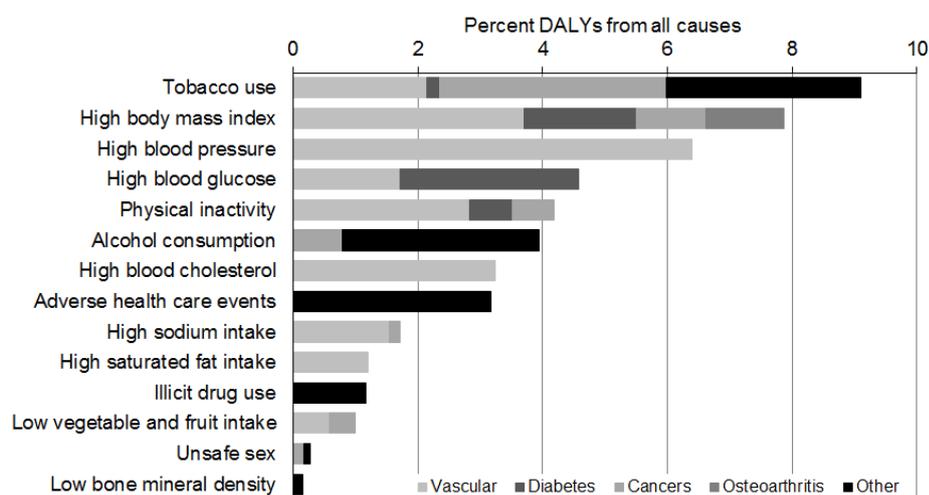
Key messages

- Reducing exposure to modifiable risk factors for NCDs will help to reduce health loss and minimise the impact of population ageing.
- The daily smoking rate declined by one-third over the last decade, from 23 to 15.5 percent. However, daily smoking rates remain high in Māori adults (36 percent) and adults living in the most deprived areas (28 percent).
- Hazardous drinking rates have declined since 2006/07. Rates are highest in young people aged 18–24 years, although there is some evidence of improving drinking patterns in young people.
- Physical activity rates in adults are stable, with just over half of adults meeting recommendations. Time spent watching television and video has increased slightly. Fewer children are walking and cycling to school.
- Obesity rates in adults have tripled in the last three decades, with increases in all population subgroups. An estimated 1.2 million New Zealanders are now obese. There are considerable ethnic and socioeconomic inequities in obesity.
- Many parents of obese children incorrectly classify their children as neither under nor over weight.
- Poorly controlled high blood pressure is common in middle-aged and older adults.

One way that the health sector can minimise the burden of NCDs is to prevent or delay their onset by reducing exposure to life style risk factors (eg, smoking) and effectively managing biological risk factors (eg, high blood pressure).

This section focuses on six major risk factors that are potentially modifiable or treatable: smoking, harmful use of alcohol, physical inactivity, diet, obesity, and high blood pressure. These risk factors are leading causes of health loss in New Zealand (see Figure 3.32).

Figure 3.32: Health loss attributed to 14 selected risk factors, 2006



Note: The attributable burdens are not additive across risk factors. DALY = disability-adjusted life year.

Source: Ministry of Health 2013a

Smoking

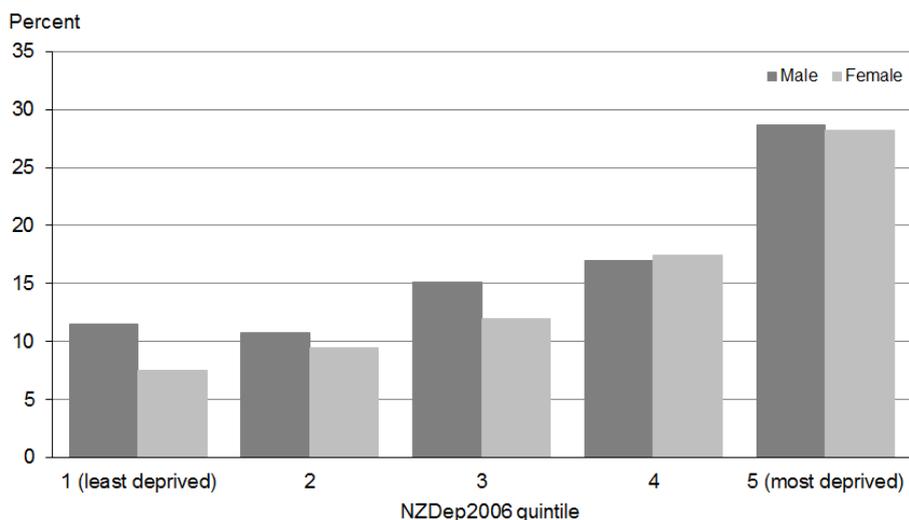
Smoking was the leading modifiable risk to health in 2006, accounting for 9.1 percent of all illness, disability and premature mortality (Ministry of Health 2013a). Smoking harms nearly every organ and system in the body. It is the main cause of lung cancer and COPD and also a major cause of heart disease, stroke and other cancers.

The 2012/13 New Zealand Health Survey found that 17.6 percent of New Zealanders aged 15 years and older were current smokers, including 15.5 percent who were daily smokers (Ministry of Health 2013b). This equates to about 625,900 current smokers, including 554,000 daily smokers. Daily smoking rates were highest in Māori women (38.5 percent) and lowest in Asian women (2.8 percent).

Smoking is more common in deprived areas

Smoking is strongly positively associated with neighbourhood deprivation (see Figure 3.33). In 2012/13 the rate of daily smoking was 28.4 percent in the most deprived areas, compared with 9.5 percent in the least deprived areas. Adults living the most deprived areas were 3.1 times as likely to be daily smokers as adults living in the least deprived areas, after adjusting for differences in age, sex and ethnicity (Ministry of Health 2013b).

Figure 3.33: Prevalence of daily smoking in adults, by neighbourhood deprivation and sex, 2012/13



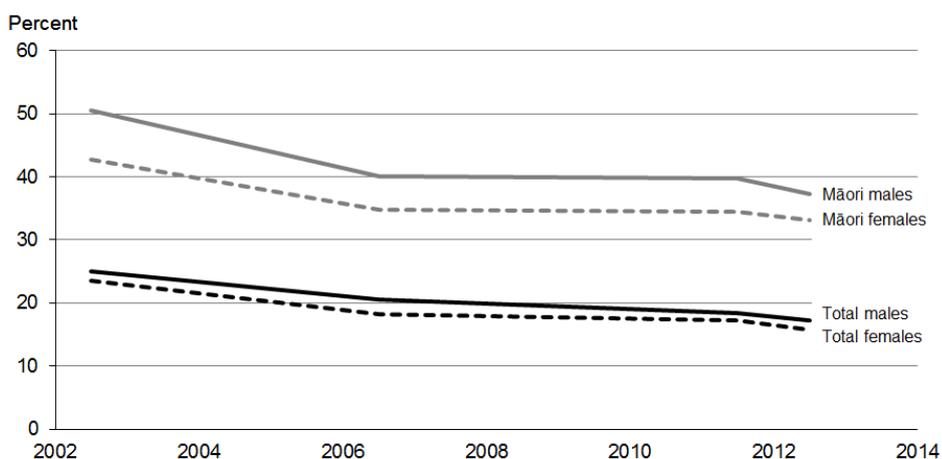
Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

Smoking rates continue to decline

The rate of daily smoking has decreased by about one-third over the last decade, from 23.0 percent in 2002/03 to 15.5 percent in 2012/13. Daily smoking rates have declined both for males and females in the total population, and for Māori males and Māori females (see Figure 3.34). However, the rate of daily smoking remains considerably higher in Māori adults, at around 36 percent. In 2012/13, Māori adults were 2.7 times as likely to be daily smokers as non-Māori adults, after adjusting for differences in age and sex.

From 2002/03 to 2012/13, daily smoking rates decreased by 30–40 percent in less deprived areas (quintiles 1–4), but by only 18 percent in the most deprived areas (quintile 5).

Figure 3.34: Prevalence of daily smoking in Māori and non-Māori adults, by sex, 2002/03–2012/13



Note: Age-standardised to the WHO world population.

Source: New Zealand Health Surveys 2002/03, 2006/07, 2011/12, and 2012/13

New Zealand's smoking rates are low by international standards. In 2012, our daily smoking rate was the eighth lowest of 34 OECD countries, and well below the average rate of 20.7 percent (OECD 2014c).

Declines in smoking are due to both decreasing 'flow in' and increasing 'flow out' of the smoking pool; that is, fewer young people are starting to smoke and more smokers are quitting. From 2006/07 to 2012/13, the daily smoking rate in 15–17-year-olds declined from 14 to 7 percent (Ministry of Health 2013b). During the same period, the percentage of smokers who had successfully quit in the previous year increased from 8 to 11 percent (Ministry of Health In Press-b).

The decline in youth smoking in the 2012/13 New Zealand Health Survey is consistent with other surveys conducted during the same period. A survey of smoking in Year 10 students (aged 14–15 years) found that the daily smoking rate had declined from 8 percent to 4 percent between 2006 and 2012 (ASH New Zealand 2013a); it fell further to 3 percent in 2013 (ASH New Zealand 2013b). The national health and wellbeing survey of secondary school students found that the percentage of students smoking cigarettes weekly or more often dropped from 8 percent to 5 percent between 2007 and 2012 (Clark et al 2013).

Alcohol consumption

Excessive or harmful use of alcohol contributes to a range of diseases, including stroke, certain cancers, cirrhosis of the liver, mental health conditions and birth defects. Alcohol-related harm also includes injuries (for example through violence, self-harm and road traffic accidents) and social and economic harm.

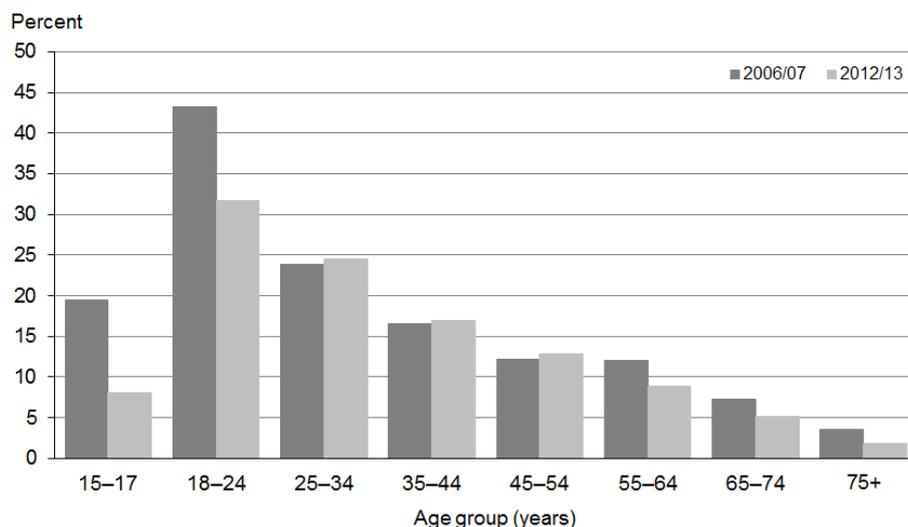
Alcohol accounted for about 4 percent of total health loss in 2006 (Ministry of Health 2013a). Just over half (54 percent) of this impact was due to diseases (especially mental illness such as alcohol use disorder); the remainder was due to injury.

Over 500,000 adults are hazardous drinkers

The 2012/13 New Zealand Health Survey found that one in six adults (550,700 people, or 15 percent) were hazardous drinkers, down from 18 percent in 2006/07 (Ministry of Health 2013b). 'Hazardous drinking' refers to a pattern of drinking with the potential to cause physical or mental harm to the drinker or to those around them. It is measured with the Alcohol Use Disorders Identification Test (AUDIT).

The hazardous drinking rate is more than twice as high in men (22 percent) as it is in women (9 percent). Almost one-third (31 percent) of Māori had a hazardous drinking pattern. After adjusting for age and sex differences, Māori were twice as likely to be hazardous drinkers as non-Māori. Asian adults were much less likely to have a hazardous drinking pattern than non-Asian adults. People aged 18–24 years had the highest hazardous drinking rate in 2012/13, although there was a significant decline in this age group since 2006/07 (see Figure 3.35).

Figure 3.35: Prevalence of hazardous drinking in adults, by age group, 2006/07 and 2012/13



Source: 2012/13 New Zealand Health Survey (Ministry of Health 2013b)

Figure 3.35 also shows a significant decrease in the hazardous drinking rate in young people aged 15–17 years between 2006/07 and 2012/13 (Ministry of Health 2013b). This finding is consistent with the 2013 national survey of the health and wellbeing of secondary school students, which found that rates of binge drinking (defined as consuming five or more alcoholic drinks within four hours) declined from 34 to 23 percent between 2007 and 2012 (Clark et al 2013).

Alcohol-related harm to self and others

Harmful effects of alcohol include impacts on friendships and social life, home life, work, study and employment opportunities and financial positions, as well as legal problems and learning difficulties.

In the 2012/13 New Zealand Health Survey, the most commonly reported harm among drinkers was to their physical health (8 percent), followed by harms to financial position (6 percent), friendship or social life (5 percent), mental health (5 percent) and home life (5 percent). Alcohol-related harm to self was more common in males than females (Ministry of Health In Press-a).

Many people experience harm from someone else's drinking. In the 2012/13 New Zealand Health Survey, reported harms from someone else's drinking included: verbal abuse (13 percent), harm to friendships or social life (8 percent), and being driven by a drunk driver (6 percent). Young people aged 15–24 years were more likely to report harm from their own or someone else's alcohol use (Ministry of Health In Press-a).

Physical activity

Low physical activity accounted for about 4 percent of all illness, disability and premature mortality in 2006 (Ministry of Health 2013a). Physical activity helps protect against heart disease, stroke, type 2 diabetes, certain cancers, osteoarthritis and depression. It is also important for maintaining a healthy weight and preventing and reducing obesity.

Physical activity is defined as any musculoskeletal movement that requires energy expenditure. It includes deliberate exercise (such as running and sports), incidental activity (such as housework), work-related activity and active transport.

Physical activity levels in adults stable

In 2012/13, just over half of New Zealanders aged 15 years and over (52 percent) were classified as physically active; that is, they reported doing at least 30 minutes of moderate-intensity physical activity at least five days a week (Ministry of Health 2013b). Physical activity levels were higher in men (56 percent) than women (48 percent). There has been no change in physical activity levels in adults since 2006/07.

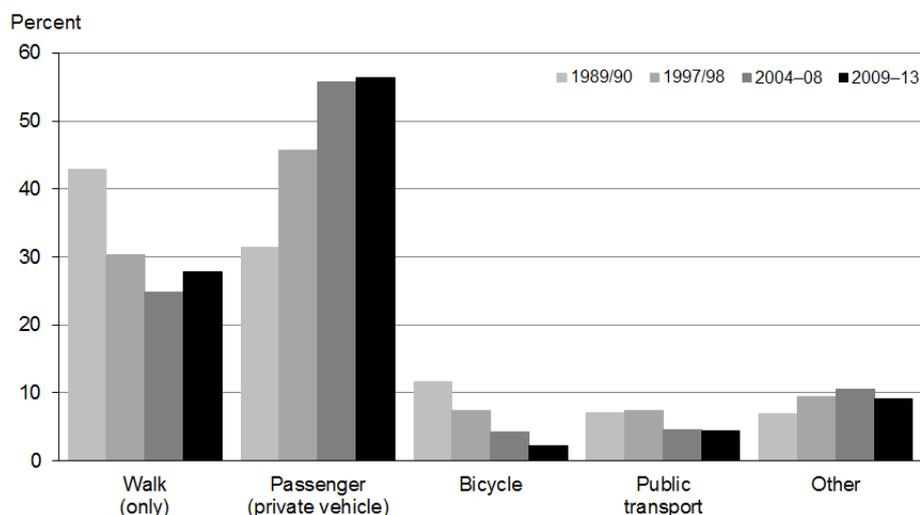
More time spent watching television or video

The 2009/10 Time Use Survey found that the average amount of time New Zealanders aged 12 years or older spent on exercise or sporting activities was 19 minutes a day, which is the same figure as in 1998/99 (Statistics New Zealand 2011). In contrast, New Zealanders spent an average of two hours and eight minutes every day watching television and video – up seven minutes from 1998/99. This estimate excludes other leisure time activities involving computer or internet use.

Fewer children walking and biking to school

The proportion of primary school-aged children walking and cycling to school has declined over the last two decades. The latest Household Transport Survey found that 28 percent of children aged 5–12 years walked to school over the five-year period 2009–2013, down from 42 percent in 1989/90 (Ministry of Transport 2014). Only 2 percent of children biked to school in the period 2009–2013, down from 12 percent in 1989/90. During the same period the proportion of children being driven to school increased (see Figure 3.36).

Figure 3.36: Travel to school in children aged 5–12 years, 1989/90 to 2009–2013



Source: Household Transport Survey (Ministry of Transport 2014)

Diet

The foods and drinks we consume play a major role in our health and wellbeing. A healthy diet throughout life can help prevent nutritional deficiencies, protect against infection and help maintain a healthy body weight. It also reduces the risk of cardiovascular diseases, type 2 diabetes and some cancers.

Poor diet accounted for nearly 4 percent of all illness, disability and premature mortality in 2006 (Ministry of Health 2013a). This is likely to be an underestimate of the true impact of unhealthy diet, because it is based on only three dietary components: high sodium intake, low vegetable and fruit intake and high saturated fat intake. When high BMI (a marker of excess energy intake) was also included, poor diet accounted for 11.4 percent of all illness, disability and premature mortality in 2006.

Obesity

High BMI (including obesity) accounted for about 8 percent of all illness, disability and premature mortality in 2006, making it the second leading causes of health loss after smoking. Given that obesity rates are increasing and smoking rates are decreasing, obesity is projected to overtake tobacco as the leading risk factor by 2016 (Ministry of Health 2013a).

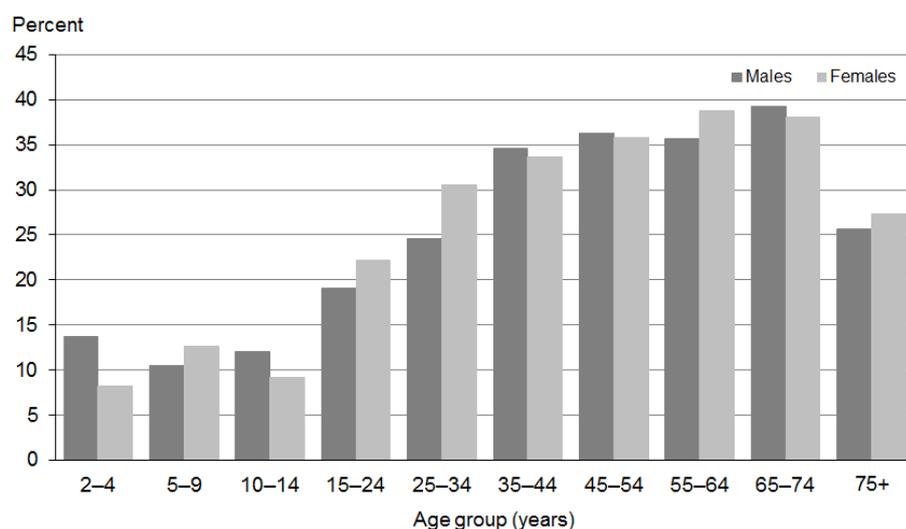
Excess weight is a leading contributor to a number of health conditions, including type 2 diabetes, cardiovascular diseases, some common types of cancer (eg, colorectal), osteoarthritis, gout, sleep apnoea, reproductive disorders, gallstones, mental health conditions (especially depression) and dementia. Extreme obesity can reduce life expectancy by up to 10 years (Prospective Studies Collaboration 2009).

An estimated 1.2 million New Zealanders are obese

The 2012/13 New Zealand Health Survey (Ministry of Health 2013b) found that 31 percent of adults and 10 percent of children (aged 2–14 years) were obese. This equates to about 1.2 million people (1,115,000 adults and 84,900 children). A further 34 percent of adults and 21 percent of children were overweight but not obese.

Obesity rates are similar in males and females, but vary markedly by age group (see Figure 3.37). Obesity rates increase rapidly in young adults before peaking in middle-aged adults. Obesity rates decline in older adults due to obese people dying or losing weight because of illness.

Figure 3.37: Prevalence of obesity, by age group and sex, 2012/13



Source: 2012/13 New Zealand Health Survey

In 2012/13 obesity rates were higher among Māori adults (48 percent) and Pacific adults (68 percent). Among children, obesity rates were also higher for children of Māori (19 percent) and Pacific (27 percent) ethnicity (Ministry of Health 2013b).

Neighbourhood deprivation is strongly positively associated with obesity, particularly for children. After adjusting for age, sex and ethnic differences, adults living in the most deprived areas were 60 percent more likely to be obese than adults living in the least deprived areas. Children living in the most deprived areas were 2.7 times as likely to be obese as children living in the least deprived areas (Ministry of Health 2013b).

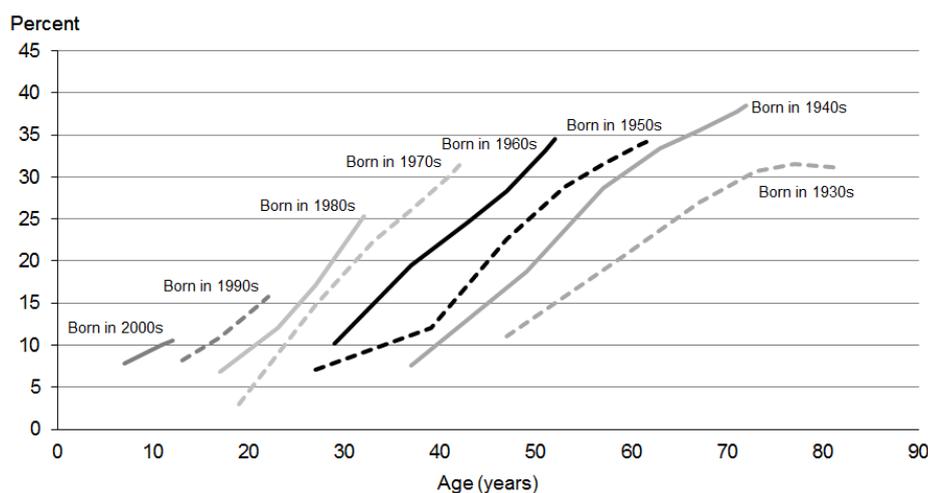
New Zealand has high rates of obesity compared with other OECD countries. In 2012, New Zealand adults ranked third highest out of 15 OECD countries that directly measured obesity, behind the United States and Mexico (OECD 2014b). New Zealand's adult obesity rate is well above the OECD average of 23 percent for measured obesity (OECD 2014d). In 2010, New Zealand children (aged 5–17 years) ranked third highest out of 40 countries for measured overweight (including obesity) (OECD 2014b).

Obesity rates have tripled since the late 1970s

Obesity rates in adults have tripled since the late 1970s, from about 10 percent to 30 percent (Ministry of Health In Press-c). Obesity rates have increased in all age, sex and ethnic groups. As of 2012/13, there was no sign that the rate of increase in obesity is slowing in any group. In contrast, some countries are starting to see overweight and obesity rates stabilise or decline in some population groups (OECD 2014b).

Not only are obesity rates increasing for all population groups, but more New Zealanders are becoming obese at a younger age (see Figure 3.38). For example, the cohort of people born in the 1930s reached an obesity rate of 15 percent when they were aged about 50 years old, whereas those born in the 1990s reached this level of obesity when they were aged about 20 years. The earlier people become obese, and the longer they stay obese, the more likely they are to develop obesity-related diseases. These trends in obesity are likely to have contributed to increasing rates of diabetes and earlier onset of diabetes (see the 'Diabetes' section of this report).

Figure 3.38: Prevalence of obesity in adults, by decade of birth, 1997–2012/13



Note: Obesity rates appear to be declining in people born in the 1930s only because this group are now aged in their 80s. Obesity rates decline in older age groups due to obese people dying or losing weight because of illness.

Source: 1977 National Diet and Nutrition Study; 1989 Life in New Zealand Survey; 1997 National Nutrition Survey; and 2002/03, 2006/07, 2011/12 and 2012/13 New Zealand Health Surveys

Unless obesity rates are reduced, the burden of diabetes and other obesity-related diseases will be a major challenge for the health sector in the years to come. While early intervention is essential to prevent obesity in children and young people, the vast majority of New Zealanders who are currently obese are middle-aged or older.

There may be scope to improve the management of adult obesity in primary care. In the 2011/12 New Zealand Health Survey, 46 percent of obese adults and 36 percent of overweight adults reported that someone at their usual medical centre had measured their weight and/or height in the previous 12 months, compared with 29 percent of healthy weight adults. About one in four obese adults reported that someone at their usual medical centre had either talked with them or arranged for someone to talk with them about weight (27 percent), health food/nutrition (21 percent) and exercise/physical activity (23 percent) in the previous 12 months.

Parental perception of child weight

Making parents aware that obesity is a health problem is an important first step in promoting healthy body weight in children. Studies in many countries show that a significant number of parents do not recognise that their children are overweight or obese.

The 2011/12 and 2012/13 New Zealand Health Surveys found that most New Zealand children are a healthy weight, and 87 percent of their parents correctly identified them as being neither under nor overweight (see Table 3.10). However, parents of overweight children were almost as likely to believe their child was neither under nor overweight (83 percent); only 15 percent correctly identified their child as overweight. The majority of parents of obese children also thought their child was neither under nor overweight (57 percent); only 3 percent correctly identified them as very overweight (Ministry of Health In Press-c).

Table 3.10: Parental perception of child's weight, by BMI category, 2011/13

| Child's measured BMI category | Parental perception of child weight (%) | | | | |
|-------------------------------|---|-------------|------------------------------|------------|-----------------|
| | Very underweight | Underweight | Neither under nor overweight | Overweight | Very overweight |
| Underweight | 4 | 37 | 59 | 0 | 0 |
| Healthy weight | 0 | 11 | 87 | 1 | 0 |
| Overweight | 0 | 1 | 83 | 15 | 0 |
| Obese | 0 | 1 | 57 | 38 | 3 |

Source: 2011/12 and 2012/13 New Zealand Health Surveys (provisional)

Blood pressure

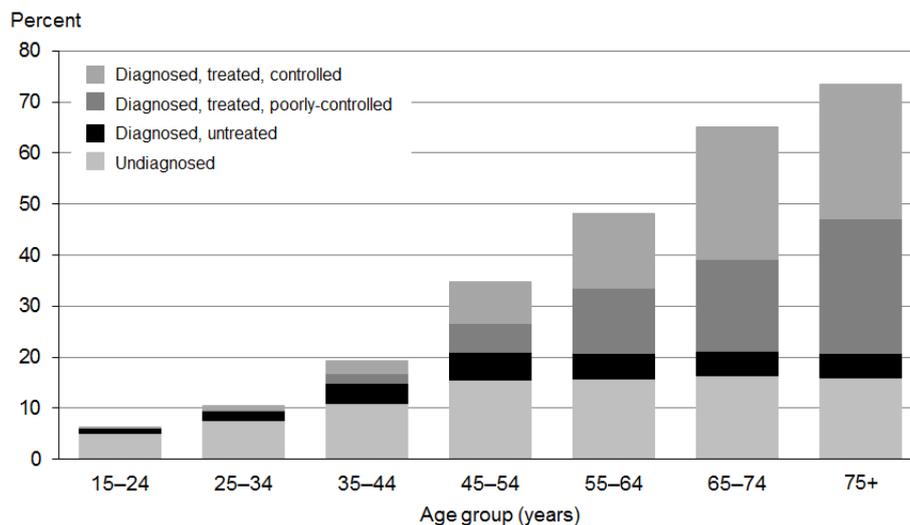
High blood pressure or hypertension is a risk factor for ischaemic heart disease, stroke, hypertensive heart disease, kidney failure and dementia. High blood pressure is the third-largest risk to health, after smoking and high body mass. High blood pressure accounted for 6.4 percent of illness, disability and premature mortality in 2006 (Ministry of Health 2013a).

High blood pressure can be caused by lifestyle factors such as diet (especially sodium/salt intake), physical inactivity, obesity and high alcohol consumption. Eating enough fruit and vegetables can help lower blood pressure. Medication can also help to lower blood pressure levels.

Poorly-controlled high blood pressure is common in middle aged and older adults

The 2012/13 New Zealand Health Survey found that one in three adults (31 percent) could be classified as having hypertension, which is defined as having systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg and/or currently taking medication for high blood pressure. Men were more likely than women to have hypertension (33 and 30 percent respectively). The prevalence of hypertension increases with age; about two thirds of adults aged 65 years or older are affected (see Figure 3.39).

Figure 3.39: Prevalence of hypertension in adults, by age group, 2012/13



Note: Excludes adults with missing blood pressure measurements.

Source: 2012/13 New Zealand Health Survey

Of adults with hypertension, 38 percent were undiagnosed; that is they had not been told by a doctor that they had high blood pressure but their blood pressure measurements were above the cut-offs for hypertension. A higher proportion of younger adults were undiagnosed. Of adults currently taking medication for high blood pressure, just over half (55 percent) had their blood pressure well controlled (that is, they had systolic blood pressure <140 mmHg and diastolic blood pressure <90 mmHg).

Infectious diseases

Key messages

- Infectious disease challenges include reducing outbreaks of vaccine-preventable diseases, reducing rates of sexually transmitted infections, and dealing with emerging microbial threats and drug resistance.
- The incidence of first episode rheumatic fever was 4.3 per 100,000 in 2013, an increase since 2012 (3.7 per 100,000). It is too soon to tell whether this is a real increase or due to natural variation and/or increased awareness.
- The pertussis epidemic that began in August 2011 is subsiding, but New Zealand's 2013 pertussis notification rate is still higher than the OECD average.
- An outbreak of measles started at the end of 2013, with 268 cases reported as of 31 July 2014. The highest measles notification rate was in young people aged 15–19 years.
- Meningococcal notification rates remain low following the MeNZB™ vaccination programme implemented from 2004 to 2009.
- Chlamydia was the most commonly diagnosed sexually transmitted infection in 2013. The estimated chlamydia rate was more than four times that of the most commonly reported notifiable disease, campylobacteriosis.
- Emerging infectious disease threats include new infections such as avian influenza A (H7N9), which New Zealand has made a notifiable disease. New Zealand has made human infection MERS-CoV a notifiable and quarantinable disease.
- Antibiotic resistance is a recognised global threat to the effective prevention and treatment of some common infections. New Zealand has relatively good surveillance of antimicrobial resistance, and contributes to global action to mitigate its effects.

Although NCDs account for much of the burden of disease in New Zealand, communicable (or infectious) diseases still account for many outbreaks and an avoidable proportion of hospitalisations. This section discusses some current achievements and challenges in the area of infectious diseases.

Rheumatic fever

Rheumatic fever is an autoimmune reaction to a group A streptococcal infection. It is a leading cause of acquired heart disease in New Zealand children. Rheumatic fever rates in New Zealand are much higher than in other developed countries.

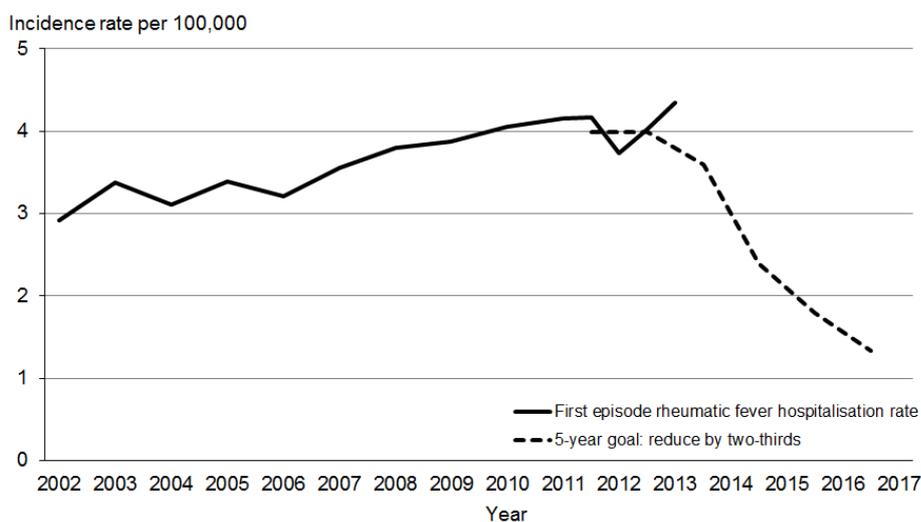
In 2012 the Government announced a target of reducing the incidence of rheumatic fever by two-thirds, to 1.4 initial hospitalisations per 100,000 people by June 2017. This target is part of a set of Better Public Services targets, chosen for their importance to improving the lives of New Zealanders.

In 2013, the incidence of first episode rheumatic fever was 4.3 cases per 100,000 people (that is, a total of 194 people were admitted to hospital for the first time with rheumatic fever). The 2013 rate represents an increase compared with the 2012 rate of 3.7 cases per 100,000 people (a total of 168 people).

The increase in the rate of first episode rheumatic fever from 2012 to 2013 (see Figure 3.40) is likely to be due to one or more of the following factors:

- increased awareness of rheumatic fever among the public and health professionals, resulting in more diagnoses
- the natural annual variation of rheumatic fever cases (total numbers are small)
- an actual increase in the number of children and young people developing rheumatic fever.

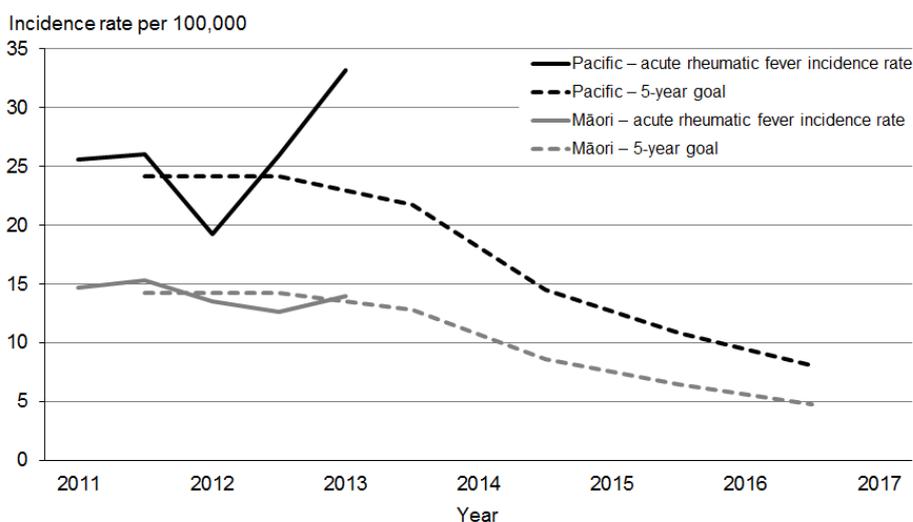
Figure 3.40: First episode rheumatic fever hospitalisation rate, 2002–2013 and five-year goal



Source: National Minimum Dataset, Ministry of Health

The acute rheumatic fever incidence rate for Māori remained stable from 2011 to 2013 (see Figure 3.41). However, during the same period, it increased for Pacific peoples.

Figure 3.41: First episode rheumatic fever hospitalisation rate, Māori and Pacific peoples, 2011–2013



Source: National Minimum Dataset, Ministry of Health

Vaccine-preventable diseases

Immunisation is one of the most effective and cost-effective interventions to protect people against harmful infections that can cause serious complications, including death. It provides protection by reducing the incidence of vaccine-preventable diseases and preventing their spread to vulnerable people. The National Immunisation Programme comprises a series of vaccines that are offered at no cost to babies, children, adolescents and adults, protecting them from a range of diseases.

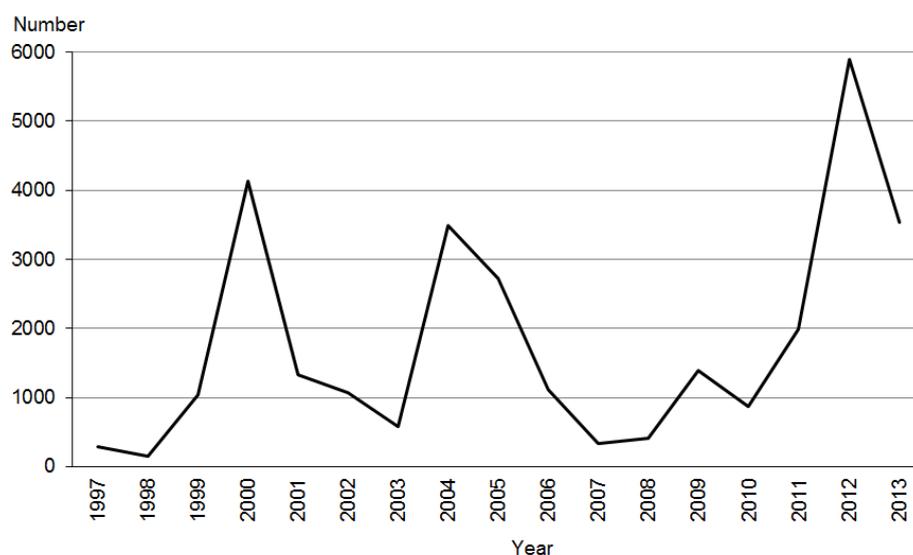
Immunisation rates in children aged eight months and two years are as high as they have ever been (at 92 and 93 percent respectively) since the introduction of the National Immunisation Register in 2008 (see the 'Immunisation rates' section of this report). Childhood vaccination coverage rates in New Zealand at age one year are close to the OECD average, and our position improved from 2009 to 2012 (OECD 2013). However, low childhood immunisation rates in the past have meant that immunity across New Zealand is still lower than needed to prevent occasional outbreaks, particularly measles and pertussis.

Pertussis epidemic on the decline

Pertussis, commonly known as whooping cough, is a highly contagious bacterial disease that causes severe coughing fits. There is usually a pertussis outbreak every three to five years in New Zealand; cases predominately appear in young children. A vaccination for pertussis is included on the free childhood immunisation schedule at six weeks, three months and five months of age. Since January 2013, pregnant women have been able to receive a whooping cough booster vaccination for free.

The current pertussis epidemic began in August 2011 (see Figure 3.42). In 2013 there were 3539 cases of pertussis notified (79 per 100,000); nearly 40 percent fewer than in 2012 (5898 cases; 133 per 100,000) (ESR 2014). However, the current rate is still well above the OECD average of 9 per 100,000 (OECD 2014c).

Figure 3.42: Number of pertussis notifications, 1997–2013



Source: ESR 2014

The highest pertussis notification rate was for children aged less than one year (441 per 100,000), followed by children aged 1–4 years (224 per 100,000). The European/Other ethnic group had the highest notification rate (87 per 100,000), closely followed by Pacific peoples (85 per 100,000).

Vaccination status was known for just over half of all pertussis cases in 2013. Of these, one-third (32 percent) had not been vaccinated, including about 2 percent who were aged less than six weeks so not eligible for vaccination. Of those who were known to have been vaccinated, 21 percent had received three or more doses of vaccine, 3 percent had received two doses, and 9 percent had received one dose. The remaining 17 percent had been vaccinated, but the number of doses was not known (ESR 2014).

Recent measles outbreak

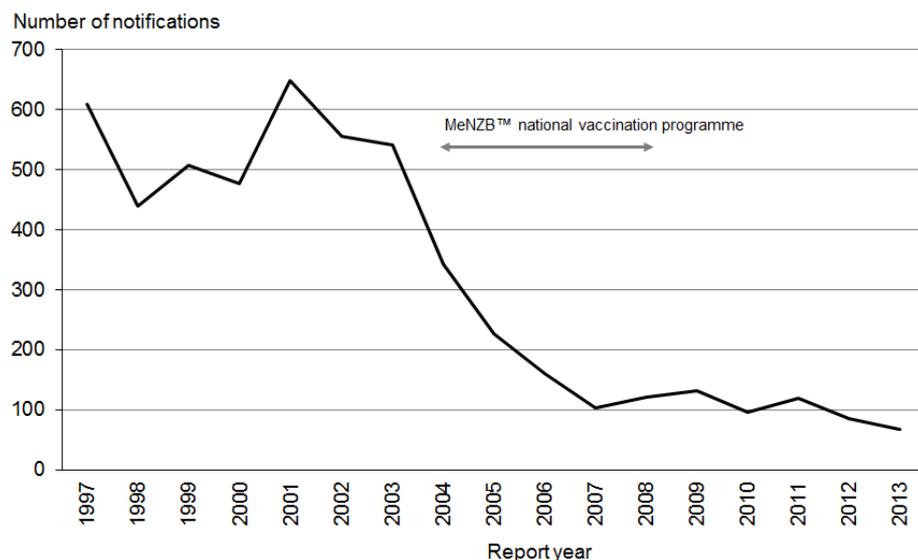
From 2012 to 2013 there was a large drop in the number of notifications of measles (from 68 to 8). However, since the end of 2013 there has been an outbreak of measles. A total of 268 cases were reported from December 2013 to 31 July 2014. Most of these cases were in the Waikato (123) and Auckland regions (112); cases were also reported in Bay of Plenty/Lakes (13), Hawke’s Bay (12), Northland (1), Wellington (4), Tairāwhiti (2) and Taranaki (1).

The highest measles notification rate is in young people aged 15–19 years (30.4 per 100,000), closely followed by children aged 10–14 years (27.3 per 100,000). Vaccination status was known for 223 of the 268 cases. Of these, most (80 percent) had not been vaccinated, including a small number of cases in children too young for vaccination.

Meningococcal disease rates remain low

There were 68 cases of meningococcal disease notified in 2013 (1.5 per 100,000), down from 85 cases in 2012 (1.9 per 100,000) and substantially less than the peak of over 600 cases in 2001 (see Figure 3.43). In 2013 the highest notification rates for meningococcal disease were in children aged less than one year (18.4 per 100,000) and those aged 1–4 years (5.2 per 100,000); there were higher than average rates in the Māori (3.4 per 100,000) and Pacific (3.3 per 100,000) ethnic groups (ESR 2014).

Figure 3.43: Number of meningococcal disease notifications, 1997–2013

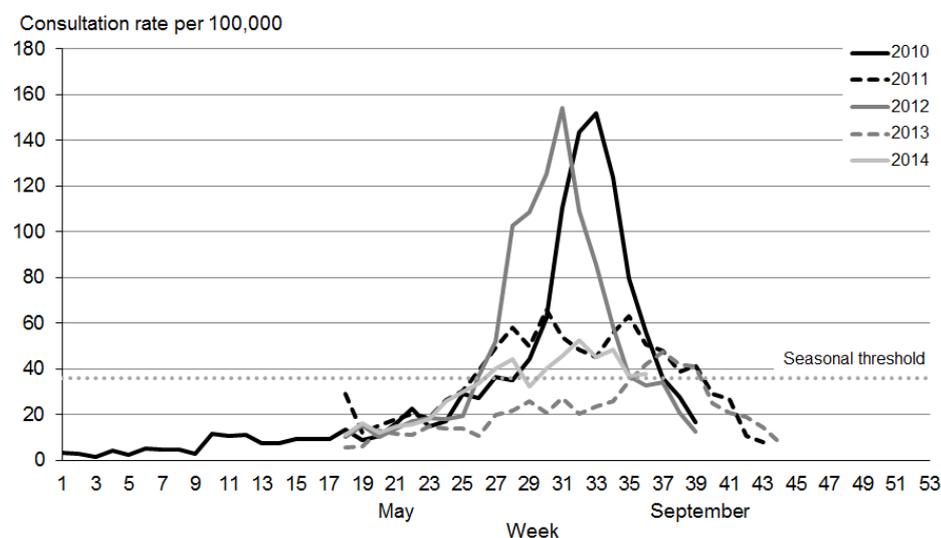


Source: ESR 2014

Influenza

Influenza is a common cause of illness and hospitalisation in New Zealand. Annual activity generally occurs between May and September, with seasonal peaks in August and September. The 2013 influenza season saw relatively low rates of disease in comparison with previous years, according to weekly GP consultation rates (see Figure 3.44). So far it appears that rates in 2014 are higher than they were in 2013, but still lower than 2011 or 2012.

Figure 3.44: Weekly consultation rate for influenza-like illness, 2010 to August 2014



Source: Responding practices of the HealthStat GP practice panel, ESR

Sexually transmitted diseases

In New Zealand, sexually transmitted infections are not notifiable; the surveillance system relies on the ongoing support of sexual health clinics, family planning clinics and laboratory staff. Estimated national rates can only be calculated for chlamydia and gonorrhoea.

In 2013 chlamydia was the most commonly diagnosed sexually transmitted infection. There were 28,316 positive tests for chlamydia, giving an estimated national rate of 633 per 100,000 (ESR 2014). This rate continues a decline from an estimated rate of 781 per 100,000 in 2009. The estimated population incidence rate for chlamydia was more than four times that of the most commonly reported notifiable disease, campylobacteriosis.

In 2013 there were 3344 positive tests for gonorrhoea. This gives an estimated national rate of 78 per 100,000, which is lower than the rate in 2012 (89 per 100,000) but higher than the rate in 2009 (66 per 100,000).

In 2013, sexual health and family planning clinics reported 1854 first presentations of genital warts. The number of cases of genital warts has declined by more than 50 percent since the HPV immunisation programme began in 2008.

Emerging infectious disease threats

There are currently a number of emerging infectious disease threats to population health, including new and re-emergent infections and antimicrobial resistance.

New and re-emerging infectious diseases

New viruses with pandemic potential include avian influenza A (H7N9), first identified in China, and Middle East respiratory syndrome coronavirus (MERS-CoV). In response to these new threats, New Zealand has made human infection with A (H7N9) a notifiable disease, and MERS-CoV a notifiable and quarantinable disease.

Re-emergent threats include avian influenza (H5N1), polio and Ebola. The international re-emergence of polio in mid-2014 after near eradication led to WHO's declaration of a Public Health Emergency of International Concern. New Zealand is collaborating with WHO in monitoring potential infection.

An outbreak of Ebola developed in three countries in western Africa in February 2014. As of 3 October 2014, there were 7470 cases of Ebola (including 3431 deaths), making this the most significant outbreak of the disease on record. New Zealand continues to work with international health authorities to monitor the progress of this disease and prepare responses if further spread occurs.

Antimicrobial resistance is a global threat

Antibiotic resistance is a global threat to the effective prevention and treatment of some common infections. A recent WHO report shows that antimicrobial resistance has reached alarming levels in many parts of the world; there are few or no effective treatments options for common infections in some settings (WHO 2014).

New Zealand carries out relatively good surveillance of antimicrobial resistance by international standards. The WHO report found that there are problems with data sharing and coordination of surveillance activities around the world. Given the health and economic implications of increasing antimicrobial resistance, the WHO is developing a global action plan.

Methicillin/oxacillin-resistant *Staphylococcus aureus* (MRSA) is one example of antibiotic-resistant bacteria. The prevalence of MRSA in New Zealand nearly doubled from 2003 to 2013 (from 12.8 to 23.9 per 100,000), and more cases are now contracted in the community than in health care facilities. The increase in prevalence of MRSA is likely to reflect an increase in the incidence of *S. aureus* infections rather than an increase in the proportion of infections that are methicillin resistant (ESR 2014).

Multi-drug-resistant tuberculosis remains rare in New Zealand; there were four cases in 2012, accounting for 1.4 percent of culture-positive tuberculosis cases (Lim and Heffernan 2013).

Notes for the Health and Independence Report

Indicators, measures and data sources

Health can be measured in many different ways. This report uses measures of disease and risk factor occurrence (eg, incidence and prevalence), mortality and overall health loss. Health loss is the gap between the population's current state of health and that of an ideal population in which everyone lives a long life free from illness and disability. Health loss is measured using the disability-adjusted life year (DALY), which combines information on both fatal (premature death) and non-fatal outcomes (illness or disability).

In many comparisons the results are *adjusted* or *standardised* for factors that may be influencing (confounding) the comparison, such as age, sex and ethnicity. For example, age standardisation is often used in this report to account for differences in age structure between population groups, using the WHO world population (Ahmad et al 2000).

Where possible, time trends are provided and information is disaggregated by population group, including by sex, age group and ethnic group. Selected results are also presented by neighbourhood deprivation, as measured by the New Zealand Index of Deprivation 2006 (NZDep2006) (Salmond et al 2007). In this report, 'most deprived areas' refers to quintile 5; that is, the people living in the most deprived 20 percent of small areas in New Zealand.

This report uses data available from a range of sources, including the national administrative data sets (such as the Mortality Collection), the New Zealand Health Survey and the New Zealand Burden of Diseases, Injuries and Risk Factors Study (Ministry of Health 2013a), as well as data from other agencies, such as Statistics New Zealand.

All data reported is the latest available, although the time lag between the most recent data and the present can be substantial. For example, the most recent complete mortality data are for 2011.

International benchmarking is also included in the report because it provides valuable insights into how New Zealand compares with other countries. It can also help identify opportunities for improvement, by showing what is achievable. However, comparisons need to be interpreted with caution, due to differences in data collection and definitions between countries. Two key international sources used this year in the report's section on health systems performance are OECD Health Statistics 2014 (OECD 2014c, 2014d) and the Commonwealth Fund's *Mirror*, *Mirror* report (Davis et al 2014).

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