

Pūrongo Ārai Mate Pukupuku Cancer Prevention Report





WELLINGTON



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KŌRERO TAKAMUA

FOREWORD

It gives me great pleasure to present the *Pūrongo Ārai Mate Pukupuku* | Cancer Prevention Report. This report pulls together data, research and recommendations focused on preventing cancer all in one document. Our aim is to identify ways that we can create environments that support people to stay well.



Cancer is the leading cause of health loss in Aotearoa New Zealand with about 25,000 people diagnosed every year. Cancer is a complex condition, and it is not possible to predict who will develop cancer and who will not. However, half of all cancers are potentially preventable, by reducing everyone's exposure to the cancer risk factors present in our environments. This report focuses on what actions Aotearoa can take to stop cancers developing whenever that is possible – surely, the very best possible cancer outcome. As an Agency, we will continue to work hard to make sure that those who are affected by cancer receive the best possible care.

Te Aho o Te Kahu is unwaveringly focused on equity and reducing the impact of cancer on Māori and Pacific peoples. Research tells us that cancers developed by Māori and Pacific are more preventable and inequities compound as whānau travel along the cancer pathway. If we are serious about reducing the inequities in cancer outcomes, we need a strong focus on prevention.

There have been many significant and successful achievements in cancer prevention in Aotearoa and I would like to acknowledge all the agencies, organisations and individuals who work so hard in this space. I hope you find this report useful. The aim is that this report identifies further opportunities to make even greater gains in preventing cancer and supports your efforts.

My thanks to all those who worked together to make this report a reality: our partners Te Hīringa Hauora|Health Promotion Agency and the University of Otago Wellington, Hei Āhuru Mōwai, He Ara Tangata, our Ministry of Health colleagues, the Cancer Society and a range of experts who provided invaluable input, as well as the kaimahi of Te Aho o Te Kahu.

Finally, I would like to acknowledge all the whānau living with cancer and those who have lost loved ones to cancer. This report is our first step towards trying to prevent others having to ever set foot on a cancer journey.

Mauri ora

Professor Diana Sarfati
Chief Executive and National Director of Cancer Control
Te Aho o Te Kahu, Cancer Control Agency



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Thank you also to all those who contributed their time and expertise in reviewing drafts of the report:

Ministry of Health; Cancer Society; Boyd Swinburn (University of Auckland); Nicki Jackson (Alcohol Healthwatch); Bronwen McNoe (University of Otago); Sport New Zealand; Martin Gledhill (EMF Services).

NGĀ IHIRANGI CONTENTS

Kōrero takamua Foreword	III
Ngā mihi Acknowledgements	IV
He kupu whakataki: te take hei ārai mate pukupuku Introduction: the case for cancer prevention	..1
Up to half of all cancers can be prevented	1
The burden of cancer is not the same for everyone	1
The size of the opportunity for cancer prevention	3
Environments strongly influence a person's risk of cancer	4
Not all environments are created equal	4
Te Tiriti o Waitangi responsibilities and preventing cancer	5
Prevention is the ideal in cancer control	5
Purpose of this report	7
Te hōkai me te hanga o tēnei pūrongo Scope and structure of this report	8
Te ārai mate pukupuku ā-tūpeka Preventing cancers related to tobacco	9
What is the connection between tobacco exposure and cancer?	9
How big is the problem of tobacco exposure in Aotearoa?	10
How can we prevent cancers related to tobacco exposure?	12
Te ārai mate pukupuku e hāngai ana ki te waipiro Preventing cancers related to alcohol	19
What is the connection between alcohol and cancer?	19
How big is the problem of alcohol use in Aotearoa?	20
How can we prevent cancers related to alcohol use?	24
Te ārai mate pukupuku ā-kai, ā-tinana tino mōmona Preventing cancers related to nutrition and excess body weight	31
What is the connection between nutrition, excess body weight and cancer?	31
How big is the problem of poor diet and excess body weight in Aotearoa?	32
How can we prevent cancers related to poor diet and excess body weight?	35
Te ārai mate pukupuku mō te iti o te kori tinana Preventing cancers related to insufficient physical activity	43
What is the connection between physical activity and cancer?	43
How big is the problem of physical inactivity in Aotearoa?	44
How can we prevent cancers related to insufficient physical activity?	47
Te ārai mate pukupuku mō pānga o te hihi kōmaru Preventing cancers related to excessive exposure to ultraviolet radiation	53
What is the connection between ultraviolet radiation and cancer?	53
How big is the problem of exposure to excessive ultraviolet radiation in Aotearoa?	54
How can we prevent cancers related to excessive ultraviolet radiation?	56

Te ārai i ngā mate pukupuku mō ngā mate mau tonu Preventing cancers related to chronic infections.....	61
What is the connection between chronic infections and cancer?	61
How big is the problem of chronic infections in Aotearoa?	65
How can we prevent cancers related to chronic infections?	68
He kupu whakakapi Conclusion	80
Ngā Tohutoro References.....	82

List of figures

Figure 1: Incidence and mortality rates for Māori and non-Māori, non-Pacific, non-Asian by cancer type, 2007–2017	2
Figure 2: Incidence and mortality rates for Pacific peoples and non-Māori, non-Pacific, non-Asian by cancer type, 2007–2017	3
Figure 3: Influences on a person's health	4
Figure 4: Cancers related to tobacco	9
Figure 5: Current smokers in Aotearoa, 1983–2019.....	10
Figure 6: Daily smoking trends in adults (aged 15 years and older) by ethnicity, 2006/07–2019/20	11
Figure 7: Daily smoking trends in adults (aged 15 years and older) by neighbourhood deprivation, 2019/20	11
Figure 8: Cancers related to alcohol.....	19
Figure 9: Estimated proportion of new cases in 2020 attributable to alcohol drinking, Aotearoa, both sexes	20
Figure 10: Patterns of alcohol use in Aotearoa, 2019/20	21
Figure 11: Low-risk drinking advice	21
Figure 12: Volume of alcoholic beverages available for consumption in Aotearoa, by type, 2005–2020	22
Figure 13: Alcohol use prevalence trends, 2006/07–2019/20.....	22
Figure 14: Percentage of adults (aged 15 years and older) using alcohol by ethnicity, 2019/20	23
Figure 15: Percentage of adults (aged 15 years and older) using alcohol by neighbourhood deprivation, 2019/20	23
Figure 16: Association between diet and risk of cancer.....	32
Figure 17: Cancers related to excess body weight.....	32
Figure 18: Patterns of vegetable and fruit consumption in Aotearoa, 2019/20	33
Figure 19: Recommended number of servings per day for adults (updated guidelines, December 2020)	33
Figure 20: Percentage of adults who get the daily recommended servings of vegetables and fruit each day, by ethnicity, 2019/20	34
Figure 21: Percentage of adults and children who get the recommended servings of vegetables and fruit each day, by neighbourhood deprivation, 2019/2049.....	34
Figure 22: Overweight or obesity among adults (aged 15 years and older), 2020 or nearest year	35
Figure 23: Association between physical activity and the risk of cancer	43

Figure 24: Cancers related to physical inactivity or sedentary behaviour	44
Figure 25: Proportion of adults and young people who get the recommended amount of physical activity, 2019/20.....	45
Figure 26: Percentage of adults (aged 15 years and older) who get at least 2.5 hours of physical activity a week, by ethnicity, 2019/20.....	46
Figure 27: Proportion of children who have two hours or more of screen time a day, 2019/20.....	46
Figure 28: SunSmart messaging	54
Figure 29: Proportion of adults experiencing sunburn in spring and summer of 2017–20.....	55
Figure 30: Proportion of adults wearing sunscreen in the past year, 2016	55
Figure 31: Cancers related to <i>H.pylori</i> , HPV, Hepatitis B and Hepatitis C.....	61
Figure 32: Incidence of stomach cancer for Māori and non-Māori females and males in Aotearoa, 1996–2017	62
Figure 33: Cancers caused by HPV	63
Figure 34: Incidence of cervical cancer for Māori and non-Māori, 1996–2017	63
Figure 35: Incidence of liver cancer for Māori and non-Māori females and males in Aotearoa, 1996–2017	64
Figure 36: HPV coverage of girls and boys by 2003–2006 birth cohorts and ethnicity, as at July 2020.....	66
Figure 37: Hepatitis B vaccination coverage at two years of age, by ethnicity, September 2016 – June 2020.....	67
Figure 38: Key tobacco control initiatives, 1984–2020	81

List of tables

Table 1: Percentage of health loss attributable to leading modifiable risk factors, 2017	6
Table 2: New Zealand Physical Activity Guidelines	45
Table 3: Peak ultraviolet index in Aotearoa averaged over one hour at solar noon	54

**Hāpaitia te ara tika pūmau ai te
rangatiratanga mō ngā uri
whakatipu**

**Foster the pathway of knowledge
to strength, independence and
growth for future generations**

HE KUPU WHAKATAKI: TE TAKE HEI ĀRAI MATE PUKUPUKU

INTRODUCTION: THE CASE FOR CANCER PREVENTION

Up to half of all cancers can be prevented

Cancer care is a rapidly evolving area of health care. This is a good thing. The frequent advances in cancer diagnosis and treatment present continual opportunities to do better for people diagnosed with cancer. However, in the face of rapid cancer innovation, it is easy to forget that it is possible to stop people developing cancer in the first place. Cancer can be prevented: not always and not fully, but much more than most people realise.

Cancer is incredibly complex and we cannot tell which individual will develop cancer and which individual won't. However, across the whole population, preventing many cancers is possible by reducing or removing everyone's exposure to the cancer risk factors present in our lives and environments: tobacco, alcohol, poor nutrition, physical inactivity, excess body weight, excessive ultraviolet radiation and chronic infections.

About 30–50 percent of cancers globally are preventable.¹ If we applied that proportion to the 26,000 people diagnosed with cancer in Aotearoa New Zealand in 2018,² that would mean 7,800 to 13,000 fewer people would have developed cancer that year. It is difficult to adequately describe the stress and upheaval that cancer brings to the lives of people diagnosed with it and their whānau. It is even more difficult to capture the far-reaching and intergenerational impact of a loved one dying of cancer. If we can prevent such suffering for up to 13,000 people and their whānau each year, we should.

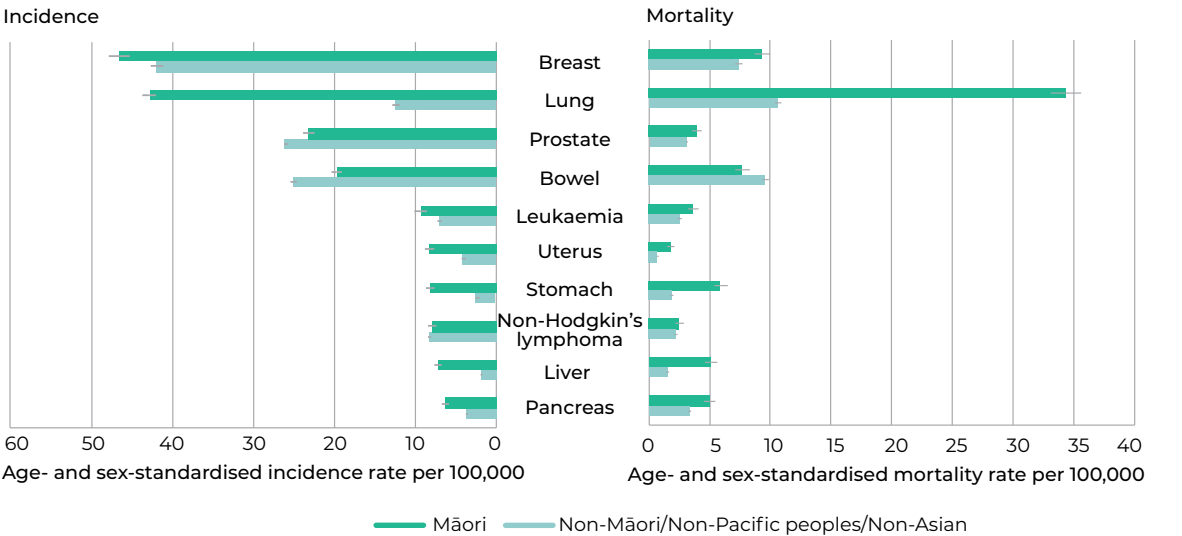
The burden of cancer is not the same for everyone

Cancer does not affect all groups in Aotearoa evenly. Inequities exist at every step of the cancer continuum – from how likely a person is to develop cancer to how quickly they are diagnosed, how accessible and appropriate their treatment is, and how they and their whānau are supported through the cancer journey. Inequities interact and compound, resulting in significant disadvantage for some compared to others. Māori are 20 percent more likely to develop cancer than non-Māori and twice as likely to die, with poorer survival across nearly all the most common cancers.³ Pacific peoples in Aotearoa are also more likely to develop certain cancers and less likely to survive some of them.^{4–6} Similar inequities exist (or are likely to exist) across a range of factors including by levels of deprivation,⁷ living with mental illness,^{8,9} living with disability,^{10–12} sexual orientation,^{13,14} and geography or rurality.¹⁵

The cancers that are more common for Māori (including liver, lung, stomach and pancreas) (Figure 1) tend to be highly preventable. Pacific peoples in Aotearoa are also more likely to develop several cancers (including liver, lung, stomach and uterus) (Figure 2) that have a high preventable component. The pattern of preventable cancers is similar for those living in deprived areas, to the extent that poverty has been described as a cancer-causing risk factor or carcinogen.¹⁶

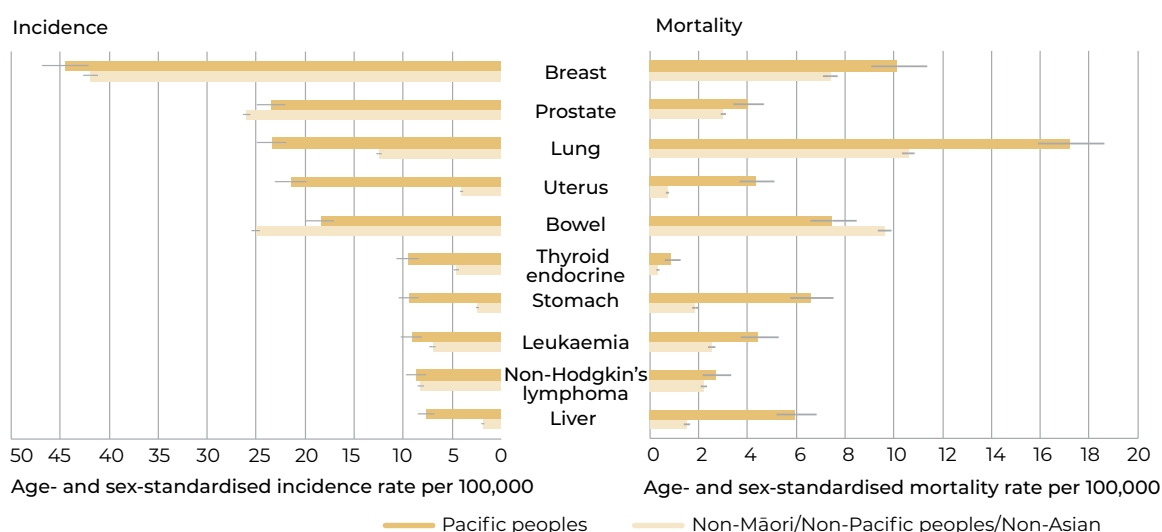
The burden of cancer is not the same for everyone. If we do not do enough to prevent cancer now, responding to the predicted increase in the number of people with cancer will require much greater cancer service capacity and the increase may also exacerbate the cancer inequities that exist today. For both those reasons, doing more to prevent cancer is imperative and urgent. Aotearoa has untapped potential for cancer prevention strategies to reduce inequities in cancer, but to realise this potential we need prevention activities that are led and delivered by Māori, Pacific peoples and other populations experiencing disparities, recognising that what works for one group will not necessarily work for others. This report supports the commitment to achieving equitable health outcomes for Māori and Pacific peoples as set out in the *New Zealand Cancer Action Plan 2019-2029 – Te Mahere mō te Mate Pukupuku o Aotearoa 2019-2029*,¹⁷ *Whakamaua: Māori Health Action Plan 2020–2025*,¹⁸ and *Ola Manuia: Pacific Health and Wellbeing Action Plan 2020–2025*.¹⁹

Figure 1: Incidence and mortality rates for Māori and non-Māori, non-Pacific, non-Asian by cancer type, 2007–2017*



* Age- and sex-standardised to 2001 Māori census population

Figure 2: Incidence and mortality rates for Pacific peoples and non-Māori, non-Pacific, non-Asian by cancer type, 2007–2017*



The size of the opportunity for cancer prevention

One way of describing the impact of cancer (or other conditions) across a population is in terms of health loss. The idea of health loss captures both the quantity and quality of life lost because of cancer, and is measured in disability-adjusted life years or DALYs. One DALY is one year of life in full health that a person has lost. In 2019, the people of Aotearoa lost the equivalent of over 220,000 years of life in full health due to cancer, making it the leading cause of health loss. Yet if all modifiable cancer risk factors had been addressed, about 40 percent of that health loss could have been prevented. This would mean that together the people of Aotearoa would have over 90,000 more years of life in full health and out of the approximately 10,600 New Zealanders estimated to die each year from cancer, almost 4,400 fewer people would die.²⁰

For example, by addressing modifiable risk factors, we could prevent:

- around 75 percent of the health loss from lung cancer, mainly by reducing smoking
- 50 percent of the health loss from uterine cancer by reducing high body mass index (BMI)
- 65 percent of the health loss from bowel cancer by reducing dietary risks, alcohol use, high BMI, smoking and physical inactivity.²¹

These percentages show the sizeable opportunity we have to add years to life and health to years lived for the people of Aotearoa, and to reduce existing inequities in both measures. Many initiatives to prevent cancer and reduce inequities are underway and working well. Aotearoa has taken and continues to take significant strides towards becoming truly and equitably smokefree. While recognising these and other significant and successful achievements, this report illustrates the gap between where we are now in cancer prevention and where we could be.

* Age- and sex-standardised to 2001 Māori census population

Environments strongly influence a person's risk of cancer

Environmental factors play a big role in shaping health outcomes generally^{22,23} and cancer outcomes specifically.^{15,19,24} Social, political and economic factors (which sit outside of the health system) are especially influential – including the role of colonisation and racism in creating and perpetuating inequities.²⁵⁻²⁷ When looking at behaviours such as smoking, alcohol use and poor nutrition, it is important to consider the major role of environmental factors.

Although we have some degree of control over living our lives in a way that reduces the risk of cancer, the environments we live in **heavily** shape our actions and decisions (Figure 3). For example, what a person eats does not just depend on what they choose to eat. It also depends on what healthy or unhealthy food options are close by, how much fruit and vegetables cost relative to convenience foods and how those foods are advertised. Providing a nutritious home-cooked meal is not just a matter of will or skill. It requires the income to afford healthy ingredients, time to cook and space to cook. Clearly what a person eats is shaped by factors far beyond their control: everything from which foods are taxed or subsidised and how the food industry behaves, through to income, employment, education, working conditions and living conditions.

This report focuses mainly on how to improve environments in which people live, work, learn and play so that those environments can help to prevent cancer (and other conditions) for everyone. This report is less about what each individual can do to reduce their personal risk of cancer, recognising that building healthier environments can empower individuals and communities to determine their own futures.

Figure 3: Influences on a person's health²⁸



Not all environments are created equal

Not all environments are created equal. This is important – it means some groups and communities have higher exposure to cancer risk factors through no action of their own. For example, there are more fast food²⁹ and alcohol outlets³⁰ in socioeconomically deprived areas, where more whānau

Māori and Pacific families live. Supermarkets in low-income areas stock a higher ratio of unhealthy to healthy foods compared with high-income areas.³¹ Māori also have poorer access to public transport than other ethnic groups, which means they have less opportunity to be physically active in a regular day.³² These differences in environment have real downstream consequences; for example, Māori and Pacific peoples have a higher proportion of obesity-related cancers.^{33,34}

Māori and Pacific peoples are more exposed to cancer risk factors due to social, political and economic influences, including colonisation and racism. These influences also drive poorer access to and through the health system, contributing to unjust inequities in health outcomes.²⁵⁻²⁷

Making healthy choices is infinitely harder, and unfairly so, for some groups and communities. Where this report identifies known and avoidable differences in people's exposure to cancer risk factors (particularly by ethnicity or socioeconomic deprivation), it uses a vertical apricot line ■.

Te Tiriti o Waitangi responsibilities and preventing cancer

The principles of Te Tiriti provide the foundation for stronger action on preventing cancer in Aotearoa and reducing inequitable cancer outcomes.

The principle of **tino rangatiratanga** is the realisation of Māori self-determination and Māori aspirations. We can support tino rangatiratanga by deconstructing racist systems and structures and increasing environments that encourage hauora and can remove unjust obstacles.

The principle of **equity** is fundamental to cancer prevention. Inequities in cancer are prominent: Māori are 20 percent more likely to develop cancer than non-Māori and twice as likely to die from cancer. Inequities occur along every step of the cancer continuum; for example, Māori have higher exposure to cancer risk factors, poorer access to the health system and then, once diagnosed, poorer access through it. The cancers that disproportionately affect Māori tend to both be highly preventable and have poorer outcomes.

The principle of **active protection** requires the Crown to act to the fullest extent practicable to achieve equitable health outcomes for Māori. For this reason, maximum effort at every step of the cancer journey is needed, but the biggest gains in achieving equitable cancer outcomes for Māori will come from stronger cancer prevention. While cancer prevention strategies are a powerful tool for reducing cancer disparities, they need to be led, designed, delivered and monitored in a way that realises this potential for Māori.

The principle of Crown and Māori working in **partnership** and the Crown's obligation to provide culturally appropriate health services according to hauora Māori models of care (**options**) apply to cancer prevention strategies in the same way as any other health service.




Prevention is the ideal in cancer control

It will always be vital to provide the best care possible for people with cancer and their whānau, across cancer screening, diagnosis, treatment, survivorship, surveillance, palliative care, end-of-life care, and cancer research. At the same time, with up to half of all cancers being preventable, a significant proportion of deaths and suffering due to cancer can be avoided. That is reason enough to maximise cancer prevention efforts in Aotearoa, but there are also other reasons.

This report outlines evidence-based, internationally accepted, best-practice interventions to address six cancer risk factors – tobacco exposure, alcohol use, poor nutrition and excess body weight, physical inactivity, excessive exposure to ultraviolet (UV) radiation and chronic infections – and assesses how well Aotearoa is doing in each of these areas. These interventions are backed up by research and modelling, widely accepted by international and national experts, and shown to be effective when implemented well in other jurisdictions.

While the focus of this report is on cancer, stronger prevention efforts will bring substantial benefits beyond cancer alone. Most cancer risk factors are not unique to cancer and are shared by other chronic diseases such as diabetes, heart disease and strokes (Table 1). The more we do for cancer prevention, the more we do for these other conditions that also cause loss of life, preventable suffering and significant inequities in Aotearoa.

Table 1: Percentage of health loss attributable to leading modifiable risk factors, 2017²¹

Tobacco use 	8.6% of total health loss	Mainly associated with cancers, cardiovascular diseases and chronic respiratory conditions.
High body mass index 	8.2% of total health loss	Mainly associated with cardiovascular diseases. Also contributes to cancers, diabetes and musculoskeletal conditions.
Alcohol use 	5.3% of total health loss	Mainly associated with cancers and injuries.

Generally, prevention interventions that focus on populations and environmental influences on health have a larger impact, greater potential for equity and tend to be more cost-effective (or even cost-saving) than interventions focused on particularly high-risk individuals.³⁵⁻³⁷ For example, a volumetric tax on alcohol will have a bigger impact and be more cost-effective than residential treatment for alcohol dependence.³⁶ This does not mean that we should only have population-based cancer prevention efforts. Action at multiple levels and by multiple stakeholders is necessary and valuable. However, getting the right mix of interventions is important. District health boards, public health units, primary care providers, non-governmental organisations and Māori and Pacific providers already work to prevent cancer (and other conditions) with individuals and communities. Stronger population-based, environment-focused interventions can amplify and sustain the impact of their work rather than undermine it. Environment-focused interventions are also more resilient when crises occur as they are less reliant on individual efficacy or a fully functional health system. Some of the parallels between cancer prevention and COVID-19 prevention efforts are discussed in the conclusion of this report, as an example.

Each year, approximately 25,000 people are diagnosed with cancer* in Aotearoa.³⁸ By 2040, this number is predicted to increase by 40 percent.³⁹ The higher rate will in turn increase the demand for cancer services, which will be difficult for services to meet over an extended period and may exacerbate inequities in cancer care for Māori and other population groups that already experience inequity. In the words of the immediate past Director of the International Agency for Research on Cancer (IARC), Chris Wild, ‘No country can afford to treat their way out of the cancer crisis.’

* Excluding keratinocytic/non-melanoma skin cancers.

Purpose of this report

This report outlines evidence-based, best-practice interventions to prevent cancer across six key cancer risk factors and summarises how Aotearoa is doing in addressing each of those factors. In doing so, it aims to place renewed value on strengthening cancer prevention work to achieve the goals of fewer cancers, better survival and equity for all.

TE HŌKAI ME TE HANGA O TĒNEI PŪRONGO

SCOPE AND STRUCTURE OF THIS REPORT

Each of the following sections in this report focuses on a major cancer risk factor:

- tobacco
- alcohol
- poor nutrition and excess body weight
- insufficient physical activity
- excessive exposure to ultraviolet (UV) radiation (sun)
- chronic infections (*Helicobacter pylori*, human papillomavirus, hepatitis B and hepatitis C, human immunodeficiency virus)

It was beyond the scope of this report to address actions to reduce workplace carcinogens and the role of formal screening programmes in cancer prevention. For a summary of both these areas, see *He Pūrongo Mate Pukupuku o Aotearoa 2020: The State of Cancer in New Zealand 2020*.³⁸

For each cancer risk factor, this report answers the following questions.

- What is the connection between the risk factor and cancer?
- How big is the problem of exposure to the cancer risk factor in Aotearoa?
- How can we reduce exposure to the cancer risk factor in order to prevent cancers?

The recommendations outlined in the report are evidence-based and internationally accepted as best practice. Options that support each recommendation are accompanied by evidence of effectiveness, international precedent from other jurisdictions where available, evidence of public and/or expert support, and an assessment of how well Aotearoa is performing in that area.

TE ĀRAI MATE PUKUPUKU Ā-TŪPEKA PREVENTING CANCERS RELATED TO TOBACCO

What is the connection between tobacco exposure and cancer?

Tobacco causes at least 80 percent of all lung cancers globally. It also causes more than 60 percent of all cancers of the larynx, oral cavity and oesophagus,⁴⁰ and is linked to at least nine other cancers (Figure 4). In Aotearoa in 2019, tobacco caused an estimated 20 percent of all cancer deaths (over 2,000 deaths), 60 percent of lung cancer deaths (over 1,200 deaths),⁴¹ 57 percent of laryngeal cancer deaths and 30 percent of deaths from oesophageal cancer and oral cavity cancer.⁴²

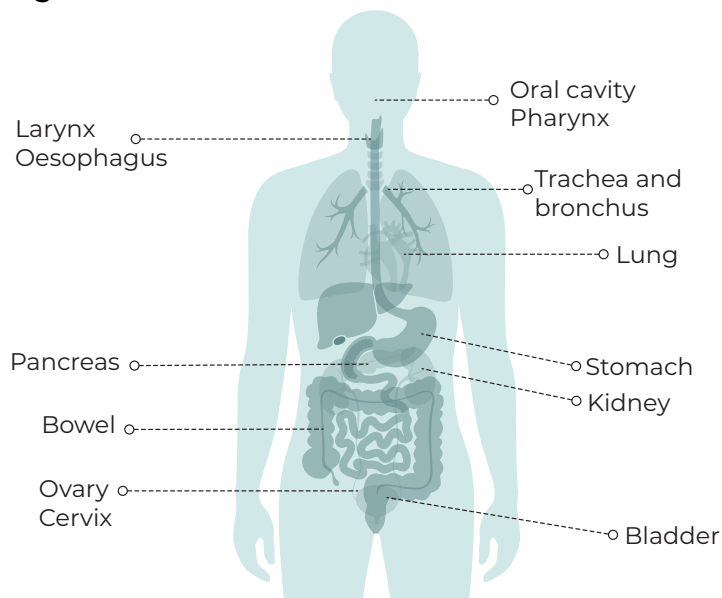
Tobacco exposure is one of the most preventable causes of cancer.

The burden of tobacco-related cancers is highest for Māori, Pacific peoples and people living in socioeconomically deprived areas.^{43,44}



Tobacco causes at least
4 in 5 cases of
lung cancers
in Aotearoa

Figure 4: Cancers related to tobacco⁴⁵



How big is the problem of tobacco exposure in Aotearoa?

Over the last 40 years, tobacco use in Aotearoa has dropped significantly because of tobacco control measures. In 1983, 33 percent of people were current smokers⁴⁶ compared with 13 percent in 2019/20 (Figure 5).⁴⁷ Over the 15 years from 2006/07 to 2019/20 alone, the proportion of daily smokers who smoke heavily (more than 21 cigarettes a day) fell from 11 percent to 6 percent and the mean number of cigarettes that individual smokers smoked per day fell from 12 to 9.⁴⁸ Currently, 464,000 people smoke daily in Aotearoa, including 145,000 Māori, 49,000 Pacific peoples and 305,000 European/other ethnicities.⁴⁷

These reductions are major improvements. However, marked differences in smoking remain by ethnicity and deprivation.

Almost a third of Māori and 18 percent of Pacific peoples were daily smokers in 2019/20, compared with 10 percent of European/other ethnicities (Figure 6). Māori women have the highest smoking rates of any group. Thirty-two percent of Māori women are daily smokers and Māori women were almost four times more likely than non-Māori women to be daily smokers.⁴⁹ In 2019/20, adults living in the most deprived neighbourhoods were five times more likely to smoke than those in the least deprived neighbourhoods (Figure 7).⁴⁸

Figure 5: Current smokers in Aotearoa, 1983–2019^{49,50}

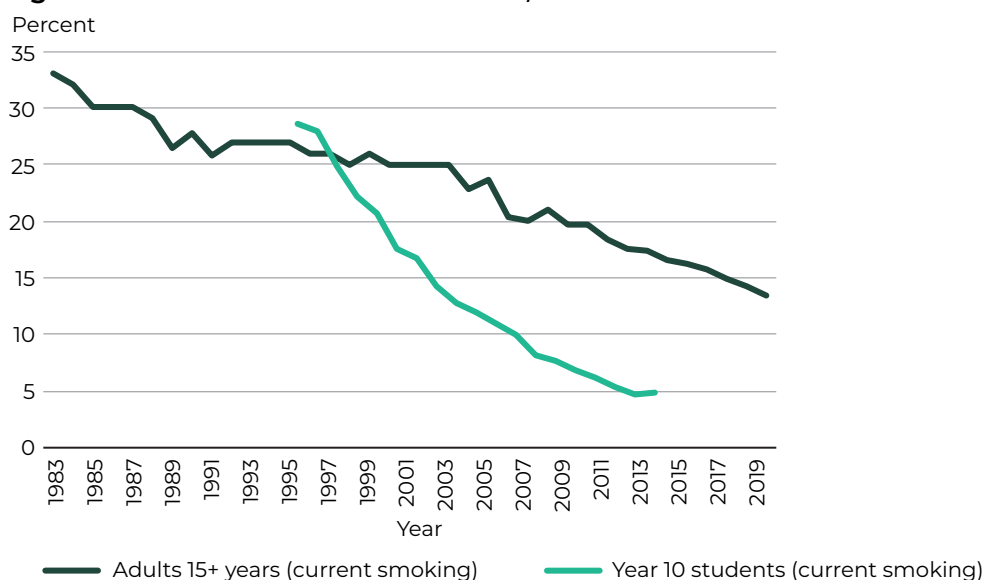


Figure 6: Daily smoking trends in adults (aged 15 years and older) by ethnicity, 2006/07–2019/20⁴⁹

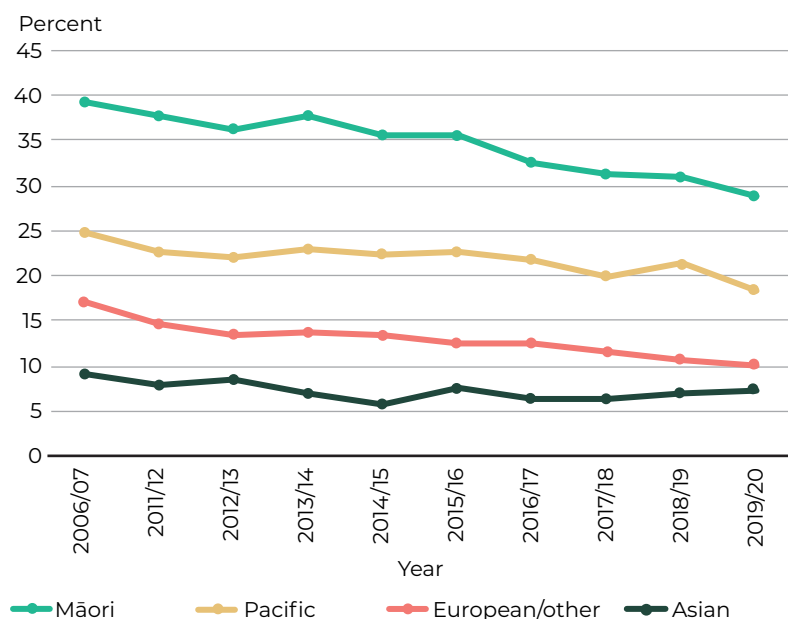
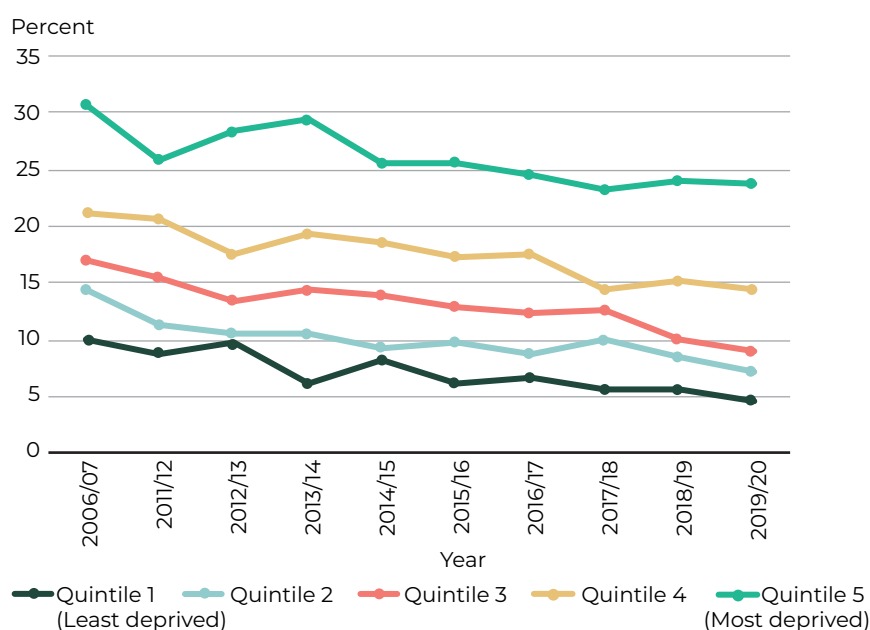


Figure 7: Daily smoking trends in adults (aged 15 years and older) by neighbourhood deprivation, 2019/20⁴⁹



How can we prevent cancers related to tobacco exposure?

The interventions summarised below (and expanded on under the focus areas that follow) are those considered most likely to allow Aotearoa to become smokefree. They are in line with the recommendations of the ASPIRE2025 group of Aotearoa tobacco control experts,⁵¹ national and international organisations. Implementing these options would also mean fulfilment of our obligations under the World Health Organization (WHO) Framework Convention on Tobacco Control.⁵²

In December 2021, the New Zealand government launched the *Smokefree Aotearoa 2025 Action Plan*, setting out the actions Aotearoa will take over the next four years and beyond to achieve Smokefree Aotearoa 2025.⁵³ Te Aho o Te Kahu fully supports the actions outlined in the smokefree plan.

Summary of options to prevent cancers related to tobacco exposure

- ⇒ Reduce the availability of tobacco.
 - Restrict the number and density of outlets that can sell tobacco.
- ⇒ Reduce the addictiveness and palatability of tobacco.
 - Introduce legislative restrictions on the amount of nicotine in cigarettes and the use of additives, flavours, filters and design innovations.
- ⇒ Reduce the appeal and accessibility of tobacco for youth and young adults.
 - Increase the purchasing age for tobacco by one year each year (creating a smokefree/tobacco-free generation).
 - Prohibit smoking in outdoor areas of bars and restaurants.
 - Restrict tobacco product placement across all media forms.
- ⇒ Decrease acceptability of (or denormalise) smoking in outdoor spaces.
 - Introduce comprehensive restrictions on smoking in outdoor spaces.

Focus area: Reduce the availability of tobacco

What do we know about the impact of tobacco being widely available?

Adolescent smoking becomes more common as the density of tobacco retailers increases,^{54,55} especially with greater density around schools.⁵⁶ Higher outlet density normalises tobacco use, increases its acceptability, and can reduce the likelihood of successful smoking cessation.^{57,58}

Nationally and internationally, socioeconomically deprived areas tend to have more tobacco outlets than other areas.^{57,59,60}

Action: Restrict the number and density of outlets that can sell tobacco

What is the evidence?

Interventions to reduce tobacco outlet density include using a mix of strategies together, such as reducing the number of outlets, licensing and restricting tobacco sales to specific outlets. For example, licensing can reduce tobacco outlet density when it involves a higher fee and can restrict the number or location of outlets.^{61,62} Aotearoa modelling studies show that interventions to reduce tobacco outlet density are highly likely to reduce smoking prevalence, improve health outcomes and be cost-saving.⁶³⁻⁶⁶

Hungary enacted legislation in 2013 mandating that tobacco could only be sold at a limited number of government-licensed outlets, reducing the number of tobacco outlets from 42,000 to 7,000.⁶⁷ In 2020, the Netherlands passed legislation to ban tobacco sales in supermarkets and petrol stations.⁶⁸ Many countries (such as Canada, Australia, Scotland and Ireland) and some states in the USA require tobacco outlets to be licensed.^{61,62,69}

What is Aotearoa doing currently?

Currently Aotearoa has no restrictions on who can sell tobacco and where tobacco can be sold. Retailers are not required to have a licence to sell tobacco.

A key action in the *Smokefree Aotearoa 2025 Action Plan* is to introduce an amendment Bill to only allow smoked tobacco products to be sold by authorised retailers, in order to decrease the number of retailers and ensure retail supply is not concentrated in the most deprived neighbourhoods.⁵³



Focus area: Reduce the addictiveness and palatability of tobacco

What do we know about the impact of adding nicotine, additives, flavours, filters and other product changes to cigarettes?

Nicotine makes tobacco addictive and is responsible for the dependence associated with tobacco smoking.⁷⁰ Adding nicotine, additives and flavourings to cigarettes makes it more likely that young people's experimentation with tobacco smoking will progress to regular smoking; and makes it more difficult for smokers to quit and stay quit.^{71,72} Not only do filters provide a false sense of harm reduction,⁷³ but filter innovations (such as flavour capsules) attract new young non-smokers to tobacco smoking.^{74,75}

Action: Introduce legislative restrictions on the amount of nicotine in cigarettes and the use of additives, flavours, filters and design innovations

What is the evidence?

Very low nicotine cigarettes (VLNCs) can reduce the number of cigarettes smoked per day and encourage more people to quit, as most smokers who are provided with VLNCs find them unsatisfying and so reduce the number of cigarettes they smoke.^{72,76,77} Early evidence in Aotearoa shows that for people who smoke, VLNCs without filters were less acceptable than VLNCs with filters, indicating that banning filters as well would have a synergistic effect.⁷⁸

A survey of Aotearoa smokers and recent quitters in 2016/17 found that 80 percent supported legislation to restrict the amount of nicotine in cigarettes and tobacco if nicotine was available in alternative products (such as e-cigarettes).⁷⁹

While no country has implemented a VLNC policy yet, the United States Food and Drug Administration set out its intention to do so in 2018.⁸⁰

What is Aotearoa doing currently?

Aotearoa currently has no restrictions on the amount of nicotine that cigarettes can contain.

There are also no restrictions on additives, flavours or the use of filters.

Key actions in the Smokefree Aotearoa 2025 Action Plan include initiatives to allow only very low nicotine levels in smoked tobacco products, restricting product design measures, and to consider ways to restrict filters.⁵³

Focus area: Reduce the appeal and accessibility of tobacco for youth and young adults

What do we know about the impact for young people of having appealing and accessible tobacco products?

Although daily smoking rates in young people aged under 25 years have fallen substantially over the last 15 years, smoking rates increase rapidly with age: they rise from 3 percent of those aged 15–17 years to 13 percent of those aged 18–24 years and 17 percent of those aged 25–34 years.⁴⁷ Young people are continuing to start smoking, and almost all smoking starts before the age of 25 years.^{81,82}

There are significant inequities in the prevalence of smoking in youth and young adults, with higher prevalence in young Māori and Pacific peoples. In 2019/20, a quarter of Māori and 15 percent of Pacific peoples aged 15–24 years were daily smokers compared with 9.7 percent European/other.⁴⁹

Action: Increase the purchasing age for tobacco by one year each year (creating a smokefree/tobacco-free generation)

What is the evidence?

Preventing young people from starting to smoke will have the biggest impact on smoking prevalence in the long term and the biggest impact on reducing ethnic inequities in smoking prevalence.^{66,83–85}

The tobacco-free generation (TFG) policy effectively bans tobacco sales to individuals born after a certain set year. Aotearoa modelling shows that a TFG policy would reduce smoking rates significantly (as much as halving smoking prevalence in those aged under 45 years within 14 years) and reduce ethnic disparities in smoking.^{66,85}

In the USA, early evaluations of the impact of banning sales of tobacco to people younger than 21 years have shown a small reduction in smoking in those aged 18–20 years.⁸⁴

No country has introduced a TFG policy. It was introduced in Balanga City in the Philippines in 2016, but faced legal challenges from the tobacco industry.⁸⁶

A 2017 Aotearoa survey of adult smokers and recent quitters found that 78 percent of respondents, including 70 percent of those aged 18–24 years, supported a TFG policy.⁸⁵

What is Aotearoa doing currently?

Since 1997, it has been illegal to sell tobacco to anyone younger than 18 years in a public place. Aotearoa has no TFG policy currently.

A key action in the Smokefree Aotearoa 2025 Action Plan includes introducing an amendment Bill to prohibit the sale, delivery and supply of smoked tobacco products to persons born after a certain date to create a smokefree generation.⁵³



Action: Prohibit smoking in outdoor areas of bars and restaurants

What is the evidence?

Nationally and internationally, use of tobacco and alcohol together is common in youth and young adults,^{81,87,88} particularly in social settings such as bars and restaurants.⁸⁷ Providing comfortable outdoor smoking spaces in bars facilitates smoking and contributes to normalising smoking for young adults in Aotearoa. Importantly, smokers who did not smoke daily (self-identifying themselves as 'social smokers' or non-smokers) indicated that they would not smoke when out drinking if there were no comfortable spaces to smoke.⁸⁷

Many jurisdictions in other countries (such as the USA, Australia and Canada) have comprehensive laws for a range of smokefree outdoor areas.⁸⁹ For example, since 2006, Queensland has had a smokefree law for outdoor dining businesses.⁹⁰

A survey in Auckland in 2013 found 73 percent support for smokefree outdoor dining.⁹¹

What is Aotearoa doing currently?

The Smokefree Environments and Regulated Products Act 1990 prohibits smoking inside hospitality venues. However, it does not restrict smoking in 'open areas' or outdoor environments of bars and restaurants.

Many councils have policies or bylaws prohibiting smoking in outdoor dining areas on council footpaths.⁹²⁻⁹⁵ Some councils have introduced discounts for outdoor dining and bar venues on the fees for using public space, if they are smokefree.⁹⁶ These measures are not mandated nationally, however.

Action: Restrict tobacco product placement across all media forms

What is the evidence?

Internationally, it is common for media popular with youth and young adults – such as TV and streaming services, movies, music videos and videogames – to show tobacco use and this trend is increasing.⁹⁷⁻¹⁰¹ This serves to normalise tobacco smoking and conveys the idea that the prevalence of smoking is much higher than it is in reality.⁹⁷

More than 80 percent of New Zealanders aged 14–15 years had noticed people or characters smoking in media in 2018. Those who had never smoked were twice as likely to be considered susceptible to smoking (ie, appearing less committed to remain smokefree in the future) if they had noticed smoking in the media.¹⁰²

What is Aotearoa doing currently?

The Smokefree Environments and Regulated Products Act 1990 prohibits all advertising, marketing and sponsorship of tobacco products. However, depicting tobacco or having product placements in many common forms of media would be exempt from this advertising prohibition.

The process of classifying movies and television programmes in Aotearoa does not currently consider their tobacco-related content.¹⁰³



Focus area: Decrease acceptability of (or denormalise) smoking in outdoor spaces

What do we know about the impact of smoking being allowed in outdoor spaces?

Exposure to smoking in outdoor spaces, such as in hospitality settings, contributes to normalising smoking and providing cues to smoke.^{87,95} It is also associated with a reduced likelihood of a successful quit attempt.¹⁰⁴

In Aotearoa, seeing smoking around you at a neighbourhood level increases the likelihood of starting smoking.¹⁰⁵

Action: Introduce comprehensive restrictions on smoking in outdoor spaces

What is the evidence?

Outdoor smoking bans help to normalise non-smoking and are associated with reduced smoking prevalence, increased quit rates and fewer relapses.^{89,104,106}

Many jurisdictions in other countries (such as the USA, Australia and Canada) have comprehensive laws for a range of smokefree outdoor areas.⁸⁹

There is widespread public support in Aotearoa for smokefree outdoor spaces such as greenspaces, entrances to buildings, transport waiting areas and venues with outdoor dining.^{95,107}

What is Aotearoa doing currently?

Currently, legislation only prohibits smoking in outdoor areas around schools and early childhood centres. It does not prohibit smoking in any other outdoor spaces.

Many local councils, district health boards, universities, iwi and some commercial enterprises have voluntarily implemented smokefree outdoor policies.^{95,108} These measures, however, are inconsistent and not nationally mandated.

The actions described above would occur in addition to intensifying existing tobacco control actions, as part of a comprehensive, multi-faceted tobacco control strategy. Existing tobacco control strategies are effective and cost-saving,⁷¹ but they have been less effective for Māori, Pacific peoples and low-income communities.^{47,48} For this reason, it is necessary to intensify and innovate with current activities in ways that are appropriate to these groups, including by supporting Māori to find and build solutions (by Māori, for Māori initiatives). The following three supporting actions would enhance or extend existing tobacco control activity.

- **Undertake enhanced mass and social media campaigns.** Mass media campaigns can effectively and cost-effectively reduce smoking prevalence and uptake among adults and young people, and is likely to have similar impacts on priority groups.¹⁰⁹ Aotearoa has a history of campaigns focusing on the priority populations, including QuitStrong, which has been in the market since 2019.¹¹⁰ A 2014 review of mass media campaigns in Aotearoa found they were poorly funded and most of them failed to include approaches that have the greatest impact on promoting quit attempts and reducing smoking initiation.¹¹¹ The *Smokefree Aotearoa 2025 Action Plan* includes commitment to increasing health promotion and community mobilisation, with leadership from the Smokefree Aotearoa 2025 Taskforce as well as Pacific communities.⁵³
- **Introduce additional measures to increase the price of tobacco products,** such as setting a minimum unit price to make them less affordable for low-income smokers. In Aotearoa, the availability and sales of budget-brand tobacco products have increased.^{112,113} The evidence on the impact of minimum price regulation, a relatively new policy measure, is promising when it is part of a multifaceted strategy.¹⁰⁹



- **Provide enhanced targeted smoking cessation support and advice for priority groups.** Smokers have several options for accessing support to stop smoking in Aotearoa currently, including the national Quitline service and community-based stop smoking services.¹¹⁴ Evaluations have consistently found Quitline to be effective at stimulating quit attempts, particularly for Māori and those living in the most deprived communities.^{115,116} The *Smokefree Aotearoa 2025 Action Plan* has a strong focus and multiple initiatives to increase evidence-based smoking services.⁵³

The actions in the *Smokefree Aotearoa 2025 Action Plan*⁵³ offer an unprecedented opportunity to eliminate smoking disparities and tackle one of the most preventable causes of cancer. If the action plan is implemented with strong Māori governance and a focus on equity, it will save thousands of lives and change the face of cancer for Aotearoa.



TE ĀRAI MATE PUKUPUKU E HĀNGAI ANA KI TE WAIPIRO PREVENTING CANCERS RELATED TO ALCOHOL

What is the connection between alcohol and cancer?

Alcohol causes many different types of cancer,^{45,117} including two of the most common cancers in Aotearoa – bowel cancer and breast cancer (Figure 8). Alcohol was the cause of an estimated 950 new cancer cases in Aotearoa in 2020, of which 39 percent were bowel cancer cases and 28 percent were breast cancer (Figure 9). In 2020, alcohol also caused 32 percent of oral cavity and pharyngeal cancers, 23 percent of liver and laryngeal cancers, 16 percent of oesophageal cancers, 11 percent of bowel cancers and 7 percent of breast cancers in Aotearoa.¹¹⁸

In 2019, it was estimated that alcohol caused about 6 percent of all cancer deaths (over 640 deaths).¹¹⁹

Figure 8: Cancers related to alcohol

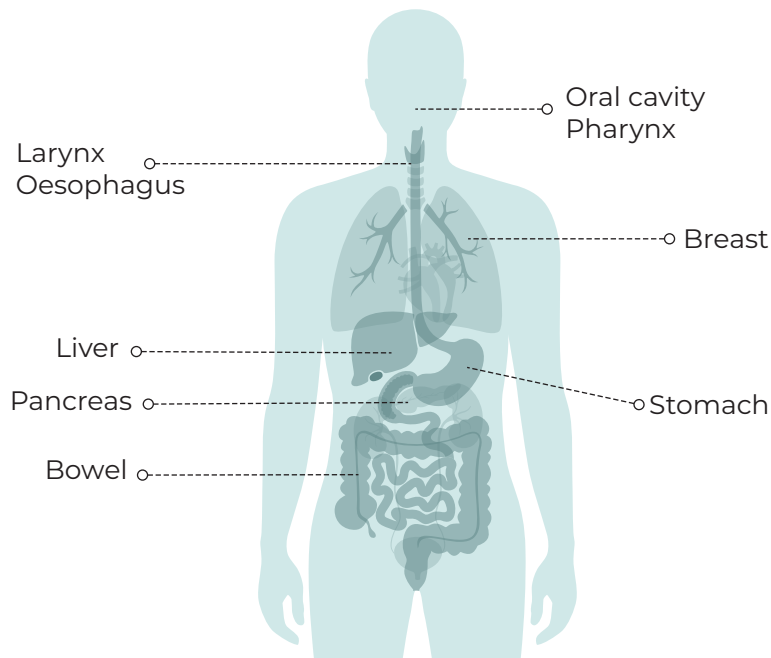
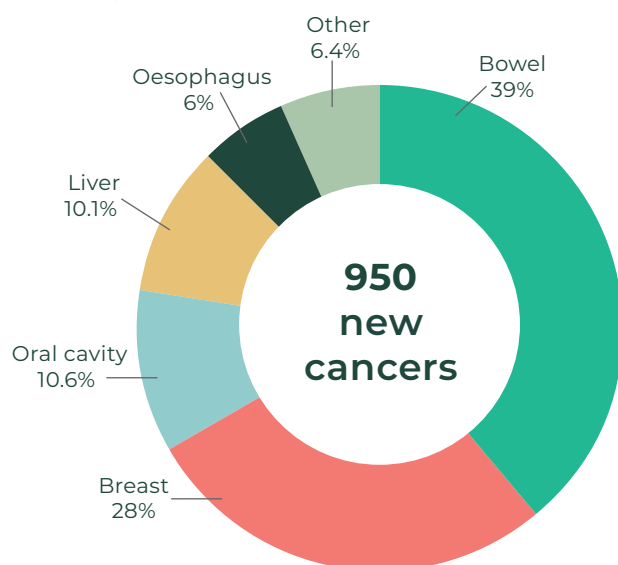


Figure 9: Estimated proportion of new cases in 2020 attributable to alcohol drinking, Aotearoa, both sexes¹¹⁸



All types of alcohol – beer, wine and spirits – increase the risk of developing cancer. The risk increases with the average amount of alcohol consumed each day and adds up over a lifetime. As any amount of alcohol consumption increases the risk of cancer, there is no safe minimum level of alcohol use.¹²⁰ For example, consuming even one standard drink of alcohol each day increases the risk of developing breast cancer by around 7–10 percent.^{117, 121} Because more people are light or moderate drinkers rather than heavy drinkers, a large part of the alcohol-related cancer burden occurs among light or moderate drinkers.¹²⁰

Māori experience a higher burden of alcohol-related cancers. In 2012, Māori lost an average of 12.7 years of life from alcohol-attributable cancers compared with 10.1 years for non-Māori.¹²²

How big is the problem of alcohol use in Aotearoa?

Most adults (82 percent) in Aotearoa drink alcohol (Figure 10).⁴⁹ Almost two in five adults (37 percent) in Aotearoa drink above the low-risk drinking recommendations (Figure 11).¹²³ New Zealanders drink more alcohol each year (10.7 litres per person aged 15 years and older) than both the global average (5.8 litres per person) and the average for high-income countries (10 litres per person).¹²⁴ In 2019, enough alcohol was available for consumption for every adult in Aotearoa to consume two standard drinks per day,¹²⁵ which is equivalent to almost two bottles of wine per person each week.¹²⁶

The volume of alcohol available for consumption has not changed significantly since 2005 (Figure 12).¹²⁷ Furthermore, surveys show that no change has occurred in the prevalence of past-year drinkers since 2006 or in the prevalence of hazardous and heavy episodic drinking since 2015 (when data began to be collected) (Figure 13).⁴⁹

Figure 10: Patterns of alcohol use in Aotearoa, 2019/20^{49,123}

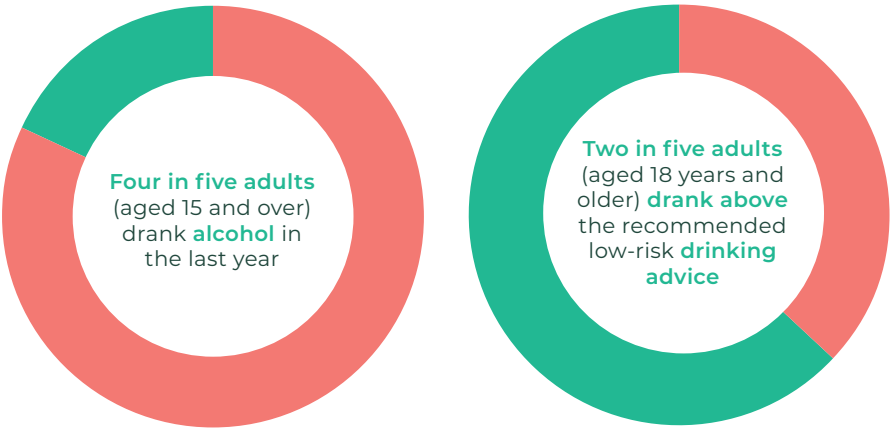


Figure 11: Low-risk drinking advice¹²⁸



Figure 12: Volume of alcoholic beverages available for consumption in Aotearoa, by type, 2005–2020¹²⁵

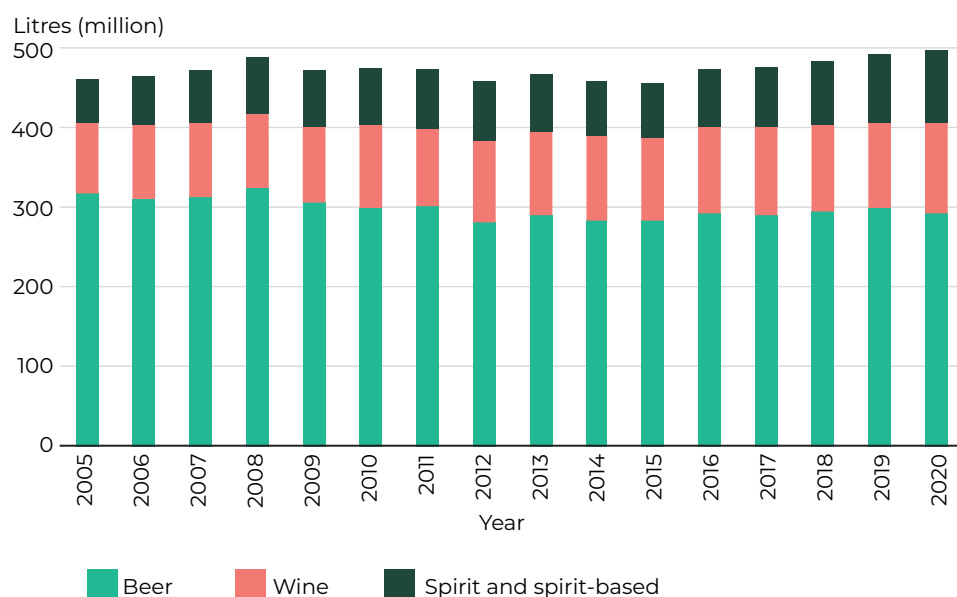
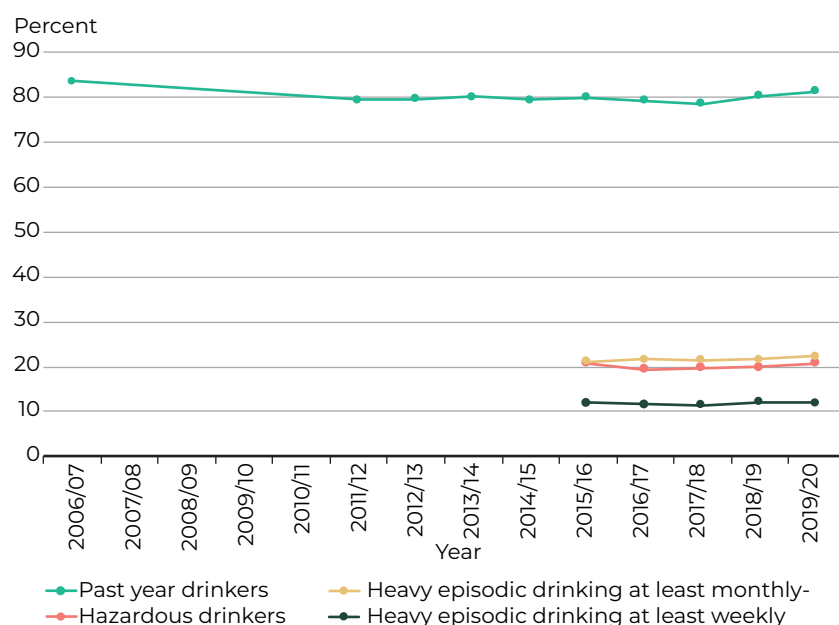


Figure 13: Alcohol use prevalence trends, 2006/07–2019/20⁴⁹



The amount of alcohol consumed varies by gender, ethnicity, age and deprivation. Drinking alcohol in the past week was more common among New Zealand Europeans/other, men aged 45–64 years and those living in the least deprived areas.¹²⁹ Pacific peoples, Asian men and those from high-deprivation areas are less likely to have consumed alcohol in the past year. However, Māori and Pacific peoples, those aged 18–24 years and those from the most deprived areas are more likely to drink more than the daily low-risk drinking recommendations¹²⁹ and consume alcohol hazarously (Figure 14 and Figure 15).⁴⁹ Although the legal age for purchasing alcohol is 18 years, over half of those aged 15–17 years drank alcohol in the past year.⁴⁹

Figure 14: Percentage of adults (aged 15 years and older) using alcohol by ethnicity, 2019/20⁴⁹

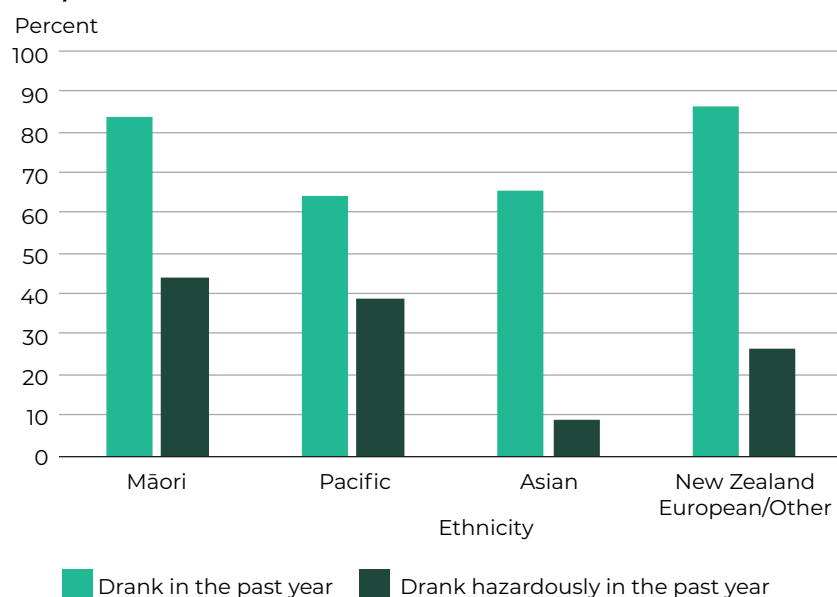
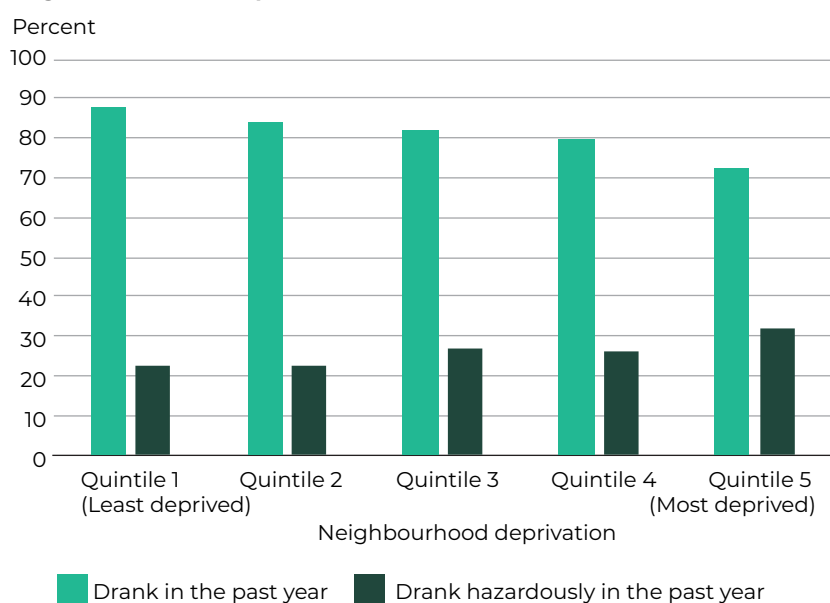


Figure 15: Percentage of adults (aged 15 years and older) using alcohol by neighbourhood deprivation, 2019/20⁴⁹



How can we prevent cancers related to alcohol use?

The interventions summarised below (and expanded on under the focus areas that follow) are those considered most likely to substantially reduce alcohol consumption and ultimately prevent alcohol-related cancers. They are in line with evidence-based recommendations for Aotearoa from the 2010 Law Commission review of the alcohol laws in Aotearoa,¹³⁰ the 2014 Ministerial Forum on Alcohol Advertising and Sponsorship,¹³¹ the 2018 Mental Health and Addiction Inquiry,¹³² and Alcohol Healthwatch.¹³³ They are also consistent with recommendations from the World Health Organization SAFER initiative to reduce alcohol-related harm,¹³⁴ as well as those of other national and international organisations. These recommendations broadly align with the district health board joint position statement on the Sale and Supply of Alcohol Act released in August 2021.¹³⁵

Summary of options to prevent cancers related to alcohol use

⇒ Reduce the affordability of alcohol.

- Increase alcohol excise tax.
- Introduce a minimum unit price (a mandatory lowest retail price per standard drink of alcohol).

⇒ Reduce the availability and accessibility of alcohol.

- Decrease the number and density of licensed premises.
- Decrease trading hours – particularly for off-licence outlets.
- Increase the legal purchase age for alcohol from 18 years to 20 years.

⇒ Reduce alcohol advertising, marketing and sponsorship.

- Enact and enforce comprehensive restrictions on volume and content of alcohol advertising and sponsorship across all environments.

⇒ Support health services to reduce harm from alcohol.

- Strengthen screening and brief interventions to reduce alcohol consumption.

Focus area: Reduce the affordability of alcohol

What do we know about the impact of having affordable alcohol?

People in Aotearoa purchase most of their alcohol from 'off-licence' premises such as bottle stores and supermarkets where prices are generally much lower than in 'on-licence' premises such as pubs and bars.¹³⁶ Lower prices are linked to increases in the total amount of alcohol consumed, underage drinking and heavy drinking patterns including binge drinking.^{130,137,138} Young people and heavy drinkers are more likely to purchase the lowest-priced alcohol.^{138,139}

Māori and Pacific peoples have higher exposure to cheap alcohol (in that they are more likely to be living in areas with more alcohol outlets,¹⁴⁰ which leads to price competition and lower alcohol prices) and are more likely to purchase very cheap alcohol.^{133,141}

Action: Increase alcohol excise tax

What is the evidence?

Research consistently shows that increasing the price of alcohol reduces alcohol consumption.¹⁴²⁻¹⁴⁵ Increasing the price of alcohol is one of the three 'best buy' interventions that the World Health Organization recommends to reduce harmful drinking and prevent the growing burden of non-communicable diseases, including cancer.¹⁴⁶

The New Zealand Law Commission review recommended that to reduce consumption and alcohol-related harm, an increase in excise tax of at least 50 percent would be required. This would increase alcohol prices by about 10 percent and reduce overall consumption by about 5 percent.^{130,147}

Many countries have alcohol excise taxes. In most Organisation for Economic Co-operation and Development (OECD) countries, excise tax accounts for a low percentage of alcohol prices and this has not changed over time. Numerous OECD countries have applied excise taxes that equate to higher rates than in Aotearoa, including Ireland, Sweden, Iceland, Norway, Finland, and the United Kingdom.¹⁴⁸

Sixty-one percent of New Zealanders support increasing the price of alcohol if the revenue was used to fund mental health and addiction services.¹⁴⁹

What is Aotearoa doing currently?

Excise tax is charged on all alcohol manufactured in or imported into Aotearoa that will be sold in the domestic market and it increases with inflation each year. Excise tax accounts for about 15 percent of the price of mainstream wine, about 22 percent of the price of beer and 55 percent of the price of spirits.¹³³

However, alcohol is now more affordable than it was 20 years ago due to rising incomes and the impact of competition, which leads to lower prices at off-licence outlets.¹³⁷ In addition, pricing under the current taxation system does not adequately reflect the alcohol content of each beverage. For example, wine is the cheapest alcohol product sold in Aotearoa, partly because it is taxed as if it contains 10 percent alcohol rather than for its actual alcohol content, which ranges from 12.5 to 14.5 percent.¹³³

Action: Introduce a minimum unit price (a mandatory lowest retail price per standard drink of alcohol)

What is the evidence?

A minimum unit price (MUP) increases the price of the cheapest alcohol. Evidence from countries with MUPs shows that they reduce the amount of alcohol purchased at off-licence outlets, with the greatest impact on the heaviest drinkers.¹⁵⁰⁻¹⁵²

Several jurisdictions, including some Canadian provinces,¹⁵¹ Scotland and Wales,¹⁵³ and the Northern Territory of Australia¹⁵⁴ have either implemented MUPs or enacted MUP legislation.

What is Aotearoa doing currently?

Aotearoa currently has no MUP on alcohol. In 2021, the lowest price for one standard drink of alcohol started at 77 cents for cask wine, while beer and bottled wine sold for less than \$1 per standard drink and ready-to-drinks (RTDs) and spirits for around \$1.15 per standard drink.¹⁵⁵

Focus area: Reduce the availability and accessibility of alcohol

What do we know about the impact of having widely available and easily accessible alcohol?

A higher number and density of outlets (particularly off-licence outlets),^{156,157} and longer trading hours are linked to higher levels of alcohol consumption and higher rates of hazardous drinking.^{130,139,158} A lower minimum alcohol purchasing age is associated with more frequent drinking and higher rates of hazardous drinking and alcohol-related harm in young people.¹⁵⁹ Nationally and internationally, it is also clear that drinking habits established in adolescence and early adulthood persist over a person's lifetime,^{160,161} and starting drinking at an earlier age increases the likelihood of heavy and binge drinking patterns.¹⁶²

More outlets are in socioeconomically deprived areas, which is also where disproportionate numbers of whānau Māori and Pacific families live. Young Māori and Pacific males, young European females, and middle-aged and older males experience the most harm related to high density of alcohol outlets or living in close proximity to alcohol outlets.^{163,164}

Action: Decrease the number and density of licensed premises

What is the evidence?

Good evidence indicates that increases in outlet density lead to higher alcohol consumption.^{157,165,166} More limited evidence links reductions in the number and/or density of off-licence outlets to lower alcohol consumption.¹⁶⁷

In Australia and the United Kingdom, cumulative impact policies (in places where there is concern about the impacts from existing alcohol outlets) have been implemented to try to limit the growth of alcohol availability.¹⁶⁸ In Baltimore, USA, land use regulation has been changed to prohibit off-licence premises in residential zones, which has included the closure of over 200 outlets.¹⁶⁹

Fifty-four percent of New Zealanders supported having fewer places that sell alcohol in local communities.¹⁷⁰

What is Aotearoa doing currently?

The Sale and Supply of Alcohol Act 2012 (SSAA) allows for councils to develop local alcohol policies (LAPs) to restrict outlet location, density and trading hours. It also allows licensing committees to reject new licences and restrict trading hours if there is sufficient evidence of acute health or social harms.

However, LAPs are voluntary and are subject to appeal. In 2020, 41 of 67 (61%) councils had adopted a LAP but this did not include Auckland, Hamilton, Wellington or Christchurch (the biggest population centres).¹³³ Cumbersome statutory processes and a litigious industry have prevented or delayed some councils from adopting LAPs. Additionally, the SSAA does not provide for Māori input into LAPs or licensing decisions. LAPs apply to new licences and have limited ability to reduce the number or density of existing alcohol outlets.¹³³

In 2017, few LAPs contained strong restrictions to alcohol outlet availability, with many restrictions weakened or removed during the appeals process.¹³³ For example, no adopted LAPs included restrictions to the location of outlets (beyond those in local district plans) and very few included a cap on the total number of outlets.¹⁶³ Very few applications for new licences are refused each year.¹⁷¹

A review of the SSAA in 2018 found that it has had only limited impact on alcohol availability, with no change seen in the total number of licensed premises from 2013 to 2015.¹⁷² In 2020 more than 11,000 businesses sold alcohol in Aotearoa,¹³³ which is similar to the number of outlets in 2014.¹⁷³

Action: Decrease trading hours – particularly for off-licence outlets

What is the evidence?

Restricting trading hours reduces consumption of alcohol.^{145,167} It can also result in fewer assaults.^{174,175}

Aotearoa surveys show that over 60 percent of people support reducing the hours that alcohol can be sold.¹⁷⁶

What is Aotearoa doing currently?

The SSAA sets the following maximum default opening hours:

- off-licence premises (such as supermarkets and bottle stores): 7 am to 11 pm
- clubs and on-licence premises: 8 am to 4 am.

In 2017, only one out of 29 adopted LAPs had a more restrictive opening time for off-licences than the maximum prescribed in the SSAA, but most had more restrictive closing times. For on-licence premises, closing times were generally between 1 and 3 am for residential areas and were between 2 and 3 am for urban areas. For off-licence premises, most closing times were either 9–9.30 pm (32 percent) or 10 pm (45 percent). Closing times for supermarkets and bottle stores generally became later following appeals.¹³³

Action: Increase the legal purchase age for alcohol from 18 years to 20 years

What is the evidence?

Internationally, a higher minimum drinking age is associated with starting to drink alcohol at an older age and a decrease in the frequency of heavy drinking.¹⁵⁹

The USA 1984 National Minimum Purchase Age Act encouraged states to adopt a purchase age of 21 years. In settings where this was adopted, the percentage of alcohol-related motor vehicle fatalities among young adults decreased.¹⁷⁷

What is Aotearoa doing currently?

It is illegal for those aged under 18 years to purchase alcohol but Aotearoa has no restrictions on the age at which alcohol can be consumed.

The purchasing age for alcohol was reduced from 20 years to 18 years in 1999. In the five years following the change, the proportion of drinkers aged 18–19 years increased, as did the frequency of drinking and drinking-related problems in this age group. Similarly those aged 16–17 years consumed alcohol more frequently and in greater quantities.¹⁷⁸

Focus area: Reduce alcohol advertising, marketing and sponsorship

What we know about the impact of widespread advertising and marketing of alcohol?

Children and adolescents are especially susceptible to alcohol advertising. Exposure to advertising is associated with starting to drink alcohol at a younger age and an increase in the amount of alcohol that young people consume.^{138,179–181} Being exposed to alcohol sponsorship of sports is linked to increased alcohol consumption by children and adult sporting participants.¹⁸²

Children in Aotearoa are regularly exposed to alcohol marketing (for example, outside shops, in sporting venues and on sporting merchandise). On average, children were exposed to 4.5 items of marketing each day (excluding screen advertising).¹⁸³

Māori and Pacific children, and children living in more deprived neighbourhoods have higher levels of exposure to alcohol marketing.^{145,184} Daily levels of exposure are five times greater for Māori children, and three times greater for Pacific children, than those of other children. Boys also have more exposure to alcohol marketing than girls.¹⁸³



Action: Enact and enforce comprehensive restrictions on volume and content of alcohol advertising and sponsorship across all environments

What is the evidence?

Modelling studies indicate that alcohol advertising bans are effective at reducing alcohol-related harm.¹⁴⁵ Industry self-regulation of alcohol marketing is ineffective at protecting minors from exposure to alcohol advertising,^{185,186} instead, it is likely that establishing an independent authority to regulate alcohol advertising and sponsorship will be required.

Based on 2016 WHO reporting, the proportion of countries with a partial restriction or stronger on beer advertising is, by media types: national television (81 percent of countries), private television (78 percent), national radio (75 percent), local radio (77 percent), print (57 percent), billboards (52 percent), point of sale (47 percent), cinema (52 percent), internet (37 percent), and social media (35 percent).¹⁸⁷

Finland has alcohol advertising legislation which takes an explicit focus on reducing harm for young people. The legislation places restrictions on the time and placement of alcohol ads by banning advertising on television during certain hours and in cinemas. Finland's social media alcohol advertisement ban was one of the first in the world, and includes provisions that prevent brands from using user-generated content or product content explicitly intended for sharing (eg, pictures, reviews, videos).¹⁸⁷

France and Norway prohibit sports sponsorship by alcohol companies and more recently Ireland has banned alcohol advertising on sporting grounds and alcohol sponsorship of certain events.¹⁸⁸

Eighty percent of people in Aotearoa support increasing restrictions on alcohol advertising, and 68 percent support banning alcohol sponsorship of events attended by under 18-year-olds.¹⁷⁶

What is Aotearoa doing currently?

The Sale and Supply of Alcohol Act 2012 prohibits irresponsible promotion of alcohol such as encouraging people to drink excessive amounts of alcohol or promoting alcohol aimed at or appealing to minors.

Aotearoa has a voluntary code for alcohol advertising and promotion, which is administered by the Advertising Standards Authority, a self-regulatory body of advertisers, agencies and the media.¹⁸⁹ Self-regulation typically relies on the industry developing, monitoring and enforcing its codes of good marketing practice.¹⁸⁶ The code permits alcohol advertising (including sponsorship) where children and youth make up less than 20 percent of the audience. It has very few restrictions on the amount of alcohol advertising and includes no enforceable penalties for breaches of the code.¹³¹ Newer technologies and marketing techniques, such as advertising on social and digital media, also highlight the inadequacy of a voluntary code.¹⁹⁰



Focus area: Support health services to reduce harm from alcohol

What do we know about the prevalence of harmful drinking patterns in Aotearoa?

Of those who drink alcohol in Aotearoa, 26 percent are hazardous drinkers, which means their drinking patterns could put themselves and others at risk of harm.⁴⁹

The highest rates of hazardous drinking (among drinkers) are in men, young adults aged 18–24 years, Māori adults (43 percent), Pacific adults (38 percent) and those living in the most deprived areas. Māori men were 1.6 times and Māori women 2.2 times more likely to drink hazarously than their non-Māori counterparts. Rates of hazardous drinking have not decreased significantly since 2011/2012 for any age, gender or ethnic group.⁴⁹

Action: Strengthen screening and brief interventions to reduce alcohol consumption

What is the evidence?

Alcohol screening and brief interventions are typically done opportunistically to identify and treat harmful drinking. A health professional uses an initial screening tool (often a questionnaire) and if they identify hazardous drinking, they follow up with a brief structured intervention (usually in the form of advice) and/or referral to appropriate programmes.¹⁹¹

Brief interventions are effective and cost-effective at reducing alcohol consumption in those with hazardous or harmful drinking patterns.^{142,143,145,191,192}

A survey in Aotearoa found that 60 percent of respondents supported requiring health professionals to regularly ask patients about their drinking.¹⁷⁰

What is Aotearoa doing currently?

It is generally recommended that health services across primary, secondary and community care incorporate screening and brief interventions for harmful drinking. For example, primary care guidelines recommend asking all patients about their alcohol use and offering brief interventions if screening identifies medium- to high-risk drinking behaviours.¹⁹³ However, it is unclear how well and how equitably primary care and other health services are implementing these guidelines.

Aotearoa does not have a current alcohol control strategy but actions to date have been guided by the Sale and Supply of Alcohol Act 2012 and the National Drug Policy 2015–2020. The three WHO ‘best buys’ (increasing excise tax, restricting advertising and restricting availability) have not been implemented in Aotearoa. Alcohol remains readily available and accessible, increasingly affordable, and heavily advertised and marketed. The consequences of these conditions are evident, with no significant change in drinking patterns over time and ongoing inequities in alcohol-related harm.



TE ĀRAI MATE PUKUPUKU Ā-KAI, Ā-TINANA TINO MŌMONA PREVENTING CANCERS RELATED TO NUTRITION AND EXCESS BODY WEIGHT

What is the connection between nutrition, excess body weight and cancer?

What we eat can affect our risk of developing a wide range of cancers.¹⁹⁴ What we eat also affects our body weight, which can increase the risk of developing cancers associated with excess body weight. A diet that includes a lot of fruit and vegetables, whole grains and plant proteins and a low amount of red and processed meat, refined carbohydrates and ultra-processed foods can reduce the risk of developing cancer (Figure 16).⁴⁵ In addition, reducing sugar-sweetened beverages, refined carbohydrates and ultra-processed foods can reduce the risk of cancers related to weight gain and excess body weight (Figure 17).⁴⁵

Ultra-processed foods are typically energy-dense foods that are high in sugar, unhealthy fats and salt. They are often low in dietary fibre, protein, vitamins and minerals. Common examples of ultra-processed foods are packaged snacks, carbonated drinks, reconstituted meat products and confectionery.

In 2019, it was estimated that 'dietary risks'* (used here to approximate poor nutrition) caused almost 8 percent of all cancer deaths in Aotearoa (over 800 deaths), including 38 percent of all deaths from bowel cancer. Similarly, it was estimated that high body mass index (used here as an approximation for excess body weight) caused over 6 percent of all cancer deaths in Aotearoa (666 deaths), including 11 percent of bowel cancer deaths and 29 percent of oesophageal cancer deaths.²⁰

Māori and Pacific peoples have a higher burden of obesity-related cancers, such as uterine and breast cancers.⁴ Pacific women have over 2.5 times the rate of uterine cancer compared with European/other women and they also have the most rapidly increasing rates over time, especially in younger women.^{196,197} The higher rates of obesity, physical inactivity and diabetes are one reason why the incidence rate of uterine cancer was 79 percent higher among Pacific women than European/other women in the 2001–2004 cohort.¹⁹⁶

* Dietary risks are the aggregate risk factor that includes a diet low in whole grains, fruit, fibre, legumes, nuts and seeds, omega-3 fatty acids, polyunsaturated fats, vegetables, milk and calcium; and a diet high in sodium, trans fats, red or processed meat and sugar-sweetened beverages.¹⁹⁵



Figure 16: Association between diet and risk of cancer^{45,194}

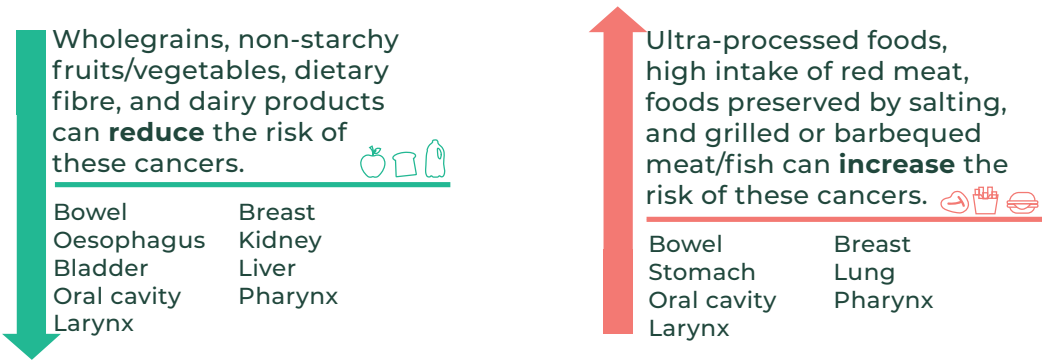
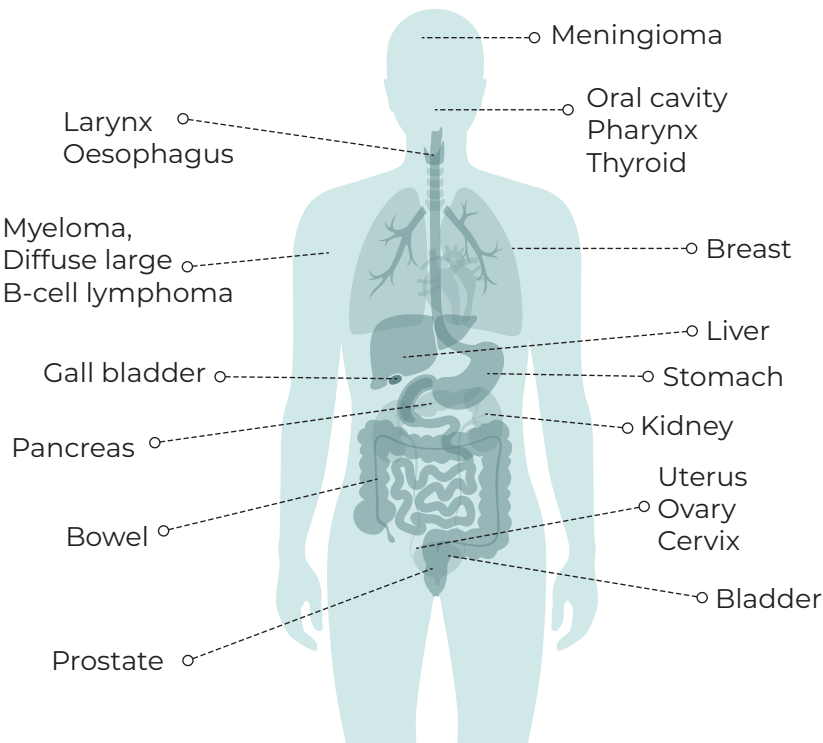


Figure 17: Cancers related to excess body weight⁴⁵



How big is the problem of poor diet and excess body weight in Aotearoa?

We do not regularly collect detailed information on diet in Aotearoa. The last nutritional surveys were conducted over 10 years ago among adults and nearly 20 years ago for children. However, we know from some national surveys that only one-third (36 percent) of adults and less than half (44 percent) of all children get the recommended five servings of vegetables and fruit each day* (Figure 18).⁴⁹ Adults and children living in the most deprived areas, men, and adults of Māori, Pacific and Asian ethnicity are less likely to consume enough vegetables and fruit (Figure 20 and Figure 21).⁴⁹ Many children in Aotearoa regularly have fast foods and fizzy drinks: over half (54 percent) eat fast foods and a quarter (26 percent) drink fizzy drinks at least weekly.⁴⁹

* Based on dietary recommendations for adults prior to December 2020. See Figure 19 for updated dietary recommendations.

Figure 18: Patterns of vegetable and fruit consumption in Aotearoa, 2019/20⁴⁹

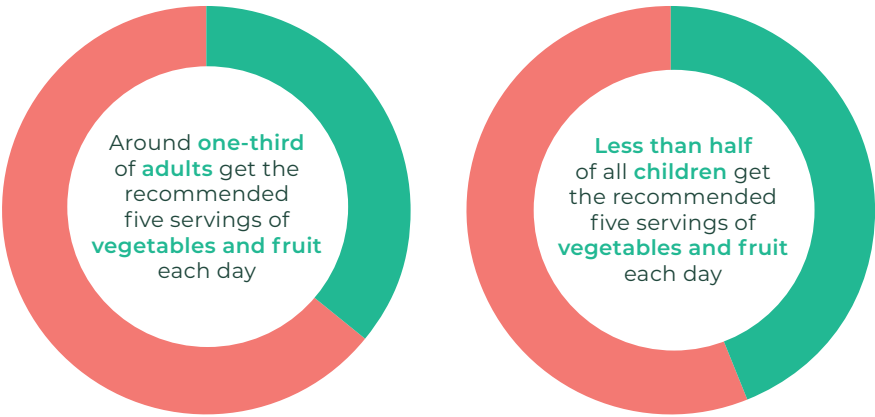







Figure 19: Recommended number of servings per day for adults* (updated guidelines, December 2020)¹⁹⁸

		Vegetables	Fruit	Grain foods	Legumes, nuts, seeds, fish and other seafood, eggs, poultry or red meat with fat removed	Milk and milk products	Approximate number of additional servings from the five food groups**
							
Men	19–50	●●●●●●●	●●	●●●●●●●	●●●	●●●	0–3
	51–70	●●●●●●●	●●	●●●●●●●	●●●	●●●	0–2.5
	70+	●●●●●●●	●●	●●●●●●	●●●	●●●●	0–2.5
Women	19–50	●●●●●●	●●	●●●●●●●	●●●	●●●	0–2.5
	51–70	●●●●●●	●●	●●●●●	●●	●●●●●	0–2.5
	70+	●●●●●●	●●	●●●●	●●	●●●●●	0–2
Pregnant		●●●●●●	●●	●●●●●●● ●●●●●●	●●●●	●●●	0–2.5
Lactating		●●●●●● ●●●	●●	●●●●●●● ●●●●●●	●●●	●●●	0–2.5

● one serving ◐ half serving

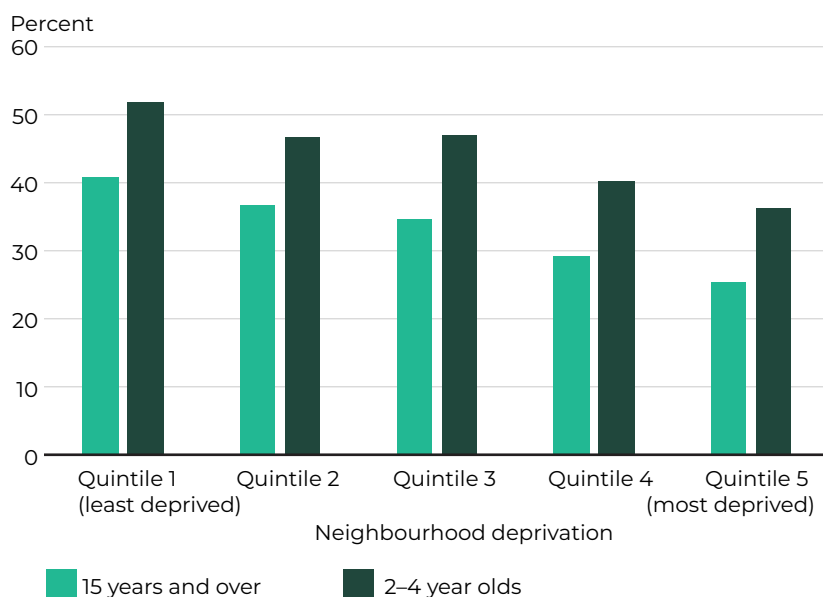
* Includes an allowance for unsaturated spreads or oils, nuts or seeds (4 servings [28–40g] per day for men less than 70 years of age; 2 servings [14–20g] per day for women and older men)

** Additional servings may be needed for taller or more active men and women

Figure 20: Percentage of adults who get the daily recommended servings of vegetables and fruit each day, by ethnicity, 2019/20⁴⁹



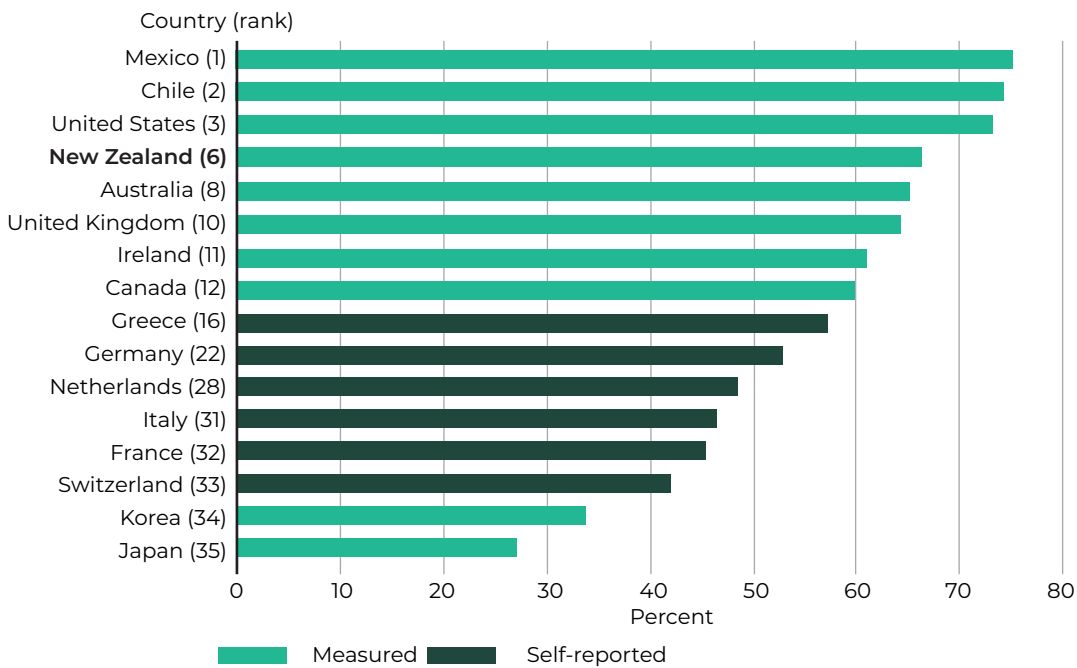
Figure 21: Percentage of adults and children who get the recommended servings of vegetables and fruit each day, by neighbourhood deprivation, 2019/20⁴⁹



Having excess body weight is common in Aotearoa. Two-thirds of adults and just under a third of children have excess body weight. Māori and Pacific adults and children, and those living in the most deprived areas, are much more likely to have excess body weight.⁴⁹

Adults in Aotearoa are the sixth most overweight/obese population among OECD countries (Figure 22).¹⁹⁹ In 2016, children in Aotearoa had the second highest rates of being overweight among 41 OECD and European Union countries, after the USA.²⁰⁰

Figure 22: Overweight or obesity among adults (aged 15 years and older), 2020 or nearest year¹⁹⁹



How can we prevent cancers related to poor diet and excess body weight?

The interventions summarised below (and expanded on under the focus areas that follow) are those considered most likely to improve the nutritional quality of New Zealanders’ diets and to help reduce the prevalence of excess body weight. These interventions are in line with evidence-based recommendations of Aotearoa health policy experts from INFORMAS*. They are also consistent with recommendations from the World Health Organization, the World Cancer Research Fund²⁰¹ and other major national and international organisations. Comprehensive action, including interventions at multiple levels, is needed to reduce exposure to unhealthy foods, increase consumption of healthy foods and ultimately prevent more people from gaining weight and/or developing excess body weight.

* The International Network for Food and Obesity / Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS) is a global network of public-interest organisations and researchers that aims to monitor, benchmark and support public and private sector actions to increase healthy food environments and reduce obesity and non-communicable diseases and their related inequalities (<https://www.informas.org/>).

Summary of options to prevent cancers related to poor diet and excess body weight

- ⇒ Restrict the advertising and marketing of unhealthy foods and drinks to children and young people.
 - Enact and enforce comprehensive restrictions on the promotion and marketing of unhealthy foods and drinks across all environments, led by an independent authority.
- ⇒ Reduce the affordability of unhealthy foods and drinks and increase the affordability of healthy foods.
 - Implement food and beverage pricing interventions.
- ⇒ Create healthy food environments in the settings where people live, work, play and learn.
 - Restrict the number, density and location of unhealthy food outlets.
 - Mandate and support the development of healthy food and beverage policies in schools and early childcare centres.
 - Support communities to create healthy food and drink environments.
- ⇒ Improve the quality of packaged foods and beverages.
 - Set mandatory food reformulation targets (salt, sugar, saturated fats) for packaged food manufacturers.
 - Mandate front-of-pack labelling on all packaged foods.



Focus area: Restrict the advertising and marketing of unhealthy foods and drinks to children and young people

What do we know about the impact of food and drink marketing on children and young people?

In Aotearoa, unhealthy foods are heavily marketed, and children and young people are particularly susceptible to unhealthy food marketing messages.²⁰² Children in Aotearoa are exposed to unhealthy food marketing on average 27 times per day, which is twice the amount of their exposure to healthy food advertising.²⁰³ This occurs in multiple settings, and is not limited to marketing directed at or to children.²⁰⁴

Marketing and advertising of unhealthy foods and beverages can influence children's food preferences, encourage repeated purchase and consumption, increase the amount of food eaten immediately after viewing an advertisement and contribute to excess body weight in children.²⁰⁵⁻²¹⁰ Childhood food preferences and excess body weight can continue through to adulthood.^{206,211} Some evidence indicates that advertising of unhealthy foods also influences adults' purchases and consumption of these foods.²¹²

Advertising in digital games increases consumption of unhealthy foods and beverages by children and young people.²⁰⁶ Unhealthy food and drink companies continue to sponsor popular adult sports teams and competitions.²⁰⁵

Māori children are exposed to outdoor advertising of unhealthy food 1.5 times more than New Zealand European children and to fast food advertising at almost double the rate of New Zealand European children.²⁰³

Action: Enact and enforce comprehensive restrictions on the promotion and marketing of unhealthy foods and drinks across all environments, led by an independent authority

What is the evidence?

Comprehensive and mandatory marketing restrictions are effective at reducing the exposure of children and young people to unhealthy food marketing.²¹³⁻²¹⁵ Countries with restrictions on junk food broadcast marketing have reduced sales of junk food per person compared with countries that have no such restrictions.²¹⁶ Non-mandatory regulation of unhealthy food advertising and marketing has limited or no impact on children's exposure to marketing of these products,^{215,217} even when adherence to these advertising codes is very high.²¹⁸

Internationally, support for advertising bans and restrictions is increasing. Forty-five countries have introduced legislation to limit the exposure of children and young people to advertising and marketing of unhealthy foods.²¹⁹

The United Kingdom has recently moved to completely ban advertising of unhealthy foods and drinks on television and online before 9 pm and to restrict two-for-one food promotions from the end of 2022.²²⁰ The initiative has the support of over 70 percent of the public.²²¹

What is Aotearoa doing currently?

A voluntary, self-regulatory Children and Young People's Advertising (CYPA) Code was introduced in 2017, which puts some voluntary restrictions on the advertising of unhealthy foods and drinks to children and young people.²¹⁵ However, the CYPA Code does not include any restrictions on the amount or the spread of advertising, and does not cover product packaging, bona fide news, reviews, editorial and broadcast programmes, social and digital media or sponsorship.²²² A recent review concluded that the system is not 'effective, transparent or sufficiently accountable to protect New Zealand children and young people'.²¹⁵

Unhealthy food and drink companies sponsor popular adult sports teams and competitions such as the All Blacks (Gatorade) and Super Rugby (KFC). Companies also sponsor children's sports such as football (McDonald's) and use marketing activities, such as merchandise and player of the day certificates, to repeatedly expose children to their brands.²⁰⁵



Focus area: Reduce the affordability of unhealthy foods and drinks and increase the affordability of healthy foods

What do we know about the impact of price and affordability on purchase and consumption of food and beverages?

Cost and affordability influence the amount of fruit and vegetables people eat.²²³⁻²²⁵ The purchase and consumption of sugary drinks has decreased and bottled water use has increased in countries where sugar-sweetened beverage excise taxes have made sugary drinks more expensive.²²⁶

Changes in food and beverage prices have a greater impact on people on low incomes.²²⁷

Action: Implement food and beverage pricing interventions

What is the evidence?

Making unhealthy foods less affordable and making healthy foods more affordable has the potential, if designed carefully, to improve health and be pro-equity.²²⁸

Targeted food subsidies can influence dietary behaviour, with a greater effect if used in combination with taxation of unhealthy food and beverages.^{229,230} In Australia, research has shown that subsidising fruits and vegetables increases purchases of these foods among indigenous populations in rural or remote communities.²³¹ A subsidy on fruit and vegetables in Aotearoa can improve diet quality,²³² improve health and reduce cancer-related mortality.^{232,233}

Sugar-sweetened beverage (SSB) taxes reduce consumption of these beverages,^{226,228} although there is a lack of consensus as to whether overall sugar consumption is reduced. There are other mechanisms of benefit, including incentivising the industry to reformulate (reduce sugar content in drinks).²³⁴

Countries with taxes on unhealthy foods and beverages include Hungary²³⁵ and Mexico.²³⁶ About 50 countries have introduced a SSB tax (as at August 2021).²³⁷

What is Aotearoa doing currently?

Aotearoa has no taxes on unhealthy foods or beverages.

Fruits and vegetables are not subsidised in Aotearoa and incur goods and services tax.

The Ministry of Health funds a Fruit in Schools programme, which provides children in low-decile schools with one piece of fruit each day.²³⁸



Focus area: Create healthy food environments in the settings where people live, work, play and learn

What do we know about the impact of unhealthy food environments?

In unhealthy food environments, unhealthy foods are heavily marketed and made increasingly palatable, available and accessible. Unhealthy food environments are linked to poorer nutritional status and a higher risk of obesity.²⁰²

In Aotearoa, children are exposed to high levels of unhealthy food and beverage marketing within their school environments.²⁰³ They also have easy access to takeaway shops and convenience stores, which are within 800 metres of their school gates in urban areas.²³⁹ Between 2005 and 2015, the density of fast food outlets and supermarkets increased and the median distance to a fast food outlet or supermarket decreased.²⁴⁰

There are significant inequities in the distribution of fast food outlets and convenience stores in Aotearoa, with a higher density of these outlets in more socioeconomically deprived areas.^{239,240} Supermarkets in low-income areas stock a higher ratio of unhealthy to healthy foods than those in higher-income areas.³¹ Schools in more socioeconomically deprived areas are more likely to be near an unhealthy food outlet.²³⁹

Action: Restrict the number, density and location of unhealthy food outlets

What is the evidence?

Reducing the availability of unhealthy food and drink options or changing the position of these foods in stores reduces purchases of these foods.²⁴¹

What is Aotearoa doing currently?

Aotearoa has no legislative framework for local government to restrict the number, density or location of unhealthy food outlets.

Action: Mandate and support the development of healthy food and beverage policies in schools and early childcare centres

What is the evidence?

Healthy school food policies can increase consumption of fruit and vegetables and reduce consumption of sugar-sweetened beverages and unhealthy foods.²⁴² Comprehensive nutrition policies that are school- and childcare centre-based have improved nutrition and health outcomes in indigenous children, particularly when policies included a focus on reducing SSBs.²³¹ In addition, healthy school food policies have positive effects on educational outcomes.²⁴²

What is Aotearoa doing currently?

The food and drink environments in Aotearoa schools vary. In general, secondary schools report greater access to unhealthy foods and drinks on school grounds. A 2016 survey of primary, intermediate and secondary schools in Aotearoa found that less than half had a written nutrition policy. Most primary schools (69 percent) reported having milk and/or water only, compared with only 35 percent of intermediate schools and 13 percent of secondary schools. Most schools (all types) reported using unhealthy food and beverages for fundraising.²⁴³

The Ministries of Health and Education, and Sport New Zealand have recently established a *Healthy Active Learning* initiative. This initiative provides curriculum resources and support for developing and implementing healthy food and water only policies and delivering physical activity experiences.²⁴⁴ The initiative was rolled out to 300 schools in 2020 and will expand to 800 schools by 2022. However, it is voluntary, and less support is provided in secondary schools.



Action: Support communities to create healthy food and drink environments

What is the evidence?

In environments created with easy access to places to buy and grow healthy food options (such as supermarkets, farmers' markets and community gardens), drinking-water in public spaces and breastfeeding-friendly spaces, people make healthier food and drink choices.²⁴

What is Aotearoa doing currently?

The Ministry of Health funds *Healthy Families New Zealand*, which works with communities to create environments that support healthy eating and physical activity. An initial evaluation found the design of the programme prioritised equity, Māori ownership and participation and had strengthened prevention efforts in most of those communities.²⁴⁶ The programme can make additional gains by responding to the evaluation results and expanding into other areas of high need.

Healthy Auckland Together is an example of collaboration between multiple agencies (health agencies, local government, iwi and non-governmental organisations) to create environments that encourage physical activity and good nutrition.²⁴⁷ The partners work together to influence regional policy, infrastructure design and planning decisions such as investment in cycleways and walkways.



Focus area: Improve the quality of packaged foods and beverages

What do we know about the impact of having widely available ultra-processed foods?

In 2018, 69 percent of packaged foods and beverages in Aotearoa supermarkets were ultra-processed.²⁴⁸ In addition, many New Zealanders have a high amount of ultra-processed foods in their diet.^{248,249} Many children are consuming up to half of their energy intake from ultra-processed foods by 12 months of age.²⁵⁰

Action: Set mandatory food reformulation targets (salt, sugar, saturated fats) for packaged food manufacturers

What is the evidence?

Support for food reformulation is widespread among international bodies and emerging evidence shows that mandatory reformulation is effective.^{251,252}

The United Kingdom salt reduction programme that began in 2013/14 led to reduced salt content in many processed foods.²⁵³

Many countries have national targets for salt reduction. Some of these – including Belgium, Finland, Hungary and the Netherlands,²⁵⁴ Argentina,²⁵⁵ and South Africa²⁵⁶ – have specified in law mandatory maximum levels of salt for some food categories. The United Kingdom government has encouraged voluntary reformulation for salt, sugar and calorie reduction.²⁵⁷

What is Aotearoa doing currently?

Aotearoa has no statutory limits on the amount of saturated fat, salt and sugar that can be added to processed foods.²²⁸

Since 2007, the New Zealand Heart Foundation has operated a voluntary food reformulation programme, which set targets for salt and sugar content of processed foods. A recent review found that more than 70 percent of breakfast cereals, margarine and cheese met the salt targets but less than 50 percent of bread and baked beans products did so. For sugar content, more than 77 percent of breakfast cereal products meet the target, but this was less than half for baked beans and yoghurt products.²⁵⁸

Action: Mandate front-of-pack labelling on all packaged foods

What is the evidence?

Mandatory front-of-pack labelling can encourage reformulation to a more favourable nutrient composition.^{259,260}

Mandatory front-of-pack labelling is increasing globally. Countries that have introduced it include Mexico, Iran, Chile, Sri Lanka, Peru, Uruguay and Israel.²⁴⁸

What is Aotearoa doing currently?

Aotearoa introduced a voluntary front-of-pack labelling system called the Health Star Rating (HSR) in 2014.

Products displaying an HSR have improved in their salt, sugar and fibre content. However, uptake of the HSR has been low, with only 21 percent of packaged products displaying an HSR, and the HSR appears to be selectively applied to healthier products.²⁵⁸

As well as the actions described above, improving nutrition requires a focus on improving food security. Food security is when ‘all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their food preferences and dietary needs for an active and healthy life’.²⁶¹ Around one in five children (19 percent) in Aotearoa live in food-insecure households and the proportion is higher among Māori and Pacific peoples.²⁶² The primary causes of food insecurity are inadequate financial resource and material hardship,^{262,263} and so improving food security requires comprehensive, cross-sector action.²⁶⁴



If Aotearoa is to systematically change our food environment to promote good health, substantial action is needed at a national level. Developing a multi-sectoral food systems and nutrition strategy would provide an overarching framework for the initiatives described above, and others. Aotearoa currently has no food system plan or strategy. The 2015 Child Obesity Plan focused largely on initiatives to support individual behaviour change rather than initiatives to address the obesogenic environments and did not lead to significant change in the prevalence of excess body weight in children.⁴⁹ An additional gap that could be filled is in collecting regular nutritional surveys, vital to monitor the impact of existing and future interventions.

By implementing interventions that can improve food environments, Aotearoa has the opportunity to protect children and young people, reduce inequities and fulfil Te Tiriti responsibilities.

TE ĀRAI MATE PUKUPUKU MŌ TE ITI O TE KORI TINANA PREVENTING CANCERS RELATED TO INSUFFICIENT PHYSICAL ACTIVITY

What is the connection between physical activity and cancer?

Physical activity protects against developing many cancers including breast, bowel and uterine cancers (Figure 23). It can also limit weight gain, which is linked with some cancers as discussed in the previous section.^{45,265} All physical activity is beneficial and the protective effect increases as physical activity levels increase.⁴⁵ In addition, emerging evidence suggests that prolonged periods of sedentary behaviour are associated with an increased risk of developing some cancers (Figure 24), independent of the amount of physical activity undertaken.^{45,265} The risk of cancer is 24 percent higher in those with high levels of sitting compared with those with low levels of sedentary behaviour, and cancer mortality increases by 2 percent for each additional hour spent sedentary each day.⁴⁵

Physical activity is any bodily movement that uses energy. It includes walking, cycling, sports and active recreation.

Sedentary behaviour is activity that uses only low levels of energy such as sitting, reclining and lying down.

Incidental physical activity is activity required to engage in normal daily activities, such as housework, gardening or walking to the shop.

Active recreation is leisure-time activity people do for the purpose of relaxation, health and wellbeing or enjoyment, such as gym workouts, walking and running.

Active transport is physical activity people do as means of transport – travel by foot, bicycle and other non-motorised vehicles.

Increasing physical activity and decreasing sedentary behaviour could prevent a considerable proportion of our cancer burden. In 2019, low physical activity caused an estimated 1.5 percent of all cancer deaths in Aotearoa (over 150 deaths), including almost 9 percent of bowel cancer deaths.²⁰

Figure 23: Association between physical activity and the risk of cancer⁴⁵

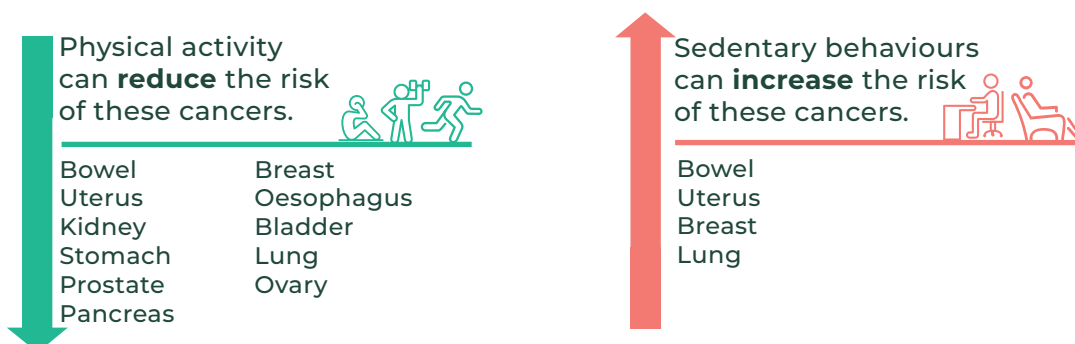
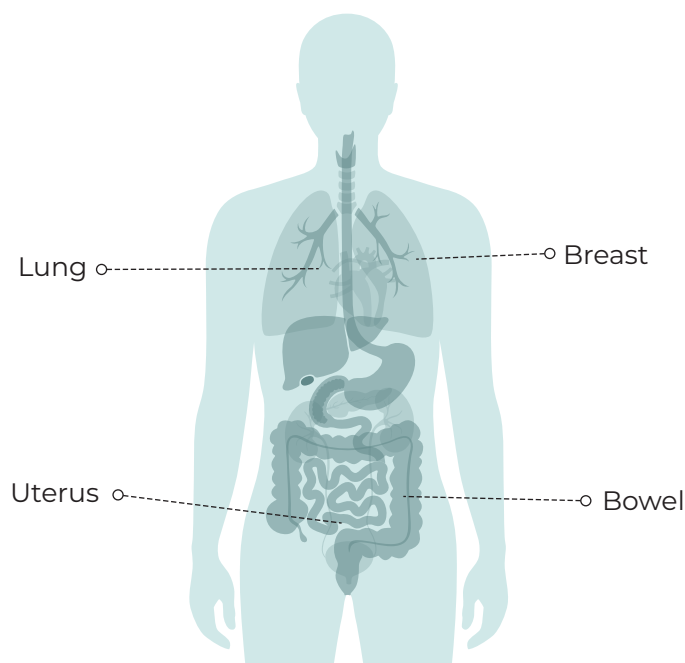


Figure 24: Cancers related to physical inactivity or sedentary behaviour⁴⁵



How big is the problem of physical inactivity in Aotearoa?

Many adults, youth and children in Aotearoa are not active enough. Only half (52 percent) of adults (aged 15 years and older) reported being physically active for the recommended minimum of 2.5 hours per week (Table 2) in 2019/20 (Figure 25). One in eight adults was physically inactive (that is, they did less than 30 minutes physical activity a week).⁴⁹

Women and Māori, Pacific and Asian adults were more likely to be physically inactive in 2019 (Figure 26).⁴⁹ New Zealanders living in the most deprived areas spend less time being physically active and participate in fewer sports and activities each week.^{49,266}

Table 2: New Zealand Physical Activity Guidelines^{198,267,268}

Children under 5 years	Young people aged 5–17 years	Adults	Older adults
Sit less Regular activity breaks Discourage screen time for under 2s Limit screen time to less than one hour every day for over 2s Limit time in movement restricting equipment	At least 1 hour of moderate or vigorous physical activity spread over each day Light physical activity for several hours a day	At least 2.5 hours of moderate or 1.25 hours of vigorous physical activity spread throughout each week	At least 30 minutes of moderate physical activity on 5 days or more per week
Move more Active play Fun activities (for toddlers and preschoolers at least 3 hours spread throughout each day)	Vigorous physical activity and muscle and bone strengthening activities at least 3 days each week	Muscle-strengthening activities on at least 3 days each week	3 sessions of flexibility and balance activities, and 2 sessions of muscle-strengthening activities each week (can be combined)
Sleep well	No more than 2 hours a day on recreational screen time		

The 2019 Active New Zealand Survey found that only 7 percent of young people (aged 5–17 years) were meeting the recommended 60 minutes of moderate to vigorous physical activity each day (Figure 25).²⁶⁹ However, this increases to 58 percent of young people who get the recommended minimum of 420 hours of physical activity over one week.

Females, high school students and children living in more deprived areas are less likely to meet physical activity recommendations.²⁷⁰

Figure 25: Proportion of adults and young people who get the recommended amount of physical activity, 2019/20^{49,269}

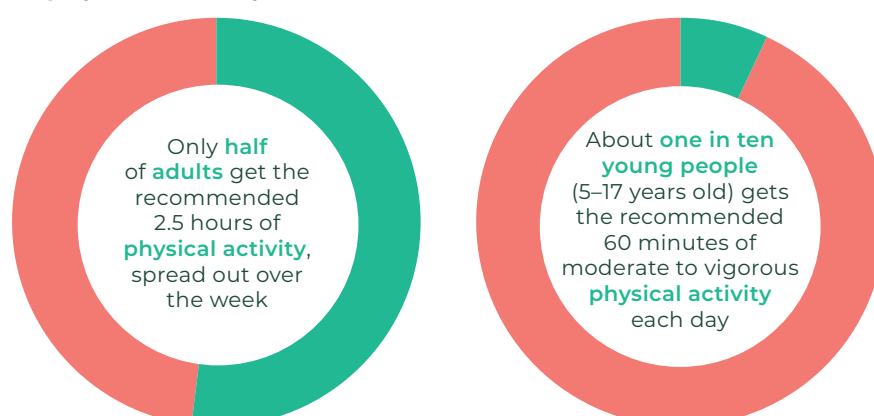
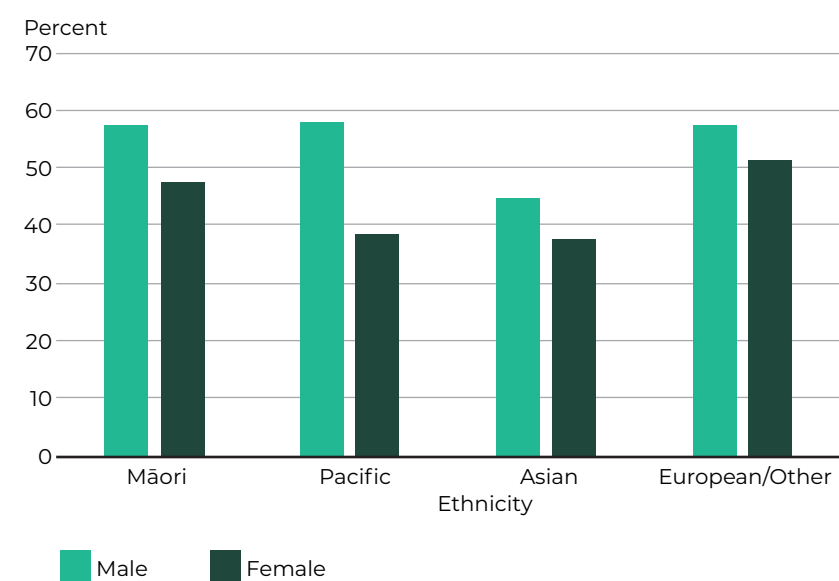


Figure 26: Percentage of adults (aged 15 years and older) who get at least 2.5 hours of physical activity a week, by ethnicity, 2019/20⁴⁹



Comprehensive data on sedentary behaviour is not routinely collected in Aotearoa. Studies from other high-income countries show adults are sedentary for an average of 8–10 hours per day. Occupational sitting has increased over time, likely because of changes in job content and occupation distribution.²⁷¹ For children, researchers often use screen time as an estimate of sedentary behaviour. Eight in ten children (80 percent) in Aotearoa aged 2–14 years watched screens for two or more hours per day (excluding time spent on screens at school or doing homework), and the proportion of children who went over recommended screen time limits increased with age (Figure 27).⁴⁹

Māori and Pacific children were 10 percent more likely to go over the recommended screen time guidelines.⁴⁹ On average, children in Aotearoa spend 42 hours (including 29 hours outside of school) a week on the internet, the third highest use among children in OECD countries.²⁷²

Figure 27: Proportion of children who have two hours or more of screen time a day, 2019/20⁴⁹



How can we prevent cancers related to insufficient physical activity?

The following interventions summarised below (and expanded on under the focus areas that follow) are those considered most likely to increase population levels of physical activity and ultimately prevent cancers due to insufficient physical activity and excessive sedentary behaviours. These interventions are in line with evidence-based recommendations from the World Health Organization²⁷³ and the International Society for Physical Activity and Health,²⁷⁴ as well as from other respected national and international organisations. The interventions below are consistent with several actions in the draft national physical activity and play action plan that is currently under development.

Summary of options to prevent cancers related to insufficient physical activity

- ⇒ Create built environments that support people to be physically active in their daily lives.
 - Integrate urban design and transport policies to support active transport, and incidental and recreational physical activity.
- ⇒ Implement programmes across multiple settings to increase physical activity and reduce sedentary time.
 - Implement workplace-based programmes.
 - Implement school-based programmes.
 - Implement community-based programmes.
- ⇒ Increase physical activity levels through participation in active recreation and sport.
 - Increase participation in active recreational activities, particularly for those groups not currently engaged.
 - Increase participation in organised sport groups and clubs, particularly for those groups not currently engaged.
- ⇒ Support the health sector to deliver interventions to increase physical activity levels.
 - Increase access to physical activity counselling and links to community-based supports.

Focus area: Create built environments that support people to be physically active in their daily lives

What do we know about the impact of built environments on physical activity levels?

Characteristics of our built environments, such as street layout, land use, the location of recreation facilities, parks and public buildings and the transport system, can either encourage or discourage physical activity.^{219,273,275-279} For example, poor street connectivity, lack of footpaths, poor access to shops and concerns about crime are associated with low levels of physical activity.²⁸⁰

There are significant differences in access to active and public transport by gender and ethnicity. Māori have poorer access to active or public transport than other ethnic groups.³² Between 2002 and 2014, 75 percent of cyclists were men, and men were twice as likely as women to be regular cyclists.²⁸¹

Action: Integrate urban design and transport policies to support active transport, and incidental and recreational physical activity

What is the evidence?

Improvements to the built environment of towns and cities (such as improved street connectivity, increased residential density, facilities for pedestrians and cyclists, mixed land use, access to public transport and access to parks, playgrounds and green spaces) have positive effects on active transport use and overall physical activity levels in children and adults.^{219,277-279,282}

Urban design that supports more active travel is linked to increased physical activity²⁸³⁻²⁸⁶ and less sedentary time.²⁷⁸ Active transport is easier to integrate into daily life than organised sports or recreational physical activity.^{287,288} Children who walk or cycle to school, and adults who cycle for travel purposes (e.g., to get to work rather than for recreation) are more likely to meet physical activity guidelines.^{289,290}

Positive perceptions of neighbourhood desirability (such as for its aesthetics, traffic and safety) and quality of recreational destinations (such as green space and parks) are associated with increased recreational walking.²⁷⁷⁻²⁷⁹

Low-traffic neighbourhoods (LTNs), which have protected cycle lanes and bus priority lanes, are increasing in cities worldwide. In London, LTNS are associated with an increase in active travel and reduction in car ownership.²⁹¹

What is Aotearoa doing currently?

Local and regional councils can create environments that support or inhibit physical activity through their decision-making about walking and cycling infrastructure, urban design, neighbourhood planning and access to green spaces. They also provide facilities for organised sport and active recreation.²⁷⁶

Aotearoa has no legislative requirement for local or regional councils to assess the impacts of planning decisions on physical activity opportunities.

The 2021 Government Policy Statement on Land Transport identifies providing better travel options (including public and active transport options) as a strategic priority.²⁹²

In 2019, Waka Kotahi New Zealand Transport Agency published its plan for increasing the proportion of travel using public and active transport.²⁹³ It has three focus areas: shaping urban form; making shared and active travel modes more attractive; and influencing travel demand and transport choices. To date, Waka Kotahi has worked with local and regional councils in six regions to develop plans to increase the share of travel by walking, cycling and public transport.²⁹⁴

Healthy Auckland Together is a collaboration between multiple agencies (health agencies, local government, iwi and non-governmental organisations).²⁴⁷ The partners work together to influence regional policy, infrastructure design and planning decisions such as investment in cycleways and walkways.

Focus area: Implement programmes across multiple settings to increase physical activity and reduce sedentary time

What do we know about the impact of settings, such as the workplace, school or community on physical activity levels?

Common settings where people spend most of their time are important opportunities for implementing interventions to increase levels of physical activity and reduce sedentary behaviour.²⁷³ Occupational sitting is a major contributor to overall sedentary behaviour, accounting for more than half of total exposures for workers.²⁷¹ Similarly, adolescents can spend over 60 percent of their school day sitting.²⁹⁵

Action: Implement workplace-based programmes

What is the evidence?

Multicomponent workplace programmes are effective at increasing physical activity levels²⁹⁶⁻²⁹⁸ and reducing sitting time for office workers.²⁷¹ In addition, workplace physical activity programmes brings co-benefits for both the organisation and individuals, including better staff morale, greater productivity and less absenteeism.^{277,299}

What is Aotearoa doing currently?

Aotearoa has no legislative requirements for workplaces to reduce sedentary behaviour or physical inactivity.

Te Hiringa Hauora | Health Promotion Agency has developed guidance for workplaces on supporting employees to increase their physical activity (wellplace.nz website).³⁰⁰

Te Hiringa Hauora has partnered with other agencies, including Toi Te Ora, to develop workplace wellbeing programmes that include actions to increase physical activity in the workplace. There is potential to scale up these programmes and implement them across the public and private sectors.

Action: Implement school-based programmes

What is the evidence?

Multicomponent whole-of-school initiatives in childcare and school settings can be effective at increasing physical activity in children.^{219,298,301}

Aotearoa modelling shows that providing school-based physical education for 2.5 hours per week will significantly reduce the proportion of minimally active young people and increase the proportion of sufficiently active young people.³⁰² Furthermore, regular physical education and supportive school environments can contribute to long-lasting healthy, active lifestyles.²⁷³

What is Aotearoa doing currently?

The Ministries of Health and Education, and Sport New Zealand have recently established a voluntary *Healthy Active Learning* initiative. This initiative provides curriculum resources, support and a trained workforce for delivering physical activity experiences, creating active learning environments and better linkages to the local community.²⁴⁴ The initiative was rolled out to 300 schools in 2020 and will expand to 800 schools by 2022.

Action: Implement community-based programmes

What is the evidence?

Community-based physical activity programmes are effective when they are tailored to the needs of the community they are operating in and harness local partnerships and strengths to create synergistic benefits.²⁷⁵ Researchers recommend that such programmes include the following features: community-wide education campaigns; family-based interventions, settings-based programmes, technology-based interventions and health care and environmental policy change.²⁹⁸

What is Aotearoa doing currently?

Healthy Families New Zealand is an innovative large-scale prevention initiative funded by the Ministry of Health that currently operates in 10 communities in Aotearoa. It focuses on systems change and supports community leaders to work together to create healthier environments (addressing food, physical activity, alcohol and tobacco) in a range of community settings. An initial evaluation found the programme had successfully prioritised equity, Māori ownership and participation and had strengthened prevention efforts in all communities.²⁴⁶ However, the impact of the programme is limited by the small number of communities involved.

There are community-based initiatives currently operational, including Māori- and Pacific-led physical activity programmes, outside of the *Healthy Families New Zealand* initiative.

Focus area: Increase physical activity levels through participation in active recreation and sport

What do we know about the impact of participating in active recreation and/or sport?

As well as increasing physical activity, participation in both active recreation activities and organised sport has wide-ranging benefits to health and wellbeing.²⁷⁵ People who are involved in sport are more likely to achieve recommended levels of physical activity each week.^{303,304}

In Aotearoa, adults and children living in the most socioeconomically deprived communities are less likely to participate in active recreation or sport than those from less deprived areas.²⁶⁶

Action: Increase participation in active recreational activities, particularly for those groups not currently engaged

What is the evidence?

Because people often undertake active recreational activities for the purpose of enjoyment or wellbeing, this form of activity can potentially increase their physical activity levels without them being aware of it.³⁰⁵ In addition, uptake of active recreation may be higher among certain groups as participants can do the activity when, with whom, how and where they want.³⁰⁶

Active play and recreation are important for healthy growth and development in early childhood through to adolescence.²⁶⁸ For older people, regular physical activity in the form of active recreation supports healthy ageing.²⁶⁷

In Aotearoa, most adults prefer to participate in physical activity casually, either on their own or with others. Walking is by the far the most common type of physical activity that people participate in across all ethnicities and levels of deprivation.³⁰⁷

What is Aotearoa doing currently?

Sport New Zealand's strategy *Every Body Active* aims to increase the physical activity levels of New Zealanders. In 2020/21, priority populations for Sport New Zealand included high-deprivation communities, girls and young women aged 5–18 years and disabled tamariki and rangatahi. Sport New Zealand collaborates with local, national and international partners in the active recreation sector.

There are a range of initiatives underway to implement this strategy. For example, Tū Manawa Active Aotearoa allocates funding to promote play, active recreation and sport for school-aged children and the Young Women's Activation fund focuses on initiatives to help more young women get and stay active.



Action: Increase participation in organised sport groups and clubs, particularly for those groups not currently engaged

What is the evidence?

Sport-related interventions are effective and cost-effective at increasing population levels of physical activity across the life course.¹⁴⁶

Children who participate in youth sports have higher levels of physical activity than those who don't and these higher levels of participation may persist for many years, including into adulthood.^{304,308} In Aotearoa, participation in organised sports and activities peaks at age 12–14 years and then declines steeply between 15 and 17 years.²⁶⁹

Sport interventions targeting inactive individuals or groups are associated with increased physical activity levels.³⁰⁹

Having culturally specific recreational activities and sport is critical for engaging Māori and Pacific peoples.³¹⁰ For example, participation in waka ama as a sport has grown in Aotearoa, with a 34 percent increase in the number of clubs over five years.³¹¹

What is Aotearoa doing currently?

Sport New Zealand has a range of work underway with a focus on youth sports. It is working with national sports organisations on a Balance is Better campaign to support the culture change needed to provide quality sport opportunities for tamariki (5–11 years) and rangatahi (12–18 years).



Focus area: Support the health sector to deliver interventions to increase physical activity levels

What do we know about the impact of health sector interventions on physical activity levels?

The health sector can be effective in supporting individuals and whānau to be more physically active and less sedentary. Health professionals are a trusted source of information, have skills and experience in supporting behavioural change in their patients^{274,312} and engage with a high proportion of individuals in a community on a regular basis.²⁷⁵

Action: Increase access to physical activity counselling and linkages to community-based supports

What is the evidence?

Brief interventions in primary care can increase short- to medium-term self-reported physical activity,^{312,313} while follow-up sessions increase the effectiveness of these interventions.³¹² Wearable devices (such as activity monitoring watches) may provide additional benefits in health care settings.²⁹⁸

In addition, brief interventions for physical activity in health care settings can be adapted to be culturally appropriate and are cost-effective for adults.^{314,315}

What is Aotearoa doing currently?

Currently, health professionals can refer adults, children and whānau (who meet certain criteria) to community-based programmes for nutrition and physical activity support, either through Green Prescriptions³¹⁶ or Active Families.³¹⁷

In 2018, more than 85 percent of families participating in the Active Families programme reported improvements in their diet and physical activity.³¹⁷ Participants in the Green Prescription programme have reported more regular physical activity up to three years after completing the programme.³¹³

The options discussed above are focused on creating environments and settings where being physically active is part of everyday life. Reducing the burden of cancers related to physical inactivity requires comprehensive and coordinated action across multiple sectors including local government, transport, health, education and employment. To be effective, interventions should include a focus on active transport, incidental physical activity and urban design, rather than focusing only on increasing participation in organised sport. Regular monitoring and evaluation of the effectiveness of any interventions will allow for continuous improvement, and ensure Aotearoa is doing all it can to prevent cancers related to physical inactivity.



TE ĀRAI MATE PUKUPUKU MŌ PĀNGA O TE HIHI KŌMARU

PREVENTING CANCERS RELATED TO EXCESSIVE EXPOSURE TO ULTRAVIOLET RADIATION

What is the connection between ultraviolet radiation and cancer?

Skin cancers are the most commonly diagnosed cancers in Aotearoa. Ultraviolet (UV) radiation, either from the sun or from sunbeds, causes 90 percent of all skin cancers.³¹⁸ The risk of developing skin cancer increases with the number and severity of sunburn episodes (at any age) and with higher cumulative exposure to UV radiation.^{319,320}

The two main categories of skin cancer are melanoma and keratinocytic (basal cell and squamous cell) cancer. Melanoma is less common than keratinocytic cancer but is more likely to result in death.

In 2018, 2,738 New Zealanders were diagnosed with melanoma, including 51 Māori, and there were 310 deaths.² It is estimated that over 90,000 New Zealanders are diagnosed with keratinocytic skin cancer each year.³²¹⁻³²³ The figure for keratinocytic skin cancer is an estimate because cases of these cancers are not recorded on the New Zealand Cancer Registry. What is known, however, is that the incidence of melanoma among our young people is 37 percent lower than it was a decade ago, which is likely due to successful public health campaigns around SunSmart practices and early warning signs.^{324,325} The number of cases of skin cancer is projected to increase due to population ageing and ongoing exposure to high levels of UV radiation.



Aotearoa has one of the highest rates of melanoma in the world.

2,738
New Zealanders
were diagnosed with
melanoma in 2018,
including **51 Māori**.

310
New Zealanders
died from
melanoma in 2017,
including **3 Māori**.

Melanoma rates are
nearly **six times higher** for
non-Māori than for **Māori**;
however, **Māori** are more than
twice as likely
to die of their **melanoma**.



Skin cancer is more common in those of European ethnicity and the mortality rate is higher for men than for women.³²² Melanoma incidence and mortality are substantially lower among Māori and Pacific peoples than among those of European ethnicity.⁷

However, Māori and Pacific peoples who are affected have a higher than expected risk of more advanced melanoma, with poorer prognosis.^{3,326}

In 2007 the annual direct health care costs of treating skin cancer in Aotearoa were an estimated \$NZ123.10 million, equivalent to \$NZ1,785 per case.³²⁷ The direct health care costs are substantially higher for keratinocytic skin cancers due to the higher number of cases.³²⁸

How big is the problem of excessive exposure to ultraviolet radiation in Aotearoa?

Most parts of Aotearoa experience high UV radiation levels, particularly in the summer months (Table 3). Maximum ultraviolet index (UVI) levels in Aotearoa are generally about 12.³²⁹ Sun protection is recommended when the UVI is 3 or higher.³³⁰

Table 3: Peak ultraviolet index in Aotearoa averaged over one hour at solar noon* ³³¹

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Auckland	13	11	7	4	2	2	3	5	6	8	11	13
Wellington	13	9	6	3	2	1	2	4	5	8	11	12
Christchurch	12	8	5	3	1	1	2	3	4	8	10	11
Central Otago	10	8	5	2	1	1	1	3	4	7	10	11
Invercargill	8	7	4	2	1	1	1	2	3	5	9	10

Be SunSmart

Being SunSmart is about protecting skin and eyes from damaging UV radiation – especially when outdoors from September to April.

Slip on a shirt
Slip on a shirt with long sleeves. Fabrics with a tighter weave and darker colours will give you better protection from the sun.

Slip into the shade
Slip into the shade of an umbrella or a leafy tree. Plan your outdoor activities for early or later in the day when the sun's UV levels are lower.

Slop on sunscreen
Slop on plenty of broad spectrum sunscreen of at least SPF 30. Apply 20 minutes before going outside and reapply every two hours and especially after being in water or sweating.

Slap on a hat
With a wide brim or a cap with flaps. More people are sunburnt on the face and neck than any other part of the body.

Wrap on sunglasses
Choose close fitting, wrap around style sunglasses. Not all sunglasses protect against UV radiation, so always check the label for sun protection rating.

sunsmart.org.nz

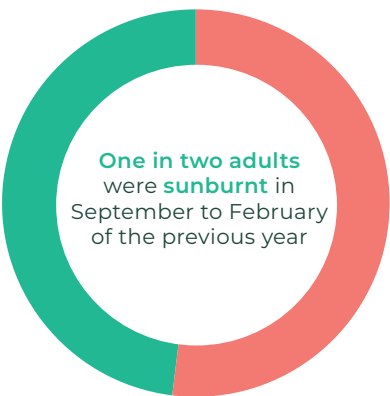
health promotion agency

In Aotearoa, exposure to excessive UV radiation is estimated through regular population-based surveys of the proportion of people experiencing sunburn.^{333,334}

In 2018, more than half (52 percent) of all adults (aged 15 years or over) had experienced at least one episode of sunburn in the preceding spring or summer, including 12 percent who had severe sunburn (with blisters and/or pain for two or more days) (Figure 29).³³³

* In cloudless conditions 1–1.30 pm during daylight saving

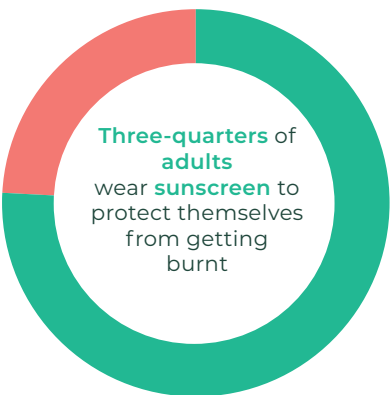
Figure 29: Proportion of adults experiencing sunburn in spring and summer of 2017–2018³³³



Men and those aged 15–24 years had the highest rates of severe sunburn, and rates were similar for Māori and non-Māori. The proportion of people with severe sunburn increased significantly between 2014 and 2018.³³³

Although awareness of SunSmart messaging (Figure 28) is high in Aotearoa, adopting sun protection behaviours is less common and varies with the specific behaviour.^{334,335} Surveys show many New Zealanders may take up at least one SunSmart behaviour (most commonly wearing sunscreen (Figure 30)). However, for the best protection, people should adopt all the recommended practices.³³⁶

Figure 30: Proportion of adults wearing sunscreen in the past year, 2016³³⁶



People rarely use UVI levels to inform their sun protection behaviours. Instead most adults³³⁴ and young people³³⁵ use air temperature and weather conditions (relative amounts of sun and cloud) as a guide. As a result, sun protection behaviours are less common on cold or cloudy days.

How can we prevent cancers related to excessive ultraviolet radiation?

The interventions summarised below (and expanded on under the focus areas that follow) are those considered most likely to reduce exposure to excessive UV radiation and ultimately reduce skin cancer risk. They are focused on creating supportive environments and settings to support the adoption of sun protection (SunSmart) behaviours. The interventions are in line with recommendations outlined in the New Zealand Skin Cancer Primary Prevention and Early Detection Strategy 2017–2022³³⁷ and with recommendations of national organisations, including the New Zealand Cancer Society.³³⁸ The interventions draw on the Australian SunSmart programme, which is a successful multicomponent, community-wide skin cancer prevention programme that has been operating for over 30 years.^{339,340}

Summary of options to prevent cancers related to excessive UV radiation

- ⇒ Create healthy outdoor environments that provide protection from excessive UV radiation.
 - Require local government to develop and implement comprehensive UV radiation protection policies, including increasing availability of and access to good-quality shade outdoors.
- ⇒ Create supportive school environments that protect children and young people from excessive UV radiation.
 - Implement comprehensive sun protection policies and monitoring in all education settings.
- ⇒ Create supportive work environments that protect people from exposure to excessive UV radiation.
 - Ensure employers are meeting their legal obligations to protect workers from sun exposure.
- ⇒ Increase access to affordable, high-quality sunscreen.
 - – Increase access to affordable sunscreen.
 - – Regulate sunscreen to ensure all sunscreens meet accepted standards for safety, quality and effectiveness.

Focus area: Create healthy outdoor environments that provide protection from excessive UV radiation

What do we know about the impact of shade on exposure to UV radiation?

Good-quality shade fabrics can reduce UV radiation exposure by up to 75 percent³⁴¹ and trees with heavy dense canopy can provide up to 90 percent UV radiation protection.³⁴² Ultraviolet radiation levels are not affected by air temperature, so shade that provides protection from heat does not automatically provide protection from UV radiation.³⁴³

Children and adolescents in Aotearoa are often not adequately protected from exposure to UV radiation in outdoor recreation spaces.^{344,345} Only 40 percent of Aotearoa playgrounds provide adequate shade protection, although Waikato, Whangarei and Wairarapa have higher levels of shade in outdoor recreational spaces than other parts of Aotearoa.³⁴⁵

Playgrounds in more socioeconomically deprived areas have less shade than those in less deprived areas.³⁴⁴

Action: Require local government to develop and implement comprehensive UV radiation protection policies, including increasing availability of and access to good-quality shade outdoors

What is the evidence?

Comprehensive sun protection policies should include key components: guidelines for specific groups (such as outdoor workers), events and areas (such as parks, gardens and sports facilities), shade considerations in building codes, urban design/landscape, and community and sporting facilities.

Adding built shade (such as shade sails over play and eating areas) to schools, parks and outdoor recreation areas increases the use of shade in outdoor spaces.³⁴⁶⁻³⁴⁸

The Australian SunSmart programmes provide guidance and support to local government for developing comprehensive sun protection policies.³⁴⁹ As part of the Australian SunSmart programmes, the Victorian government established a shade grants programme in 2014 to increase shade availability and sun protection practices. In 2018, \$10 million in shade grants were made available to the programme.³⁵⁰

In a 2013 survey in Aotearoa, more than 75 percent of respondents agreed that their council should use money from rates to provide shade in public places.³⁵¹

What is Aotearoa doing currently?

Aotearoa has no legislative requirement for shade provision or for shade provision policies. No public funding is available for installing appropriate shade.

Some councils have developed sun protection policies as part of their role in providing their communities with safe and healthy environments,^{352,353} although there is no legislative requirement for them to do so. Five local councils had a sun protection policy in 2021. Where they exist, local policies vary nationwide.

A guide for developing and implementing seasonally and regionally appropriate sun protection policies is available on the SunSmart website (<https://www.sunsmart.org.nz/learn-more/sunsmart-councils-and-workplaces>).³⁵⁴

The SunSmart website covers shade provision in the design of community and sporting facilities. This includes sun protection considerations in building codes and planning requirements and adopting a systematic process for planning shade for locations where the public could be at risk of over-exposure to UV radiation.

The Cancer Society has produced guidelines for developing shade that is appropriate for the different climate zones in Aotearoa and provides sufficient protection from UV radiation.³⁵⁵



Focus area: Create supportive school environments that protect children and young people from excessive UV radiation

What do we know about school environments and UV radiation?

Children are at school or early childhood centres during peak UV radiation times.³⁵⁶ However, children and adolescents in Aotearoa are often not adequately protected from sun exposure while at school.³⁵⁷⁻³⁵⁹ The cost of shade provision is recognised as a key barrier to improving access to shade in schools in Aotearoa³⁶⁰ and overseas.³⁶¹

Action: Implement comprehensive sun protection policies and monitoring in all education settings

What is the evidence?

Comprehensive school-based sun protection programmes (education plus environmental and policy change) are effective at increasing sun protection behaviours, decreasing UV radiation exposure and decreasing sunburn.³⁶²

Aotearoa schools enrolled in the Cancer Society's SunSmart schools programme have better sun protection practices and are more likely to have a better policy (on wearing hats) than schools not enrolled.³⁶³

As part of the Australian SunSmart schools programme, early childhood centres are required to have a sun protection policy for accreditation.³⁵⁶ In Queensland, all schools are required to develop and implement a sun safety policy. Schools must supply sunscreen with a sun protection factor (SPF) of 30 or higher for students to use for all outdoor activities.³⁶¹

What is Aotearoa doing currently?

Sun protection policies are not mandatory in Aotearoa education settings. Schools do not receive public funding to develop or implement sun protection policies or to provide shade structures.^{364,365} Although most primary schools (94 percent) and half of secondary schools report that they have a sun protection policy, these policies are not necessarily comprehensive or followed.^{357,366}

The Cancer Society of New Zealand delivers a SunSmart schools programme that is broadly consistent with the Australian programme. It is Aotearoa's only national sun protection intervention but does not receive any government funding. The programme is voluntary and is only available in primary and intermediate schools.³⁶³ Only about 36 percent of children of primary and intermediate age in Aotearoa attend a SunSmart accredited school.³⁶⁷ The programme also provides policy and support for early childhood centres.



Focus area: Create supportive work environments that protect people from exposure to excessive UV radiation

What do we know about the impact of work environments on exposure to UV radiation?

Workers in outdoor occupations such as agriculture, horticulture, farming, forestry and construction are exposed to high levels of UV radiation while at work.³⁶⁸ Outdoor workers are exposed to UV radiation more often and for longer periods than indoor workers. As a result, they have higher cumulative levels of UV radiation exposure and a higher risk of developing skin cancer.³⁶⁸ It is estimated that outdoor workers receive five to ten times more UV exposure each year than indoor workers.³⁶⁹

Action: Ensure employers are meeting their legal obligations to protect workers from sun exposure

What is the evidence?

Workplace skin cancer prevention programmes are effective at increasing outdoor workers' sun protective behaviours and reducing sunburns.³⁷⁰ In Aotearoa, better workplace safety culture in workplaces is associated with better personal sun protection practices.³⁷¹

Australian work health and safety laws require employers to eliminate or minimise the risks to workers from exposure to UV radiation.³⁷² Safe Work Australia and the Australian Cancer Council have produced clear guidelines for employers and employees on how to meet their obligations and reduce UV radiation exposure for outdoor workers.

What is Aotearoa doing currently?

The Health and Safety at Work Act 2015 places obligations on employers to protect workers from exposure to hazards such as UV radiation.³⁷³ Businesses are required to identify and manage potential health risks, monitor and minimise levels of exposure, and monitor the health of workers to enable early diagnosis of any work-related diseases. Several organisations – including WorkSafe, Te Hīringa Hauora | Health Promotion Agency (wellplace.nz), the Cancer Society of New Zealand and Business.govt.nz – offer support, including guidelines and information.

It is unclear how many workplaces have implemented sun protection policies, whether current programmes provide sufficient protection from UV radiation exposure and how compliance is monitored.

Focus area: Increase access to affordable, high-quality sunscreen

What do we know about the impact of affordability on sunscreen use?

Cost has been identified as a barrier to regular sunscreen use in Aotearoa³⁷³ and internationally.^{374,378}

Action: Increase access to affordable sunscreen

What is the evidence?

When applied correctly, sunscreen with an SPF of more than 30 is highly effective for preventing skin cancer.³⁷⁷ Daily sunscreen use is more effective and cost-effective than early detection programmes.^{377,378}

In Australia, sunscreen is subsidised for veterans under the Pharmaceutical Benefits scheme³⁷⁹ and is tax deductible for outdoor workers.

What is Aotearoa doing currently?

Aotearoa has no regular monitoring and reporting of the availability, accessibility and affordability of sunscreen.

In Aotearoa, the price of sunscreen varies significantly between different brands and retailers. Access to free or subsidised sunscreen is available in some situations. For example, the Pharmaceutical Management Agency Ltd (PHARMAC) fully subsidises sunscreen for people with medical conditions that make them highly sensitive to UV radiation. Sunscreen and other sun protection are tax deductible for employers in some industries. Employers should provide their outdoor workers with sunscreen. Some schools provide sunscreen to students and staff prior to outdoor activities, although this is not a requirement in Aotearoa schools.

Action: Regulate sunscreen to ensure all sunscreens meet accepted standards for safety, quality and effectiveness

What is the evidence?

Australia has adopted into law the joint Australian/New Zealand Sunscreen Standard (AS/NZS 2604:2012), which sets out performance, testing and labelling requirements.³⁸⁰ Also in Australia, sunscreen products with an SPF of more than 4 are regulated as therapeutic goods by the Therapeutic Goods Administration. Manufacturers must provide evidence of testing in accordance with the mandatory sunscreen standard.³⁸⁰

Submissions from the general public and health professionals on the draft Therapeutic Products Bill and the Sunscreen (Product Safety Standard) Bill supported mandatory regulation of sunscreens.^{380,381} Many experts indicated that regulation of sunscreens as a therapeutic product would be their preferred option.

What is Aotearoa doing currently?

Sunscreens are currently classified as cosmetics rather than therapeutic products in Aotearoa. This means Medsafe (the medicines regulator of Aotearoa) does not assess their safety, quality and effectiveness so these factors cannot be assured.³⁸² Although Aotearoa has adopted the joint Australia/New Zealand Sunscreen Standard (AS/NZ 2604:2021), compliance with the standard is voluntary. However, Consumer testing has consistently found that many sunscreens do not meet the SPF claims on their labels.³⁸³

Options for regulating sunscreens in Aotearoa are currently being considered. These include:

- the Sunscreen (Product Safety Standard) Bill, a private member's bill for mandatory regulation of sunscreen under the Fair Trading Act 1986, which is currently at Select Committee.³⁸⁰
- the draft Therapeutic Products Bill, which will replace the Medicines Act 1981 and will enable sunscreens to be declared a therapeutic product and be regulated as such. Consultation was completed in 2019 but the Bill has not yet entered the parliamentary process as at January 2022.³⁸¹

In addition to the options outlined above, there is room to strengthen existing or previous initiatives. For example, little investment in SunSmart national campaigns has occurred in the last decade.³⁸⁴ Sunbed use for those aged under 18 years has been banned since 2017, but beyond this only voluntary guidelines are available for sunbed operators in most of Aotearoa and compliance with them is demonstrably poor.³⁸⁵ Additionally, while we have good data on melanoma, it is challenging to get equivalent data on keratinocytic skin cancers, which are numerous and mostly managed in primary care. This information gap limits our ability to target resources and evaluate the impact of prevention initiatives.

In general, efforts to reduce exposure to UV radiation in Aotearoa have largely focused on education and encouraging individuals to adopt appropriate sun protection behaviours. Although some comprehensive approaches have been used in some settings (including educational settings and workplaces), initiatives are fragmented across agencies and poorly funded.³⁸⁶ A comprehensive, multisectoral skin cancer prevention programme that is adequately resourced would provide a strategic and coordinated response to skin cancer prevention across the life course. The Australian SunSmart programme is a good example of such an approach, with proven results.³⁸⁴



TE ĀRAI I NGĀ MATE PUKUPUKU MŌ NGĀ MATE MAU TONU PREVENTING CANCERS RELATED TO CHRONIC INFECTIONS

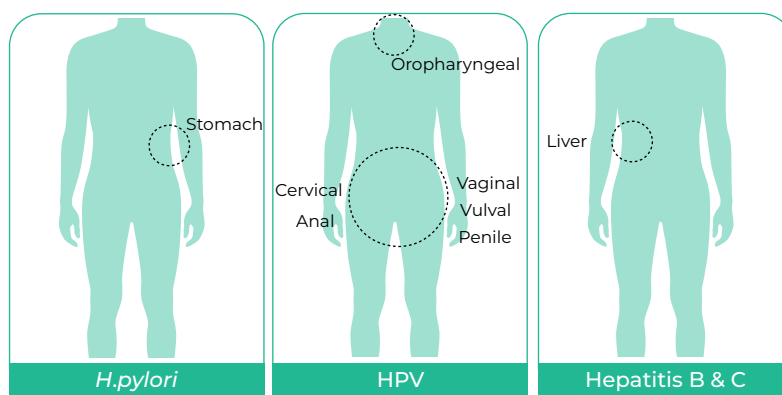
What is the connection between chronic infections and cancer?

Globally, it is estimated that infections cause at least 12 percent of all cancers.³⁸⁵ Four types of infections in particular – *Helicobacter pylori* (*H. pylori*), human papillomavirus (HPV), and hepatitis B and hepatitis C viruses – account for 90 percent of all infection-related cancers.³⁸⁶

Most people who get these infections do not develop cancer. However, cancer can develop if the infection remains in the body for a long period of time (known as a chronic infection) and is not cleared by the immune system or if other risk factors, such as alcohol and smoking, are present.

Infection with human immunodeficiency virus (HIV) also increases the risk of several cancers (including Kaposi sarcoma, certain lymphomas, cervical cancer, lung cancer, liver cancer and non-melanoma skin cancer). Cancers associated with HIV are also linked to co-infection with HPV, hepatitis B and hepatitis C.³⁸⁷

Figure 31: Cancers related to *H.pylori*, HPV, Hepatitis B and Hepatitis C³⁸⁶



Helicobacter pylori (*H. pylori*) infection

Helicobacter pylori (*H. pylori*) is a bacterium that infects the stomach lining. It causes over 90 percent of cancers of the lower part of the stomach.³⁸⁶ Without treatment, chronic infection with *H. pylori* may develop. Most people will not develop cancer with a chronic infection alone but

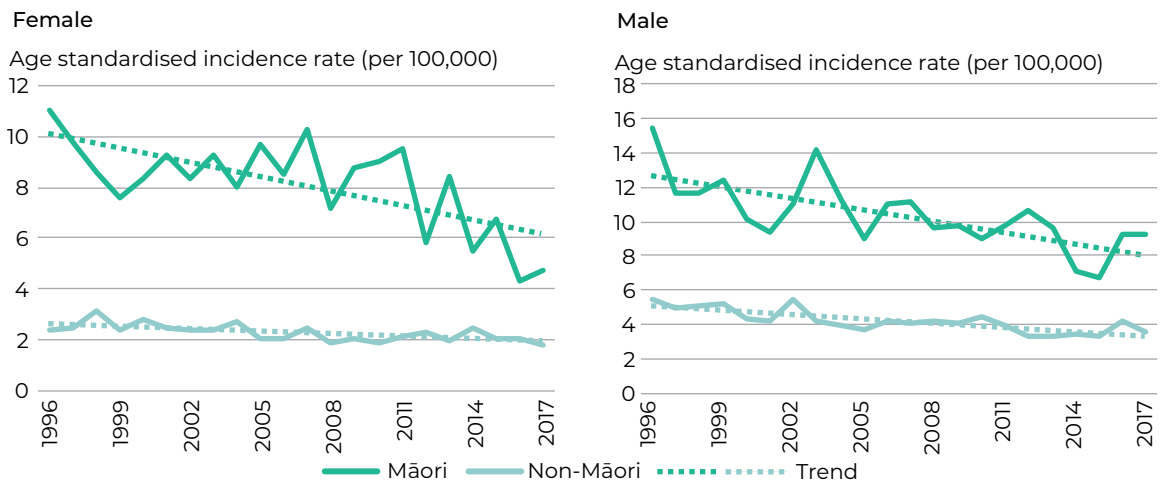


research suggests that if an infected person also has other risk factors, such as tobacco smoking, they are at greater risk for stomach cancer.³⁸⁸ An estimated 1–2 percent of people infected with *H. pylori* will develop stomach cancer in their lifetime.³⁸⁹

In Aotearoa, the burden of stomach cancer has halved in the last 20 years (Figure 32). In 2018, 408 New Zealanders were diagnosed with stomach cancer, including 82 Māori.² Stomach cancer is associated with poor survival, with only around 29 percent of people surviving for five years after their diagnosis.³⁸ In 2017, 288 New Zealanders died from stomach cancer, including 47 Māori.

Māori, Pacific peoples and those living in the most socioeconomically deprived areas continue to have much higher rates of stomach cancer.^{4,388,390,391} Māori diagnosed with stomach cancer are 22 percent more likely to die than non-Māori with stomach cancer.³

Figure 32: Incidence of stomach cancer for Māori and non-Māori females and males in Aotearoa, 1996–2017*



A large proportion of stomach cancer is caused by *Helicobacter pylori* infection, usually contracted during childhood.

408
New Zealanders were diagnosed with stomach cancer in 2018, including 82 Māori.

288
New Zealanders died from stomach cancer in 2017, including 47 Māori.

Poverty and household overcrowding are risk factors for *H. pylori*.

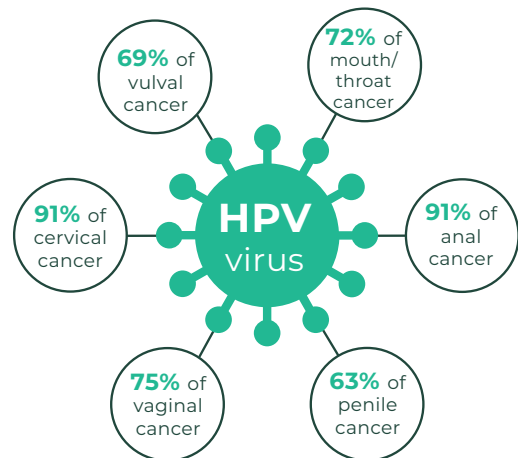
* Age- and sex-standardised to 2001 Māori census population

Human papillomavirus (HPV) infection

Human papillomaviruses (HPV) are a group of very common viruses that infect the reproductive tract of about four out of five people at some time in their lives. HPV is the main cause of cervical cancer,³⁹² which is the third most common cancer in women in Aotearoa. HPV can also cause anal, vaginal, vulval, penile and oropharyngeal cancers (Figure 33).³⁹³ It is important to note that most people with HPV do not develop cancer, however.

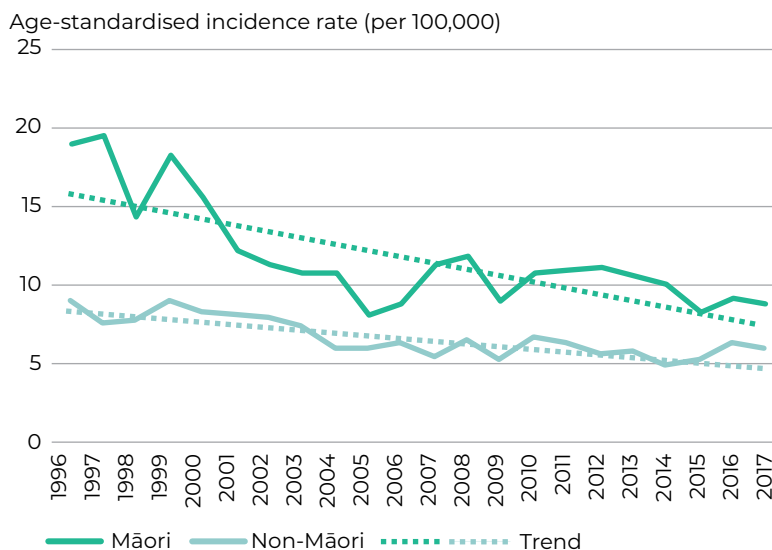
In 2018, 189 New Zealanders were diagnosed with cervical cancer, including 43 Māori women. The 45 deaths due to cervical cancer included 11 Māori women.²

Figure 33: Cancers caused by HPV



Although cervical cancer rates have decreased substantially over the last 20 years, Māori women have higher rates of cervical cancer (almost twice the rate of non-Māori women) (Figure 34) and have higher mortality from cervical cancer than non-Māori, non-Pacific women.³⁸

Figure 34: Incidence of cervical cancer for Māori and non-Māori, 1996–2017*



Human papillomavirus (HPV) is the main cause of cervical cancer.

189
New Zealanders
were diagnosed with
cervical cancer in 2018,
including **43 wāhine Māori**.

45
New Zealanders
died from
cervical cancer in 2017,
including **11 wāhine Māori**.

Immunising against
HPV and regular
cervical screening
are the **best protections**
against **cervical cancer**.

* Age- and sex-standardised to 2001 Māori census population



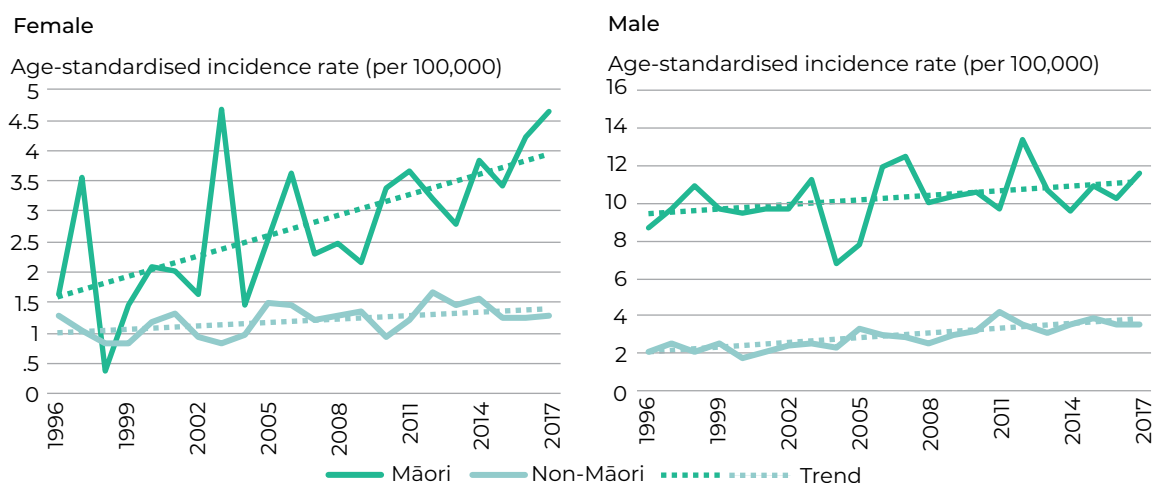
Hepatitis B and hepatitis C virus infections

Hepatitis B and hepatitis C are viruses that infect the liver. These viruses cause 80 percent of liver cancers in Aotearoa and globally.³⁹⁴ Most people with chronic hepatitis B or hepatitis C infections do not develop liver cancer. Approximately 40 percent of people with chronic hepatitis develop permanent liver damage (cirrhosis). Of those with cirrhosis, 1 percent with hepatitis B and 2–4 percent with hepatitis C develop liver cancer each year.^{395,396} The risk of developing liver cancer is much higher in people who also drink high levels of alcohol or smoke regularly.^{397–400} Excess body weight (high BMI) increases the risk of developing liver cancer in people with chronic hepatitis B infection.^{399,401}

In Aotearoa, liver cancer rates have increased steadily over the last 20 years (Figure 35). There were 366 new cases of liver cancer in 2018, including 85 Māori.² Liver cancer is associated with poor survival – only 21 percent of people survive for five years after their diagnosis.³⁸ In 2018, there were 288 deaths from liver cancer, including 58 Māori.²

Māori and Pacific peoples have substantially higher rates of liver cancer than non-Māori, non-Pacific.³⁹⁵ Compared with non-Māori, Māori are 30 percent more likely to die following a diagnosis of liver cancer.³

Figure 35: Incidence of liver cancer for Māori and non-Māori females and males in Aotearoa, 1996–2017*



Hepatitis B and C cause 80% of liver cancers in Aotearoa.

366
New Zealanders were
diagnosed with
liver cancer in 2018,
including **85 Māori**.

288
New Zealanders died from
liver cancer in 2017,
including **58 Māori**.

Liver cancer is the **9th** most
commonly diagnosed
cancer among **Māori**
and the **20th** most
commonly diagnosed
cancer among **non-Māori**.

* Age- and sex-standardised to 2001 Māori census population

Human immunodeficiency virus (HIV) infections

Human immunodeficiency virus (HIV) is a virus that infects and weakens the body's immune system. The most advanced stage of untreated HIV infection is acquired immunodeficiency syndrome (AIDS). AIDS can take many years to develop and is defined by the development of certain cancers, infections or other severe long-term clinical manifestations. HIV causes immunosuppression and inflammation which can contribute to the development of lymphomas and other cancers. It reduces the body's ability to fight infections, including certain viral infections that may lead to cancer, such as HPV and Hepatitis B and Hepatitis C. In addition, the prevalence of other cancer risk factors, such as tobacco, are higher among people infected with HIV.⁴⁰²

Compared with the general population, there is an increased risk of some cancers including anal cancer (19 times higher), Hodgkin's lymphoma (8 times higher), liver cancer (3 times higher), lung cancer (2 times higher) and oropharyngeal cancer (2 times higher). HIV infection increases the risk of Kaposi sarcoma by 500 times, non-Hodgkin lymphoma by 12 times and cervical cancer among women trifold.¹⁴ About 30 percent of head and neck cancers and most oropharyngeal cancers in people with HIV are HPV-related.⁴⁰²

Although there are no specific data on HIV related cancers in Aotearoa, the burden of these cancers will be relatively low because HIV prevalence is low in Aotearoa. HIV is associated with an increased risk of dying from cancer, likely due to factors including immunocompromise or poorer access to appropriate cancer treatment.⁴⁰³

How big is the problem of chronic infections in Aotearoa?

H. pylori infection

H. pylori is spread through direct contact with saliva, vomit or faeces. It may also be spread through contaminated water and food. Most people with *H. pylori* infection get infected in childhood.⁴⁰⁴ Infection is strongly associated with poverty and household overcrowding.⁴⁰⁵

H. pylori infection rates are not regularly monitored in Aotearoa. Estimates of prevalence based on blood testing between 1983 and 1999 showed that Māori (18–57 percent) and Pacific peoples (39–83 percent) had more than double the infection rates of New Zealand Europeans (7–35 percent).³⁹⁰ This is consistent with higher rates of poverty and household overcrowding for Māori and Pacific families.^{406–408}

HPV infection

HPV is spread through skin-to-skin contact and through sexual activity. Nearly 80 percent of people will be exposed to HPV in their lifetime and around two-thirds of people will be infected with HPV within three years of becoming sexually active.³⁹³ Most people with HPV do not develop cancer, however. This is because not all types of HPV cause cancer, and most people (98 percent) clear the virus completely and do not develop chronic infections that can lead to cancer.³⁹³



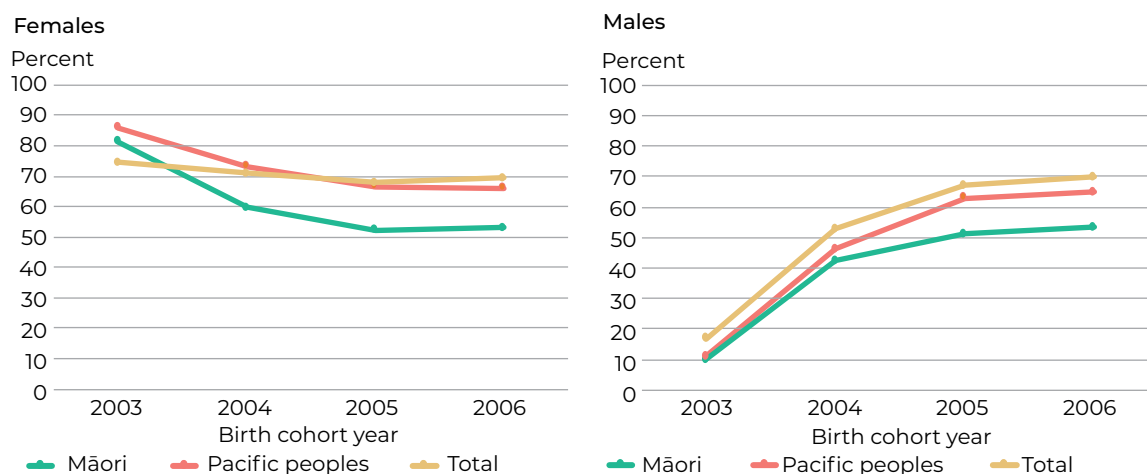
As HPV infection rates are not regularly monitored, current prevalence is unknown. Testing for HPV in abnormal cervical smears between 2009 and 2011 found that 85 percent of smears with



evidence of precancerous or invasive lesions were positive for HPV infection.³⁹³ In Aotearoa, HPV immunisation has been available for girls since 2008 and for boys since 2017. Currently, recommended levels of vaccine coverage (75 percent) have not been achieved for any ethnic group. Sixty-nine percent of girls and 70 percent of boys born in 2006 have completed their course of HPV vaccines (Figure 36).

Māori have the lowest coverage (53 percent of both females and males for the 2006 birth cohort), compared with Pacific and total population coverage of around 65–70 percent for females and males (Figure 36).

Figure 36: HPV coverage of girls and boys by 2003–2006 birth cohorts and ethnicity, as at July 2020³⁸

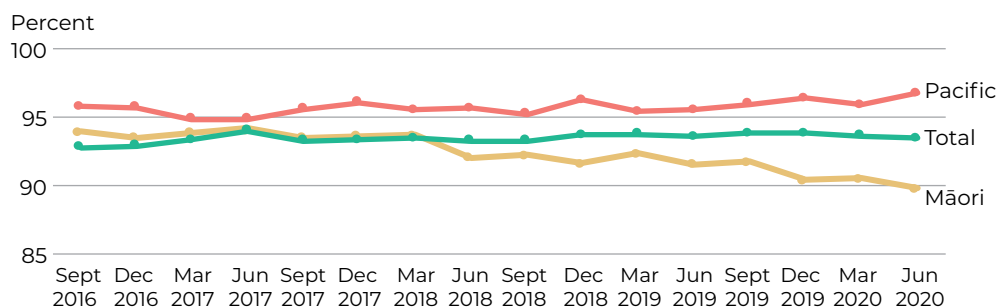


Hepatitis B and C infections

Both hepatitis B and C can be spread through exposure to infected blood and body fluids. Hepatitis B is transmitted primarily from an infected mother to baby during delivery, through sexual contact with an infected person, and through sharing contaminated needles, syringes and other drug-injecting equipment. Hepatitis C is transmitted primarily through sharing contaminated drug-injecting equipment.⁴⁰⁹ Intravenous drug use is a major risk factor for developing hepatitis C in Aotearoa.⁴¹⁰ Not everyone who is infected with hepatitis B or hepatitis C will develop a chronic infection. For hepatitis B, the younger you are when you are infected, the higher the risk is that it will become chronic. For example, more than 30 percent of babies and young children develop chronic hepatitis B but only 5 percent of adults do.⁴⁰⁹ There is an effective vaccine for hepatitis B (providing lifelong immunity in 95 percent of people), but no vaccine for hepatitis C.⁴⁰⁹

In Aotearoa, hepatitis B vaccination coverage is highest for Pacific peoples at 97 percent, compared with 93 percent for the total population and 90 percent for Māori. Coverage has been declining steadily for Māori since 2018 (Figure 37).

Figure 37: Hepatitis B vaccination coverage at two years of age, by ethnicity, September 2016 – June 2020³⁸



Acute hepatitis B and C are notifiable; however, there is no active population surveillance for chronic hepatitis B and hepatitis C infections. An estimated 100,000 people in Aotearoa are living with chronic hepatitis B and 45,000 with chronic hepatitis C.⁴¹¹ As many infections are asymptomatic, it is estimated that at least 40 percent of people with chronic hepatitis B or C do not know they are infected. This equates to approximately 40,000 people with chronic hepatitis B and 18,000 people with chronic hepatitis C.³⁹⁴ In 2015, the WHO estimated the prevalence of chronic hepatitis B infection in Aotearoa was 4 percent.⁴¹² This is broadly consistent with estimates from a North Island screening programme between 1999 and 2002, which found an overall prevalence of chronic hepatitis B of 5.7 percent.⁴¹³

Māori, Pacific peoples and Asian populations experience higher rates of chronic hepatitis B infection than European New Zealanders.⁴¹³ The ethnic distribution of chronic hepatitis C is unknown; however, emerging evidence suggests that prevalence is likely to be higher in Māori compared with other ethnicities.⁴¹⁴ Chronic infection is likely to be rare in New Zealanders aged under 30 years.⁴¹⁵

HIV infection

HIV is spread through exposure to infected blood and body fluids. It is transmitted through sexual activity, sharing contaminated injecting equipment, through transfusion of infected blood or blood components and the transplantation of infected tissue or organs. In Aotearoa transmission is largely concentrated among men who have sex with men (MSM) and individuals infected heterosexually from overseas.⁴¹⁶ It was estimated that in 2011, 20 percent of people with HIV in Aotearoa may be unaware of their status.⁴¹⁷

In Aotearoa, AIDS has been a notifiable condition since 1983, while HIV became notifiable in 2017. The burden of HIV remains relatively low in Aotearoa. The number of people diagnosed with HIV in Aotearoa has been steadily decreasing since 2016, especially among MSM. In 2020, 162 people were notified with HIV. MSM continue to be disproportionately affected by HIV and were over 79 percent of all new cases acquired locally in 2020.⁴¹⁸

Although there is no cure for HIV, current antiretroviral therapy (ART) treatment regimens are able to effectively suppress viral replication and limit transmission, especially if treatment is started as soon as possible after diagnosis.⁴¹⁹ In Aotearoa, treatment is subsidised for anyone diagnosed with HIV and in 2020, over 2800 people were receiving treatment for HIV.⁴¹⁸



How can we prevent cancers related to chronic infections?

Reducing the burden of cancers related to chronic infections requires both primary prevention and secondary prevention strategies. The primary prevention actions are aimed at preventing an infection before it ever occurs, whereas secondary prevention involves intervening early to manage the chronic infection with the aim of preventing progression to cancer.

The following evidence-based recommendations are considered most likely to reduce exposure to chronic infections and ultimately reduce cancer risk. They are in line with recommendations from the World Health Organization and major national and international experts and researchers. The interventions addressing hepatitis B and C broadly align with the recommendations set out in the WHO's *Global Health Sector Strategy on Viral Hepatitis 2016–21*⁴²⁰ adopted by Aotearoa, as well as with the recent *National Hepatitis C Action Plan for Aotearoa New Zealand*, which has the overarching goal of eliminating hepatitis C as a major public health threat by 2030.⁴¹⁴ Although screening programmes are beyond the scope of this report, the change to HPV primary screening (with the option of self-testing) within the national cervical screening programme will be a significant step, alongside HPV immunisation, towards eliminating cervical cancer.^{421,422}

Primary prevention recommendations

- ⇒ Prevent exposure to conditions that increase the risk of acquiring and transmitting infections (*H. pylori*).
 - Reduce child poverty.
 - Reduce children's exposure to household crowding.
- ⇒ Reduce risk of transmission of infection through contaminated blood and body fluids (HPV, hepatitis B and C, HIV).
 - Promote safe sex practices such as consistent condom use.
 - Prevent transmission through transfusion of contaminated blood products.
 - Ensure appropriate infection control practices for blood-prone procedures.
 - Ensure access to safe injecting for people who inject drugs.
- ⇒ Ensure equitable access to immunisation against HPV and hepatitis B.
 - Ensure equitable HPV immunisation coverage for all population groups.
 - Ensure equitable hepatitis B immunisation coverage for all population groups.
- ⇒ Ensure equitable access to pre-exposure and post-exposure prophylaxis for HIV
 - Ensure equitable access to pre-exposure and post-exposure prophylaxis for HIV.

Secondary prevention recommendations

- ⇒ Improve identification of individuals with cancer causing chronic infections to facilitate access to treatment and ongoing medical care.
- Screen all pregnant women for chronic hepatitis B infection and HIV, and provide appropriate treatment to mother and baby.
 - Improve how individuals with chronic hepatitis B infection can be identified, treated, monitored and followed up.
 - Improve how individuals with chronic hepatitis C infection can be identified, treated, monitored and followed up.
 - Improve how individuals with *H. pylori* infection can be identified and treated.
 - Improve how individuals with HIV can be identified, treated, monitored and followed up.

Focus area: Prevent exposure to conditions that increase the risk of acquiring and transmitting infections (primary prevention – *H. pylori*)

What is the impact of poverty and household crowding on acquiring and transmitting infections?

Poverty and household crowding are strongly linked to a higher risk of many infectious diseases, particularly those spread through close person-to-person contact.^{405,423-425} In Aotearoa, an estimated 10 percent of hospital admissions each year are due to household crowding.⁴⁰⁵ Children are the most vulnerable to infection with *H. pylori* and are also more likely to live in poverty and overcrowded housing than adults.

In 2020, of the 210,500 children living in poverty,⁴²⁶ 21 percent were Māori and Pacific compared with 14.8 percent who were New Zealand European.⁴⁰⁷ In 2018, 40 percent of Pacific families and 20 percent of Māori families were living in overcrowded housing.⁴⁰⁸ Infection rates also involve substantial inequities, with Māori and Pacific children significantly more likely to be infected with *H. pylori*.⁴²⁷

Action: Reduce child poverty

What is the evidence?

Poverty (socioeconomic deprivation) is strongly associated with many infectious diseases in children and young people, including *H. pylori* infection in those aged under 20 years.⁴²⁸

What is Aotearoa doing currently?

The Child Poverty Reduction Act 2018 set targets for reducing child poverty and required annual reporting on progress. From July 2018, targeted support for low- and middle-income families with children (known as the Families Package) has gradually been implemented.

In 2021, the Government's Budget included significant increases to benefits, which are likely to contribute to reduced child poverty rates.



Action: Reduce children's exposure to household crowding

What is the evidence?

Because *H. pylori* is spread primarily through oral-oral or faecal-oral routes, close household contact is a key risk factor for transmission of infection.⁴²⁸

H. pylori infection is clearly associated with household crowding in children and young people aged under 20 years.^{405,428} Interventions that reduce household crowding reduce the risk of gastrointestinal and respiratory infections, including *H. pylori*.⁴²³ Reducing household crowding can reduce hospital admissions for close-contact infectious diseases,⁴⁰⁵ although impacts on *H. pylori* infection rates were not specifically assessed.

What is Aotearoa doing currently?

Aotearoa established the Healthy Homes Initiatives* between 2013 and 2015 to improve children's access to warm, dry, uncrowded homes.⁴²⁹ The initiative is a partnership between many different agencies, including the Ministry of Health, District Health Boards, Housing New Zealand and the Ministry for Social Development. Initially, the programme only provided housing support to children and whānau with (or at risk of developing) acute rheumatic fever.⁴²⁹ In 2016, it was extended to children from low income whānau with any housing related illness.

A recent evaluation of the programme showed it effectively reduced hospital admissions and GP visits for infectious illnesses, although its impact on *H. pylori* acquisition was not assessed.⁴²⁹

* For more information, see the Ministry of Health website at: www.health.govt.nz/our-work/preventative-health-wellness/healthy-homes-initiative

Focus area: Reduce risk of transmission of infection through contaminated blood and body fluids (primary prevention – HPV, hepatitis B and C, HIV)

What is the impact of contaminated blood and body fluids on transmission of infections?

Hepatitis B and C and HIV are transmitted through exposure to contaminated blood and body fluids. HPV is mainly transmitted through sexual contact.

In 2018, almost 20 percent of cases of acute hepatitis B in Aotearoa reported sexual contact with a confirmed case of acute or chronic hepatitis B infection.⁴³⁰

International studies show inadequate infection control practices have resulted in transmission of hepatitis B and hepatitis C from health workers to patients and vice versa in health care settings,⁴³¹ and following tattooing in prison and non-prison settings.⁴³²⁻⁴³⁴

Intravenous (IV) drug use is now the main risk factor for hepatitis C infection in Aotearoa⁴¹⁰ and internationally,⁴³⁵ and remains a key risk for transmission of hepatitis B. Sharing syringes and other drug-injecting equipment increases the risk of contracting hepatitis C in injecting drug users.⁴³⁵

Action: Promote safe sex practices such as consistent condom use (HPV, hepatitis B and C, HIV)

What is the evidence?

Consistent use of condoms reduces the risk of infection with HPV for both men⁴³⁶ and women, and is protective against the development of cervical cancer in women.⁴³⁷

Condom use can also reduce the transmission of hepatitis B.⁴³⁸

For HIV, the correct and consistent use of condoms decreases the risk of infection by about 90 percent.⁴³⁹

What is Aotearoa doing currently?

The Ministry of Health, the New Zealand Sexual Health Society, New Zealand Family Planning and other organisations have produced resources for the public and for health professionals on sexually transmitted infections (STIs), including HPV, hepatitis B, and HIV, and preventing STIs through safe sex and condom use.⁴⁰⁶ Sexuality education, including teaching about STIs and safe sex, is compulsory in schools in Aotearoa through to the end of year 10.

Action: Prevent transmission through transfusion of contaminated blood products (hepatitis B and C, HIV)

What is the evidence?

Transfusion-associated hepatitis and HIV are now rare in most developed countries.^{440,441} Before screening of donors and blood products was introduced, the prevalence of transfusion-associated hepatitis was as high as 30 percent in the USA.⁴⁴⁰

However, transfusion associated hepatitis and HIV remain high in countries that have inadequate screening of blood products and high prevalence of infection in blood donors.^{441,442} In Sub-Saharan Africa, unsafe blood transfusion accounted for 5-10 percent of HIV infections.⁴⁴³

Despite screening, a small risk of transmitting infection remains if the donor has an occult hepatitis B infection with DNA levels that are undetectable by assays.⁴⁴¹

What is Aotearoa doing currently?

The New Zealand Blood Service reduces the risk of transfusion-related infections by excluding donors at high risk of hepatitis B or C infections and HIV, by having only volunteer donors who do not receive payment for donation, and by screening every unit of blood for these viruses and discarding any product that tests positive.⁴⁴⁴

No cases of transfusion-associated hepatitis B or C infection have been reported in Aotearoa since the introduction of blood screening.⁴⁴⁵ However, modelling suggests that one case of infection could be expected every two to three years in Aotearoa.⁴⁴⁶

Since 1996, no cases of transfusion-associated HIV infection have been detected in Aotearoa.⁴¹⁸



Action: Ensure appropriate infection control practices for blood-prone procedures (hepatitis B and C, HIV)

What is the evidence?

Strict infection prevention and control practices (including cleaning of premises and appropriate sterilisation of equipment) are recommended for all procedures that could result in exposure to blood. This includes procedures that pierce the skin (eg, blood tests, injections, tattoos, body piercing) or damage the skin (eg, skin exfoliation and nail care).⁴⁴⁷

What is Aotearoa doing currently?

Under the Health and Safety at Work Act 2015, employers are required to take all practicable steps to mitigate risk and protect workers from exposure to infectious diseases such as hepatitis B and C and HIV.⁴⁴⁸

Health care settings

Health care workers are legally obliged to comply with established infection control practices to minimise the risk of transmission of hepatitis B or C and HIV.⁴⁴⁹

Other settings

Aotearoa has no legislation requiring beauty therapists or tattooists to be licensed or to comply with infection control practices.⁴⁵⁰

Some councils have introduced (or are planning to introduce) bylaws to protect people from contracting infectious diseases through services that pierce or break the skin.⁴⁵⁰ These bylaws outline which business/services must be licensed and what minimum health and hygiene standards they must meet.

Some professional bodies, such as the New Association of Registered Beauty Professionals, have published health and hygiene guidelines that outline required infection control practices to reduce the risk of exposure to blood-borne viruses such as hepatitis B and hepatitis C.⁴⁵¹

Action: Ensure access to safe injecting for people who inject drugs (hepatitis B and C, HIV)

What is the evidence?

An evaluation of the impact of Australian needle and syringe programmes between 2000 and 2009 estimated that the programmes had prevented more than 32,000 new hepatitis C infections and almost 100,000 new HIV cases. It further assessed the programmes as being highly cost-effective and cost-saving to the health sector.⁴⁵²

What is Aotearoa doing currently?

Needle exchange programmes were introduced in Aotearoa in the late 1980s. The programmes provide clean needles and injecting equipment to IV drug users to reduce the risk of blood-borne infections.⁴⁵³

A review of the programme four to six years after its implementation showed a reduction in needle sharing behaviours and a lower proportion of hepatitis C infections in those who started using IV drugs since the programme was introduced.⁴⁵⁴

Aotearoa has sustained low levels of HIV transmission among people who inject drugs, with only 2.9 percent of HIV cases in this group between 1996 – 2018.⁴⁵⁵



Focus area: Ensure equitable access to immunisation against HPV and hepatitis B (primary prevention)

What is the impact of immunisation for HPV and hepatitis B on cancers related to chronic infections?

Immunisation is the most effective population-based strategy for preventing cancers related to HPV and chronic hepatitis B infections. Universal infant vaccination is considered the most effective way of decreasing chronic hepatitis B infection rates.⁴⁵⁶

■ Māori have lower coverage rates for both HPV and hepatitis B immunisation.³⁸

Action: Ensure equitable HPV immunisation coverage for all population groups

What is the evidence?

Clinical studies have demonstrated effective antibody responses in 99 percent of those who received the HPV vaccine⁴⁰⁹ and 98 percent protection against development of HPV-related precancerous lesions.⁴⁰⁹

HPV vaccination reduces the incidence of invasive cervical cancer in women aged 30 years or under.⁴⁵⁷ Cancer risk fell by 88 percent for women vaccinated before the age of 17 and by 53 percent for women vaccinated between the ages of 17 and 30 years in a Swedish study.⁴⁵⁷

HPV vaccination has effectively reduced diagnoses of HPV infections and genital warts in vaccinated populations.⁴⁵⁸ Additionally, there is evidence of herd immunity in unvaccinated men and women.⁴⁵⁸

What is Aotearoa doing currently?

In Aotearoa, HPV immunisation has been available for girls since 2008 and for boys since 2017. The vaccine protects against the types of HPV responsible for around 90 percent of cervical and other HPV-related cancers.⁴⁰⁹ HPV immunisation is free for all young people aged 9 to 26 years, including non-residents under 18 years old. A school-based immunisation programme for students in Year 8 is available in most areas of Aotearoa.

Since 2008, rates of HPV-related genital wart infection have fallen substantially, suggesting it is likely that an overall reduction in HPV prevalence in Aotearoa has occurred.⁴⁵⁹ Although cervical cancer rates have reduced substantially over the last 20 years, it is too early to attribute this to the immunisation programme. This is because it takes 10–15 years for such cancers to develop.

Currently, recommended levels of vaccine coverage (75 percent) have not been achieved for any ethnic group. Immunisation rates are significantly lower for Māori girls and boys compared with other ethnic groups (Figure 36).

Action: Ensure equitable hepatitis B immunisation coverage for all population groups

What is the evidence?

Hepatitis B vaccines are highly effective and provide lifelong immunity for 85–95 percent of people who receive the vaccine.⁴⁰⁹

Children and adolescents who are fully immunised against hepatitis B have a significantly lower risk of liver cancer than their unimmunised cohorts.⁴⁶⁰

Seroprevalence surveys in the Western Pacific and Taiwan show a substantial reduction in the prevalence of chronic hepatitis B infection in children following the introduction of universal hepatitis B vaccination programmes.^{460,461} However, more follow-up is needed to find out whether this initial lower prevalence continues for these children into late adulthood.

What is Aotearoa doing currently?

In 1988, Aotearoa introduced hepatitis B immunisation for infants. Presently, infants receive their hepatitis B vaccination (DTaP-IPV-HepB/Hib) at six weeks, three months and five months of age as part of the national immunisation schedule. Hepatitis B vaccination is also subsidised for unimmunised under 18-year-olds, household or sexual contacts of people with hepatitis B infection, people with HIV or hepatitis C infection, and those who have had a needlestick injury.³⁹⁵

Since 1988, the number of notifications of new hepatitis B infections in Aotearoa has fallen dramatically.³⁸ However, as many infections do not cause symptoms, this may underestimate the true burden of disease.

As Aotearoa does not routinely conduct seroprevalence surveys, the impact of immunisation on the prevalence of chronic infections is unknown. To date, the number of liver cancer cases has not decreased. However, because it takes many decades for cancer to develop, it is predicted that it will be about 2030 before Aotearoa has a significant reduction in the number of liver cancer cases.⁴⁰⁹

Currently, immunisation rates are high, with more than 90 percent of two-year olds fully immunised between 2016 and 2018. Immunisation rates for Māori infants have fallen from 94 percent in 2018 to 90 percent in 2020 (Figure 37).



Focus area: Ensure equitable access to pre-exposure and post-exposure prophylaxis for HIV

What is the impact of pre-exposure and post-exposure prophylaxis treatments on acquiring HIV infections?

Pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) are medications taken by people who do not have HIV to prevent infection. PrEP can reduce the risk of acquiring HIV during unprotected sexual activity by up to 99 percent if taken daily as prescribed.⁴⁶² There is some evidence that PEP may be able to prevent infection in people who may have been exposed to HIV if taken within 72 hours (ideally as soon as possible).⁴⁶³

Action: Ensure equitable access to pre-exposure and post-exposure prophylaxis for HIV

What is the evidence?

PrEP is effective at reducing HIV transmission. There was a 32 percent decline in newly acquired HIV diagnoses following implementation of a large PrEP project combined with increased HIV testing and prompt treatment of those infected in London.⁴⁶⁴ Overseas, non-European MSM are less likely to access and adhere to PrEP.^{465,466}

The effectiveness of PEP depends on factors such as the time between exposure and treatment, the type of exposure, and the HIV viral load of the sexual contact.⁴⁶³

What is Aotearoa doing currently?

PrEP and PEP medicines are currently available in Aotearoa.

Aotearoa became one of the first countries to publicly fund PrEP in March 2018 for high-risk individuals.⁴⁶⁶ People must test negative for HIV prior to starting PrEP and every 3 months while taking it. It is estimated that over 5,800 people in Aotearoa will be eligible for PrEP, including 18 percent of all sexually active MSM.⁴⁶⁷

PEP is usually sought through the emergency department or another urgent care service. There is a cost for PEP (approximately \$80-100) for those that do not meet certain criteria.⁴⁶⁸



Focus area: Improve identification of individuals with cancer causing chronic infections to facilitate access to treatment and ongoing medical care (secondary prevention)

What is the impact of early identification and management of chronic infections on developing cancer?

Many people with chronic *H. pylori*, HPV, hepatitis B, hepatitis C infections and HIV do not have symptoms so they are not aware that they are infected and have a higher risk of developing cancer. As it can take many decades for cancer to develop, starting effective treatment for a chronic infection early reduces the risk of developing cancer.

Stigma and discrimination associated with infections such as HIV and hepatitis C can also prevent or delay people from accessing treatment and ongoing medical care.

Action: Screen all pregnant women for chronic hepatitis B infection and HIV and provide appropriate treatment to mother and baby

What is the evidence?

Hepatitis B is easily transmitted from mother to baby at birth. An estimated 90 percent of babies born to mothers with a high level of hepatitis B virus in their blood will become infected.⁴⁶⁹ Infection in infancy and early childhood is associated with the highest risk of developing chronic hepatitis B infection.⁴⁷⁰

Conducting antenatal screening for hepatitis B infection and administering hepatitis B vaccine and immunoglobulin at birth effectively reduces the risk of babies developing chronic hepatitis B infection.⁴⁶⁹⁻⁴⁷¹

Antiviral treatment in pregnancy provides additional protection for pregnant women with high blood concentrations of virus.^{469,470,472}

HIV can be passed from mother to baby during pregnancy, the birth or through breastfeeding. The transmission rate from mother to baby is up to 25 percent for HIV infection and declines to less than 2 percent with antiretroviral treatment.⁴⁷³

What is Aotearoa doing currently?

All pregnant women in Aotearoa are offered antenatal testing for hepatitis B. Aotearoa guidelines recommend giving antiviral therapy to pregnant women with hepatitis B infection and giving their babies hepatitis B immunoglobulins and a vaccine dose within 24 hours of birth.³⁹⁵

HIV testing is recommended for all pregnant women.⁴⁷⁴ Women with HIV are offered treatment and it is recommended by the Ministry of Health that women do not breastfeed.⁴⁷⁵ Since 2007, there has been no children with perinatally-acquired HIV born in Aotearoa.⁴¹⁸



Action: Improve how individuals with chronic hepatitis B infection can be identified, treated, monitored and followed up

What is the evidence?

Most people with chronic hepatitis B are asymptomatic.³⁹⁵ This puts them at risk of transmitting the infection to others and developing complications such as liver cancer.^{469,476-478}

A 2017 USA modelling study showed that identifying and appropriately treating 90 percent of chronic hepatitis B cases would prevent one-third of new cases of liver cancer by 2030.⁴⁶⁹

There is limited evidence for population-based screening for chronic hepatitis B. Opportunistic screening is effective at identifying cases of infection that had not previously been diagnosed and is likely to be cost-effective in high-prevalence countries.⁴⁷⁸ However, no studies have evaluated differences in liver cancer outcomes between screened and unscreened populations.⁴⁷⁸

Antiviral treatment of hepatitis B reduces viral load, improves liver function and decreases the risk of developing complications such as liver cancer.³⁹⁵ No available treatments cure chronic hepatitis B and many patients need lifelong treatment.³⁹⁵

What is Aotearoa doing currently?

Opportunistic screening for chronic hepatitis B is recommended for people at higher risk of infection. This includes people born before 1988 (when the immunisation programme started), migrants from countries with a high prevalence of hepatitis B, people who have been exposed to blood (eg, through sports or assaults) and anyone with a history of tattooing or body piercing in unlicensed premises (eg, prison) or overseas.³⁹⁵ All pregnant women and all people entering prison are offered testing for hepatitis B.

PHARMAC funds antiviral medicines for hepatitis B that effectively reduce viral load in patients with chronic hepatitis B.³⁹⁵

All patients with chronic hepatitis B infection should be referred to the Hepatitis Foundation for support and ongoing monitoring and follow-up. This is a free service.⁴⁷⁹ Currently, only 25 percent of the estimated 100,000 people with chronic hepatitis B are enrolled.⁴⁷⁹

Action: Improve how individuals with chronic hepatitis C infection can be identified, treated, monitored and followed up

What is the evidence?

With early diagnosis of chronic hepatitis C, people can receive effective treatment to cure the infection and prevent progression to liver cancer.^{420,476} Antiviral therapy cures hepatitis C in over 95 percent of people.³⁹⁶ Curing the infection is associated with lower rates of liver fibrosis and reduced risk of developing liver cancer.^{396,469}

Many European countries and more recently the USA have adopted universal testing of adults for hepatitis C.

What is Aotearoa doing currently?

Opportunistic screening for chronic hepatitis C in primary care is recommended for people at high risk of infection including those who have a history of injectable drug use, have migrated from a region with high hepatitis C prevalence, have spent time in prison, have had a blood transfusion before 1992 or have a history of tattooing or body piercing in unlicensed premises (eg, prison) or overseas.⁴¹⁰ As at least 20 percent of people with hepatitis C do not have identifiable risk factors, this approach is likely to miss cases of infection.⁴⁶⁹ While universal testing has been adopted elsewhere, further assessment of cost-effectiveness and feasibility would be needed before introducing it in Aotearoa.⁴¹⁴

Since February 2019, PHARMAC has funded an effective antiviral treatment (Maviret) for hepatitis C without restriction.³⁹⁶



Action: Improve how individuals with *H. pylori* infection can be identified and treated

What is the evidence?

Screening for *H. pylori* and treating the infection with antibiotics reduces the incidence of stomach cancer in the short and long term.⁴⁸⁰⁻⁴⁸²

In 2014, IARC and WHO recommended that countries explore the possibility of introducing population-based *H. pylori* screening and treatment programmes for people without symptoms.^{483,484}

Stomach cancer screening, often including *H. pylori* screening and treatment occurs in several high risk populations, including in Japan and some parts of China.⁴⁸⁵ For example, on Matsu island, Taiwan, mass screening and treatment of *H. pylori* from 2004–2018 resulted in 79 percent eradication of *H. pylori* and a decrease in stomach cancer incidence and mortality.⁴⁸⁶

What is Aotearoa doing currently?

Guidelines for Aotearoa recommend *H. pylori* testing and treatment for people with symptoms of dyspepsia (indigestion, heartburn or reflux) who are at higher risk of infection (such as Māori and Pacific patients).⁴⁰⁴ As most people with *H. pylori* do not have symptoms, the current approach to testing is likely to miss many cases of infection.

Aotearoa modelling studies show that screening for *H. pylori* (for example, taking stool samples or conducting breath tests) in Māori and Pacific peoples who do not have symptoms is likely to be cost-effective in Aotearoa⁴⁸⁷ and could reduce the risk of stomach cancer by one-third.^{388,487} However, more information, including up-to-date estimates of *H. pylori* prevalence rates, is needed before such a programme could be implemented in Aotearoa.³⁸⁸

Action: Improve how individuals with HIV infection can be identified, treated, monitored and followed-up

What is the evidence?

Early detection of HIV and prompt management can result in good outcomes for the individual. Timely access to antiretroviral therapy (ART) and support to remain on treatment can result in suppressed viral load, prevent HIV transmission and result in people with HIV leading long healthy lives.⁴¹⁹

Since 2016, WHO has recommended that all people living with HIV be provided with lifelong ART, regardless of clinical status or CD4 cell count. ART should be offered on the same day as diagnosis to those ready to start treatment.⁴¹⁹

What is Aotearoa doing currently?

In Aotearoa, guidelines recommend that regular HIV testing (at least annually) should be considered for those at risk of HIV exposure, including sexual partners of people known to be HIV positive, MSM, any other person with a history of sexual exposure that could result in HIV transmission, recent migrants from a high-risk country, and people with a history of injecting drug use. Testing is also offered to pregnant women.⁴⁸⁸

The New Zealand AIDS Foundation offers various testing options to increase access including home testing kits (using oral swabs) and rapid finger prick testing at selected centres.⁴⁸⁹

In Aotearoa, several classes of ART are available and treatment is subsidised for anyone diagnosed with HIV. It is estimated that 95 percent of people living with HIV were on ART and 82 percent had a suppressed viral load between 2006 and 2017. However, this does not include those with HIV whose current treatment status is unknown and may be an overestimate.⁴⁹⁰



Although Aotearoa does not yet have an overarching strategy for addressing chronic infections, several positive measures have been introduced to reduce the burden of *H. pylori*, HPV, hepatitis B, hepatitis C and HIV infections, including the recent *National Hepatitis C Action Plan for Aotearoa New Zealand – Māhere Mahi mō te Ate Kakā C 2020–2030* and HPV vaccination and screening.⁴¹⁴ All work will need to be supported by surveillance and equity-focused monitoring of infection rates, as well as the evaluation of existing and future interventions.

Cancers caused by chronic infections bridge the false separation that is sometimes made between communicable diseases and non-communicable diseases. These cancers are characterised by stark inequities and yet have the potential to be reduced or eliminated,^{420,422} as long as the interventions we put in place work disproportionately well for Māori, Pacific and other priority populations. Stigma and discrimination remain significant barriers to achieving progress in certain chronic infections, such as hepatitis B and C and HIV and need to be challenged.

HE KUPU WHAKAKAPI

CONCLUSION

This report brings together a description of key cancer risk factors and the options available to reduce the adverse impacts of those risk factors in Aotearoa. The options described for strengthening cancer prevention are many and, at first glance, varied. There is much that can be done. However, many themes are common across cancer risk factors. In a nutshell, Aotearoa can prevent cancer by:

- reducing the availability and accessibility of harmful products that increase the risk of cancer, such as by reducing the number of outlets selling tobacco or alcohol, or introducing minimum unit prices for them
- increasing the availability and accessibility of commodities that can reduce the risk of cancer, such as by providing adequate housing to reduce household crowding or subsidising fruit and vegetables
- improving physical environments or settings such as by providing enough shade from the sun, improving public transport or restricting smoking in outdoor spaces
- restricting the advertising or marketing of some products such as alcohol and unhealthy food and drinks
- regulating the contents of certain products such as the amount of nicotine in cigarettes, the quality of sunscreens or the amount of salt, sugar and fat in packaged foods
- improving health services for those particularly at risk such as by ensuring access to safe injecting for people who inject drugs, and effectively identifying and treating individuals with chronic infections.

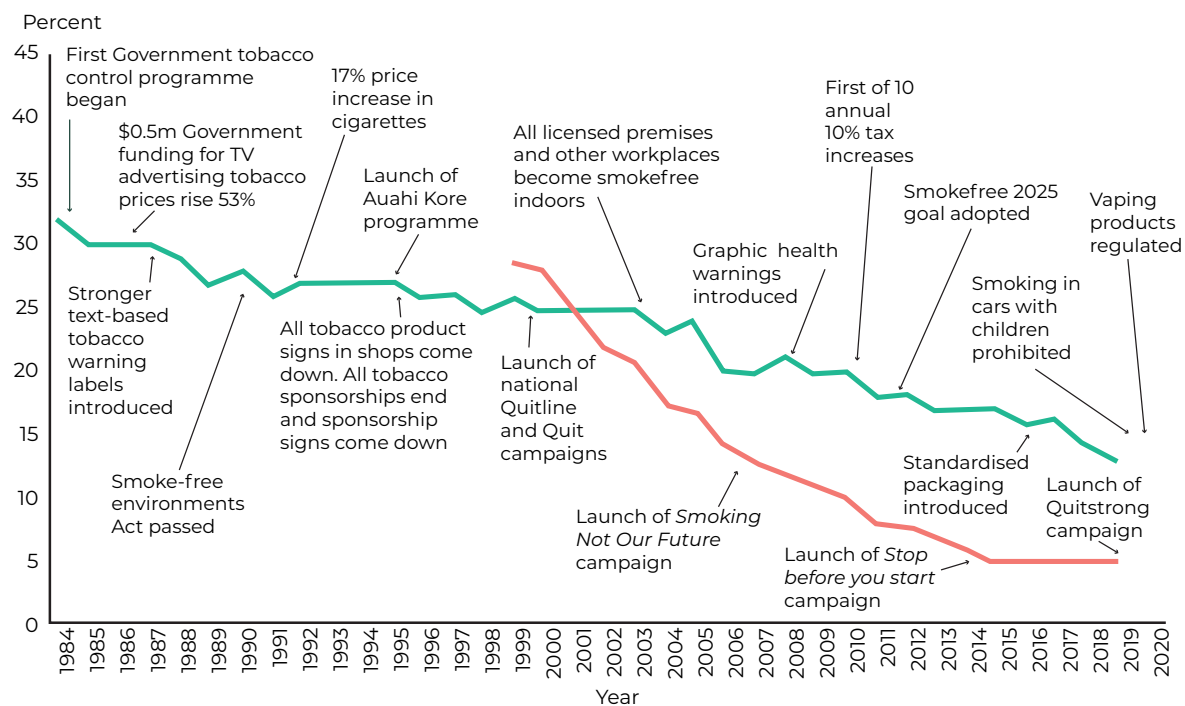
Implementing the options in this report in a successful and sustainable way will depend on a range of enablers, which were beyond the scope of this report to discuss in detail but are nonetheless important. Such enablers include (but are not limited to) strong Māori leadership and governance, good data and monitoring, purposeful research and evaluation, effective cross-sector collaboration (particularly to address issues like housing and child poverty), support for communities to have more control over their environment, sufficient compliance and enforcement activities, and adequate resourcing for all these elements.

Many of the options for cancer prevention involve extending or strengthening existing initiatives, while a few are new. Because almost all options are about improving the environments that people live in, they are mostly within the sphere of influence of central government and local government. Many of the initiatives will be delivered in a range of settings (schools, workplaces, health services and communities) and by a range of skilled providers (Māori and Pacific providers, primary care, non-governmental organisations, public health units and district health boards). These settings and providers will require supportive central and local government policies to amplify and sustain their efforts. It is also important not to underestimate how much public support such policies have. For example, almost 80 percent of adult smokers and recent quitters supported a tobacco-free generation policy⁸⁵ and 80 percent of people in another survey supported increasing restrictions on alcohol advertising.¹⁷⁶

This report focuses on changing environments rather than relying solely on changing individual behaviour—basically, what Aotearoa can do to make healthy choices easy choices. Tobacco control

still has some way to go towards achieving an equitably smokefree future for Aotearoa, but the gains made to date have been driven by a range of environment-focused initiatives such as tobacco excise tax, legislated smokefree areas, prohibiting sales to those aged under 18 years, prohibiting advertising and promotion of tobacco products, and standardised packaging that includes graphic warnings on cigarette packs (Figure 38). The *Smokefree Aotearoa 2025 Action Plan* includes further strong environment-focused initiatives to limit the accessibility and appeal of smoked tobacco products.⁵³ Tobacco control initiatives to date show what is possible in addressing other cancer risk factors. At the same time, existing inequities in smoking rates in Aotearoa underscore the importance of Māori governance and leadership, as well as the necessity of partnership in designing, delivering and monitoring cancer prevention initiatives.

Figure 38: Key tobacco control initiatives, 1984–2020⁴⁹¹



Other analogies are also close at hand. Our response to COVID-19, ahead of full vaccination rollout, relied on a range of population-based, environment-focused interventions such as border controls and the use of escalating alert levels. As a country, we have chosen not to pin our COVID-19 strategy exclusively on initiatives that require individual effort such as handwashing and mask-wearing, recognising that such actions are likely to be more successful if the right environmental controls are in place. This report advocates for a similar approach to cancer prevention.

So what is needed if we are to maximise cancer prevention in Aotearoa? We must be willing to play the long game—it takes time for the preventative actions we take today to result in fewer cancers. But the gains are big, the potential to reduce inequities is significant, and the end-results are sustainable. Preventing cancer requires a comprehensive mix of strategies at every level. We must be prepared to use tactics that we know work and to implement them equitably. This will require strong leadership especially when it comes to regulating powerful industries like tobacco, alcohol and junk food.

To successfully prevent cancer – that is, to achieve fewer cancers and reduced inequities – we must be bold and persistent. Aotearoa can be a country where whānau live long lives free of preventable cancers.



NGĀ TOHUTORO

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