Strategic and operational plan for the prevention of long term conditions

A Regional Public Health Plan for the Greater Wellington Region

2017

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June 2017

Status of document

This is the first edition of the Strategic and Operational Plan for the Prevention of Long Term Conditions in greater Wellington. It remains a work in progress. It will be used to inform the annual planning cycle 2018/19 for Regional Public Health Preventive Health and Chronic Diseases Group and then more widely other groups in Regional Public Health.

Work on Long Term Conditions Prevention is a rapidly developing field both internationally and nationally. This document will therefore be reviewed annually to check that the Purpose, Background, Philosophy, work used to develop the Framework, Proposed Framework and Guiding Principles remain current. The content of the Key Intervention Domains will be updated annually to keep up to date with current knowledge. There is likely to be a new Edition each year for the following year's planning cycle.

"May all be happy
May all be without disease
May all creatures have wellbeing
And none be in misery of any kind"

Prayer for humanity from an ancient (Sanskrit) Upanishad

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Abbreviations and Glossary

CCDHB	Capital & Coast District Health Board
DALY	Disability adjusted life year
DHB	District Health Board
HEDC	Healthy Environments and Disease Control
HVDHB	Hutt Valley District Health Board
KID	Key Intervention Domain (numbers 1 – 8)
LTC	Long term condition
MoH	Ministry of Health
NCEA 2 (or Level 2)	National Certificate in Educational Achievement Level 2
NCD	Non-communicable disease
PHCD	Preventive Health and Chronic Disease Group
RPH	Regional Public Health
RPH Region	Refers to the Capital & Coast, Hutt Valley and Wairarapa DHB geographical areas
WHO	World Health Organization
YLD	Years lived with disability
YLL	Years of life lost

Executive summary

Long term conditions (LTCs) are common, and getting more common. Long term conditions are the leading cause of health loss in New Zealand, are associated with high healthcare costs and are contributing to ethnic inequalities in health. As the population grows and ages, the increasing burden of long term conditions on society and the health care system will become unsustainable.

Potentially one third of health loss can be prevented by minimising exposure to four shared risk factors: tobacco, diet, alcohol and physical inactivity. However, we know that these risk factors do not exist in isolation, and instead they are strongly influenced by the environment and societal conditions such as income, housing, poverty and education. In order to prevent long term conditions the wider determinants of health need to be considered and addressed.

The proposed Framework for Prevention of Long Term Conditions draws on international, national and regional tools, plans and frameworks, including: the WHO Global Action Plan for the Prevention and Control of Non-Communicable Disease; Ottawa Charter for Health Promotion; Dahlgren and Whitehead model for Social Determinants of Health; Canadian tool for Chronic Disease Prevention; the refreshed New Zealand Health Strategy; the Ministry of Health Outcomes framework for LTCs and Māori models of health.

The proposed Framework outlines: why, who, what, where and how for the prevention of long term conditions. The Framework also sets out eight proposed key intervention domains:

1. Social determinants of health
2. Psychological status and behaviours
3. Diet
4. Physical activity
5. Alcohol
6. Tobacco
7. Quality data and surveillance
8. Natural and built environment

These intervention domains are supported by key guiding principles:

- Equity
- Life-course
- Evidence-based
- Multisectortal/collaborative practice
- Population based

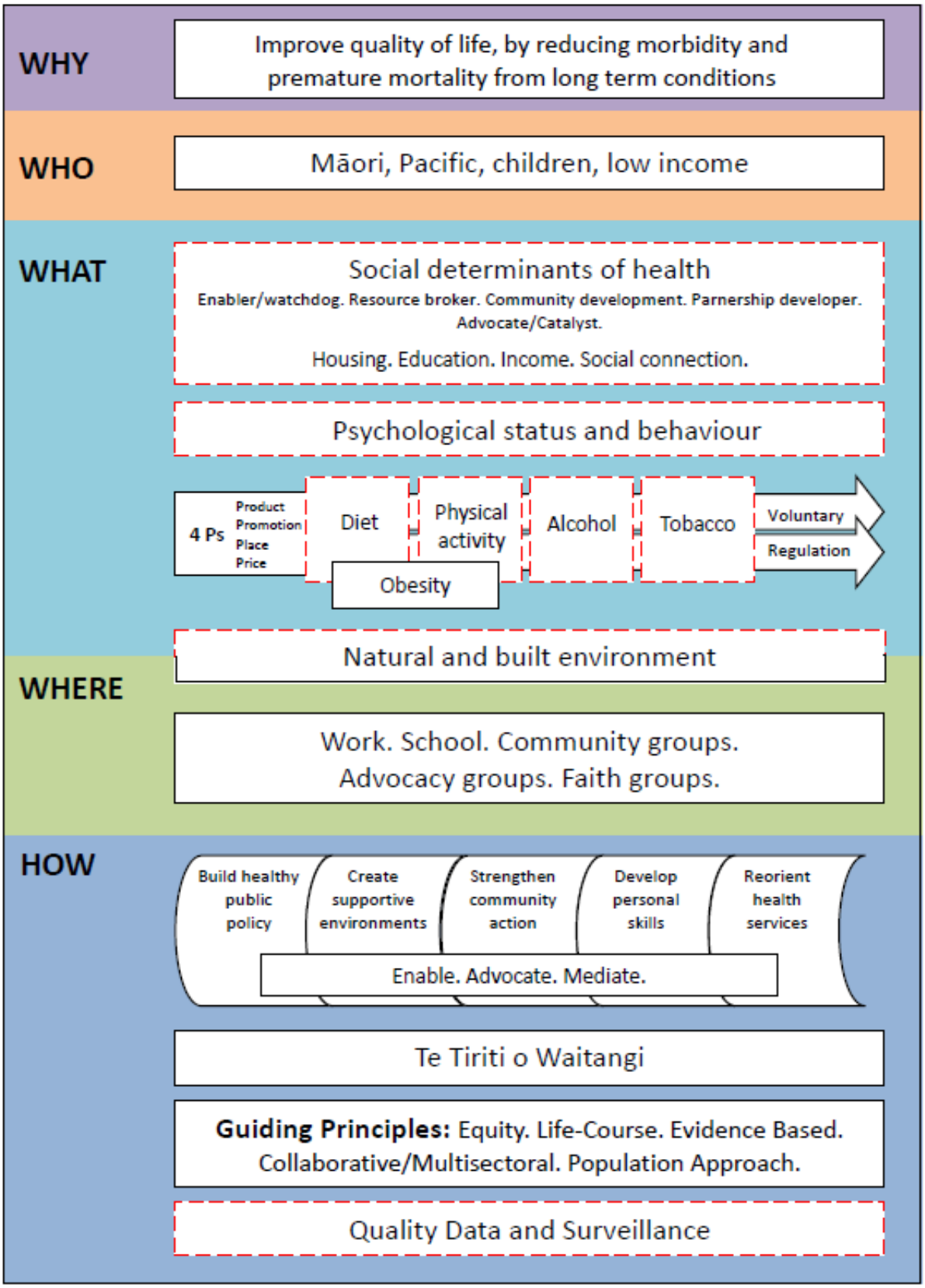


Figure 1: Proposed Framework for the Prevention of Long Term Conditions.

Section A

Background and Philosophy

Purpose

The World Health Organisation has called the world-wide increase in long term conditions a 'global epidemic'[6]. This plan was produced in light of the growing burden of disease from long term conditions in the greater Wellington region and is a response to international and national call to action.

This is Regional Public Health's first Strategic and Operational Plan for the Prevention of Long Term Conditions. The plan has three main purposes:

1) Act as a resource for RPH staff by collating international, national and local information on long term conditions and their risk factors.
2) Establish a strategic framework for the prevention of long term conditions, which outlines the direction of travel for RPH to prevent and minimise the impact of long term conditions in the community. The plan will establish a framework in which decisions on prevention can be made, considering the causes of long term conditions in the region.
3) Enable Preventive Health and Chronic Diseases (PHCD) and wider RPH staff to see how the work they are doing contributes to the prevention of long-term conditions, as well as identifying potential areas for inclusion in action planning and areas for cross-team collaboration.

Vision

Equitable, sustainable and healthy futures for all.

Mission

Improve quality of life by reducing morbidity and premature mortality from long term conditions

Proposed goals

1) A 25% reduction in mortality from long term conditions by 2025
2) Reduction in the Māori/Non-Māori premature mortality from long term conditions ratio

	RPH	Long Term Conditions P
Vision	Equitable, sustainable and healthy futures for all	***Unchanged*** Equitable, sustainable and healthy futures for all
Mission	Better health for the greater Wellington region	***Proposed*** To reduce premature mortality from long term conditions and improve quality of life
Values	Culturally responsive Integrity Compassion Equity Excellence	***Unchanged*** Culturally responsive Integrity Compassion Equity Excellence

Table 1: Link between the Long Term Conditions Prevention plan with RPH's vision, mission and values

WHO target	A 25% relative reduction in risk of premature mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases by 2025.
MoH targets	An increase in life expectancy.
	Reduced health loss from long term conditions across the population.
	People have equity in access and service responsiveness.
Proposed RPH target	25% reduction in premature mortality from long term conditions.
	Reduction in the Māori/Non-Māori premature mortality from long term conditions ratio.

Background

What are long term conditions?

The Ministry of Health defines long term conditions (LTCs) as any on-going, long-term or recurring, condition that can have a significant impact on a person's life [7].

Long term conditions share the following characteristics:

- Persist through life
- Have complex and multiple causes
- Are often preventable
- Usually develop slowly, but may have acute stages
- Can occur at any age, but are more common with increasing age

The term 'long term condition' covers several different medical conditions including:

- Respiratory disease e.g. asthma and Chronic Obstructive Pulmonary Disease
- Cancer
- Cardiovascular disease e.g. heart disease and stroke
- Diabetes
- Musculoskeletal disease and arthritis
- Mental illnesses and neurological conditions

The New Zealand Ministry of Health calls them **long term conditions** .

The WHO calls them **non-communicable diseases** (NCDs), meaning conditions that are not caused by an infectious agent.

They're also sometimes called **chronic conditions, chronic diseases** or **chronic illnesses.**

These terms are often used interchangeably and there is a large overlap between terminologies. However, some Long Term Conditions may be infectious, such as hepatitis. For this reason the Ministry of Health has chosen the term **long term conditions** instead of **non-communicable diseases.**

Burden of disease

Long term conditions are common

Long term conditions impact everyone living in the Greater Wellington Region, whether living with their own long term condition, caring for whānau or friends, paying rates or tax, or working as a health professional. Due to improvements in public health and medical treatment, people with health conditions that would have previously caused early death are surviving much longer [8]. This also means that as we live longer, more people are living with long term conditions; an increase the World Health Organization has called a 'global epidemic' [9]. More people are also living with multiple long term conditions (often called multimorbidity) [10]. This is evident in New Zealand, with 72% of New Zealanders aged 65 years and older having at least one long term condition, 42% having at least two and 18% having three or more long term conditions[1] [11].

[1] These figures come from The New Zealand Health Survey, which asks respondents whether a doctor has diagnosed them with a selected list of conditions (ischaemic heart disease, stroke, diabetes, asthma, arthritis, chronic pain or a mental health condition). Given the limited scope of conditions asked about, it is likely to underestimate the true prevalence of long term conditions in New Zealand.

Figure 2 shows the prevalence of selected long term conditions in the greater Wellington Region, which are generally similar to what is seen at a national level. The definitions used for each condition are available in Appendix 1, but it worth noting that some conditions (high blood pressure, high cholesterol and asthma) indicate whether someone has ever been told by a doctor that they have that condition ***and*** they take medication for this condition. Clearly this is measuring more than one thing, as there may be multiple reasons people are not taking medication, such as barriers to accessing health care and cost of medication.

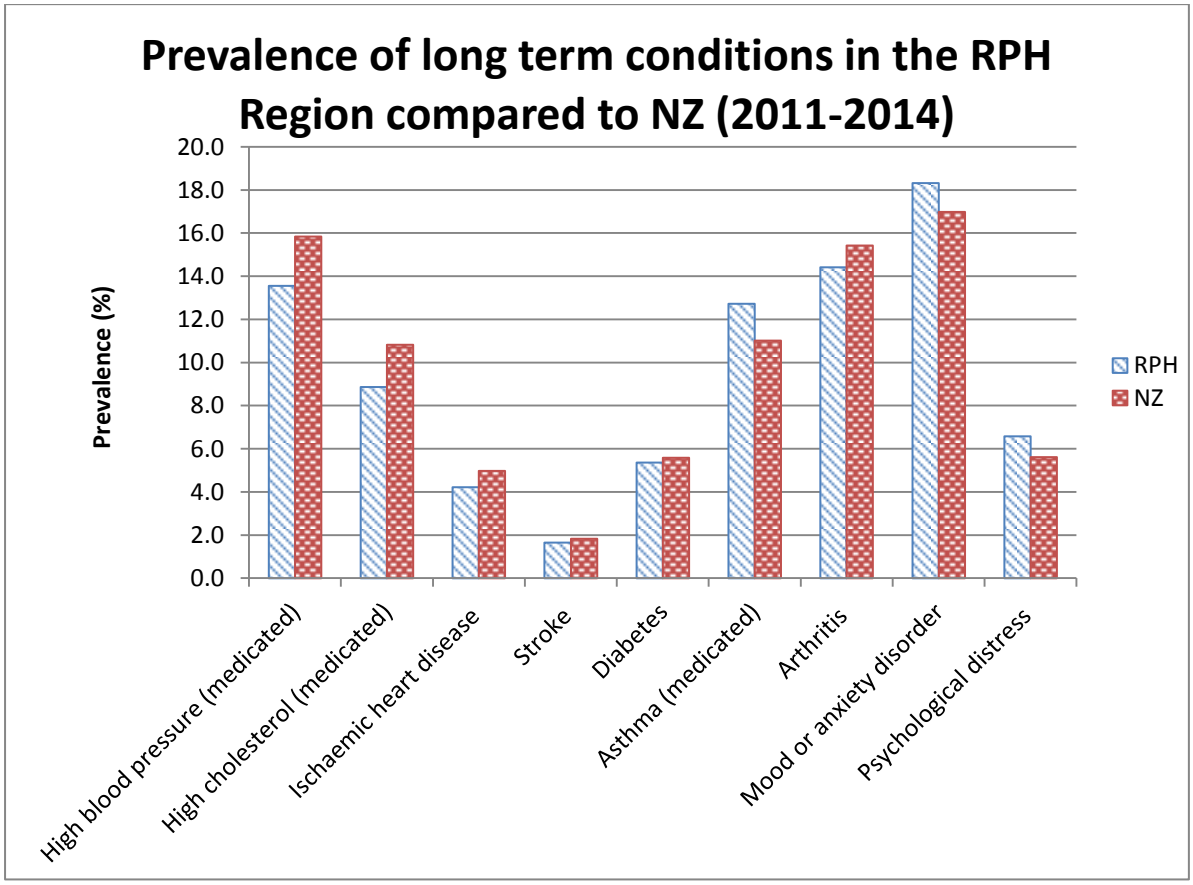


Figure 2: Prevalence of long term conditions in Wellington region compared to New Zealand. Source NZHS 2011-14 [12]

Long term conditions are the leading cause of death and health loss

"*Death in old age is inevitable, but death before old age is not*"[13].

Long term conditions account for 89% of deaths in New Zealand each year [14, 15]. Long term conditions are also the leading cause of health loss, accounting for 88% of DALYs (see box) [16]. When considering specific conditions, neuropsychiatric disorders (which include neurological disorders, mental disorders and addiction disorders) are the leading single cause of health loss, accounting for 19% of total DALYs in NZ [16]. Figure 3 outlines the causes of DALY loss in NZ.

DALY (Disability adjusted life year)

Health loss can be measured in disability-adjusted life years (DALYs). DALYS integrate health loss from premature mortality (years of life lost, YLL) and health loss from morbidity (years lived with disability adjusted for severity, YLD). One DALY represents the loss of one year lived in full health.

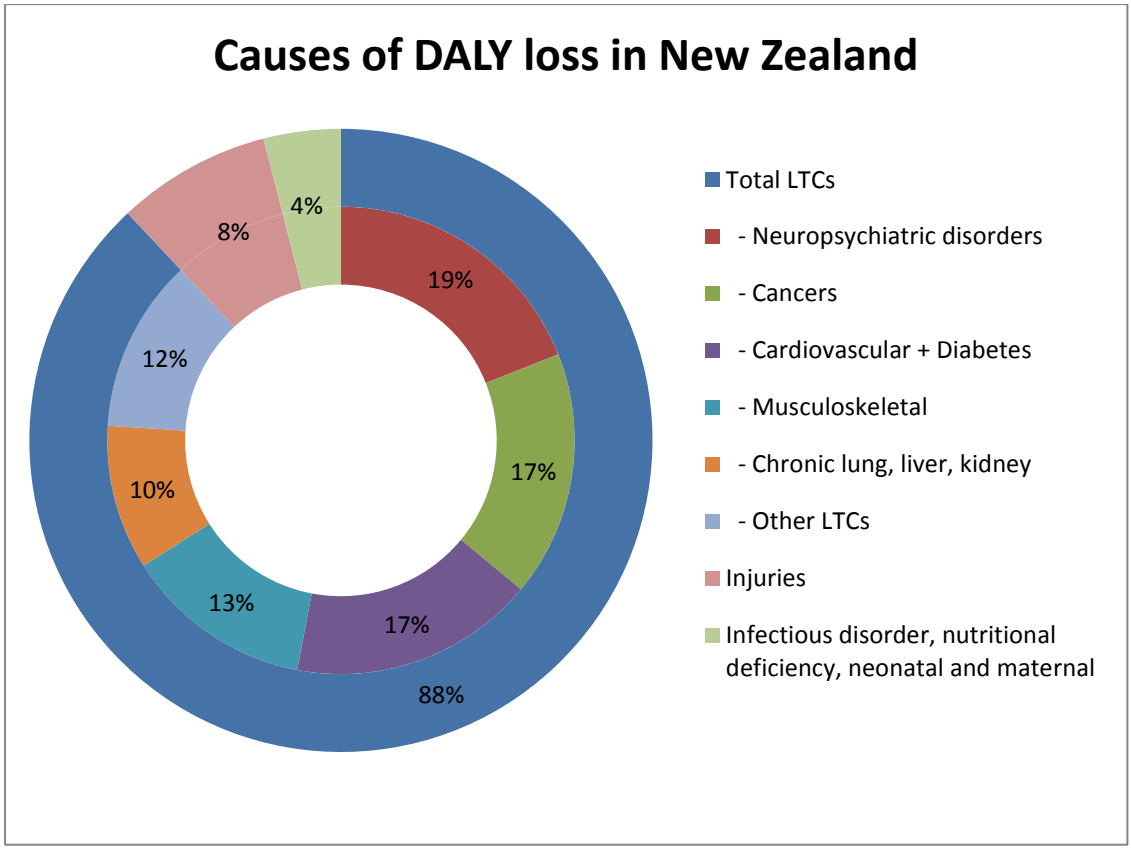


Figure 3: Causes of DALY loss in NZ. Source: NZ Burden of Disease Study [16]

Long term conditions are costly

As well as accounting for the majority of health loss and negatively impacting on quality of life, long term conditions also pose a significant financial and social cost to individuals, their whānau, the wider community and the health sector [17]. These costs include:

- Direct costs: cost of health care, pharmaceuticals and income support
- Indirect costs: loss of productivity as the result of illness
- Intangible costs: physical and emotional impact on individuals and whānau and barriers to participation and independence

Long term conditions consume the vast majority of health resources in New Zealand [17]. The US estimates that long term conditions cost over US$1.3 trillion dollars every year and account for over three quarters of their total health expenditure [18, 19]. There is limited research on the cost of long term conditions in New Zealand, but it is estimated that the annual societal costs (including direct and indirect costs) is more than $100 million per condition [17].

The current approach to long term conditions is not sustainable

The New Zealand Burden of Disease study found that New Zealanders are living longer; however, not all of the life gained is being lived in good health [16]. It is estimated that only 70–80% of the years of life gained in the last decades have been years lived in good health [16]. This means that the current health system and societal changes have become better at preventing death that promoting health and preventing or minimising morbidity. This becomes increasingly problematic as the

population continues to age. Figure 4 illustrates the aging population in the Greater Wellington Region, with the number of people aged 65-84 years old expected to increase 77% by 2033, and those aged 85 years expected to increase by 119% [20]. This will be associated with an increase in the prevalence of long term conditions, and unless something changes there will be more people living longer in poor health, the cost and burden of which will be become unsustainable for the health care system.

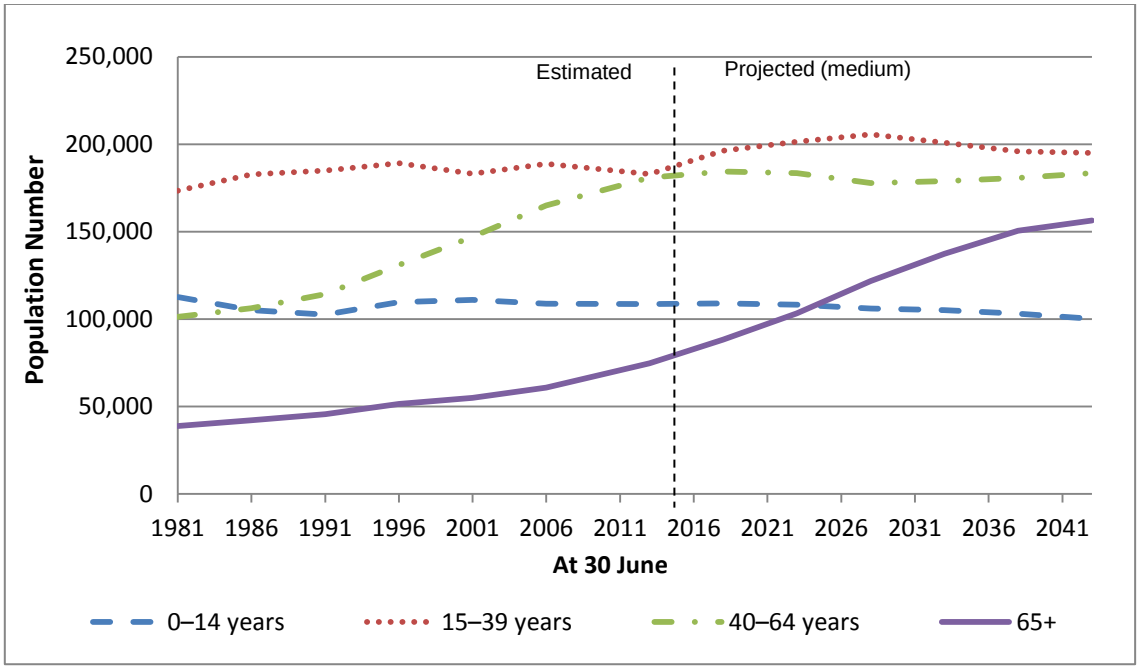


Figure 4: Regional public health population projection by age group (1981-2041). Source: Stats NZ [21]

Risk factors

Causes

Long term conditions share a common set of modifiable behavioural risk factors [22]:

- Tobacco smoking
- Diet
- Alcohol
- Physical inactivity

These risk factors lead to biological changes, such as high cholesterol, high blood pressure and obesity, which can lead to the development of long term conditions. In this sense, these primary risk factors are often thought of as 'causes' of long term conditions. Figure 5 outlines the relationship between selected risk factors and long term conditions.

	Behavioural				Biomedical		
Conditions	Tobacco smoking	Physical inactivity	Risky alcohol consumption	Poor diet	Obesity	Hypertension[a]	High blood fats
Ischaemic heart disease	✓	✓		✓	✓	✓	✓
Stroke	✓	✓	✓	✓	✓	✓	✓
Type 2 diabetes	✓	✓		✓	✓		
Kidney disease	✓	✓		✓	✓	✓	
Arthritis	✓[b]	✓[c]			✓[c]		
Osteoporosis	✓	✓	✓	✓			
Lung cancer	✓						
Colorectal cancer		✓	✓	✓	✓		
Chronic obstructive pulmonary disease	✓						
Asthma	✓						
Depression		✓	✓		✓		
Oral health	✓		✓	✓			

(a) High blood pressure.
(b) Relates to rheumatoid arthritis.
(c) Relates to osteoarthritis.

Figure 5: Relationship between selected chronic conditions and determinants. Source: AIHW 2012 [3]

The NZ Burden of Disease Study estimated that the four modifiable behavioural risk factors contributed over one third (38%) of DALY loss in New Zealand [16]. This means that one third of DALY loss could be prevented by decreasing exposure to these risk factors. Diet was the strongest risk factor, accounting for 9.4% of total DALYs, followed by overweight and obesity (9.2%) and tobacco use (8.7%) [16]. These risk factors are common in the Greater Wellington Region and are contributing to the high morbidity and mortality from long term conditions. Figure 6 shows the prevalence of modifiable risk factors in the RPH population, which appears similar to the national population (Appendix 1 provides definitions of the risk factors).

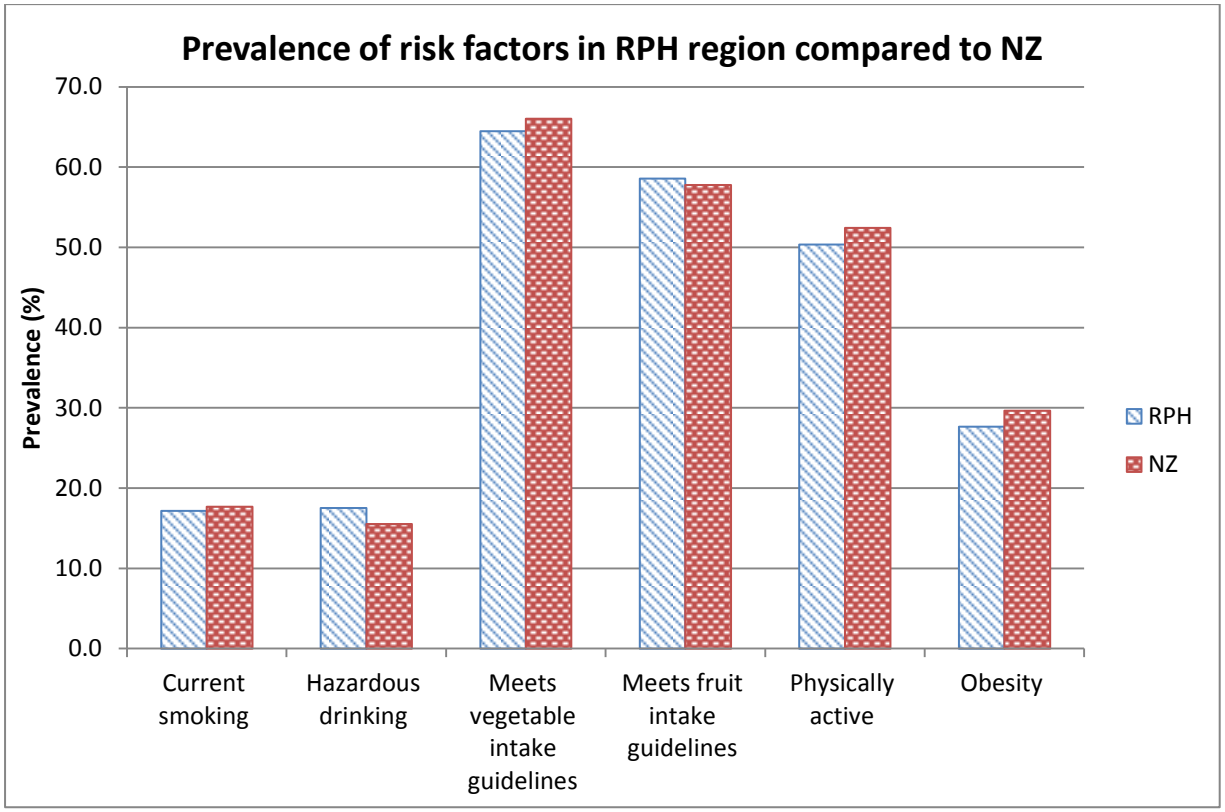


Figure 6: Prevalence of risk factors in the RPH population compared to nationally. Source NZHS 2011-14 [12]

Causes of causes

The primary risk factors for long term conditions do not exist in isolation. They are strongly influenced by the environment and societal conditions such as income, housing, poverty and education. These wider determinants can influence the risk factors for long-term conditions, either through the development of unhealthy behaviours or through the psychological effects of stressful lives [23]. In this sense they can be thought of as the 'causes of causes' of long term conditions. This is illustrated in Dahlgren and Whitehead's Social Model for Health (see Figure 21 page 37).

Poverty and long term conditions

Long term conditions are not distributed equally across the social gradient. There is increasing recognition of the link between poverty and long term conditions, with those living in poverty more likely to develop a long term condition, more like to develop complications and more likely to die from their long term condtion [1].

Source: WHO [1]

There is no health without mental health

Mental illness is important both as a long term condition in itself, but also as a contributing factor to other long term conditions.

Mental disorders share common features with physical long term conditions including [24]:

- They share many underlying causes and overarching consequences;
- They are highly interdependent and tend to co-occur;
- They are best managed using integrated approaches.

Psychological status and mental wellbeing are shaped throughout life by the same broad social, economic, cultural and environmental conditions that influence physical health. Psychological status in turn influences behaviours, and may also directly cause biological changes [25].

People living with mental illness are more likely to develop long-term physical illness, and conversely people living with long-term physical illness experience higher rates of anxiety and depression than the general population [26]. Mental illnesses and mental distress are strongly related to behavioural risk factors for long-term conditions such as physical inactivity, smoking and alcohol consumption [27]. There is also a compounding effect of having both physical and mental illness, with research finding that people with a long-term condition and comorbid depression or anxiety having consistently worse overall quality of life when compared to people with physical morbidity alone [28-35]. However, this makes intervening to improve mental well-being even more compelling, with evidence showing that emotional well-being is related to longevity [27].

Causes of causes of causes

Even 'causes of causes' do not exist in isolation. The 'causes of causes' are influenced by wider national and international changes such as urbanisation, privatisation, colonisation, deregulation, globalization and changes in economic growth. Obviously these are much more difficult to influence from a Regional Public Health perspective, but it is important to think about the context we are working in when trying to influence the causes, and the 'causes of causes', of long term conditions. One key area of consideration and understanding is the policy environment. Unsupportive national and local policies on things such as food, advertising, urban design, agriculture, trade and transport can make it difficult for people to act on knowledge of the causes and prevention of long term conditions [36]. Conversely, when there is the right policy environment and it aligns with public awareness and engagement it can have powerful outcomes.

The impact of globalization on health

Globalization is the increasing connectedness of people, businesses and ideas of different countries. Globalization has direct and indirect impacts on health, in both positive and negative ways. For example, globalization has meant advances in technology, which has allowed for improved information, diagnostic and treatment technologies within the health sector [1]. It has also allowed for faster global communication and sharing of ideas and learning [5].

However, there are also risks and negative health effects associated with globalization. These include the trend known as the "nutrition transition", where people's diets have changed to be high in total energy, salt, fat and sugar [1]. This change is driven both to an increase in demand (due to other factors such as change in work roles, increased income and reduced time) and changes in supply (such as increased production, powerful promotion and marketing of highly processed foods) [1].

Figure 7 outlines a model showing the aetiology of long term conditions.

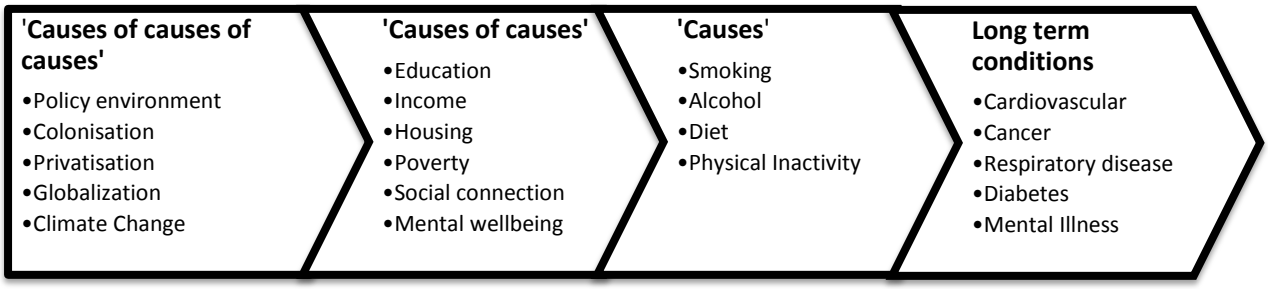


Figure 7: Model of the causes of long term conditions (Adapted from the WHO model of causes of NCDs [1])

Equity

Long term conditions are not distributed equally within the population. Māori and Pacific have higher rates of both morbidity and mortality from long term conditions than non-Māori, non-Pacific [17, 37]. Long term conditions are the leading cause of ethnic health inequalities in New Zealand [15, 38, 39]. Figure 8 and Figure 9 show the variation in prevalence of the causes, and causes of causes, of long term conditions between Māori and non-Māori in the greater Wellington Region.

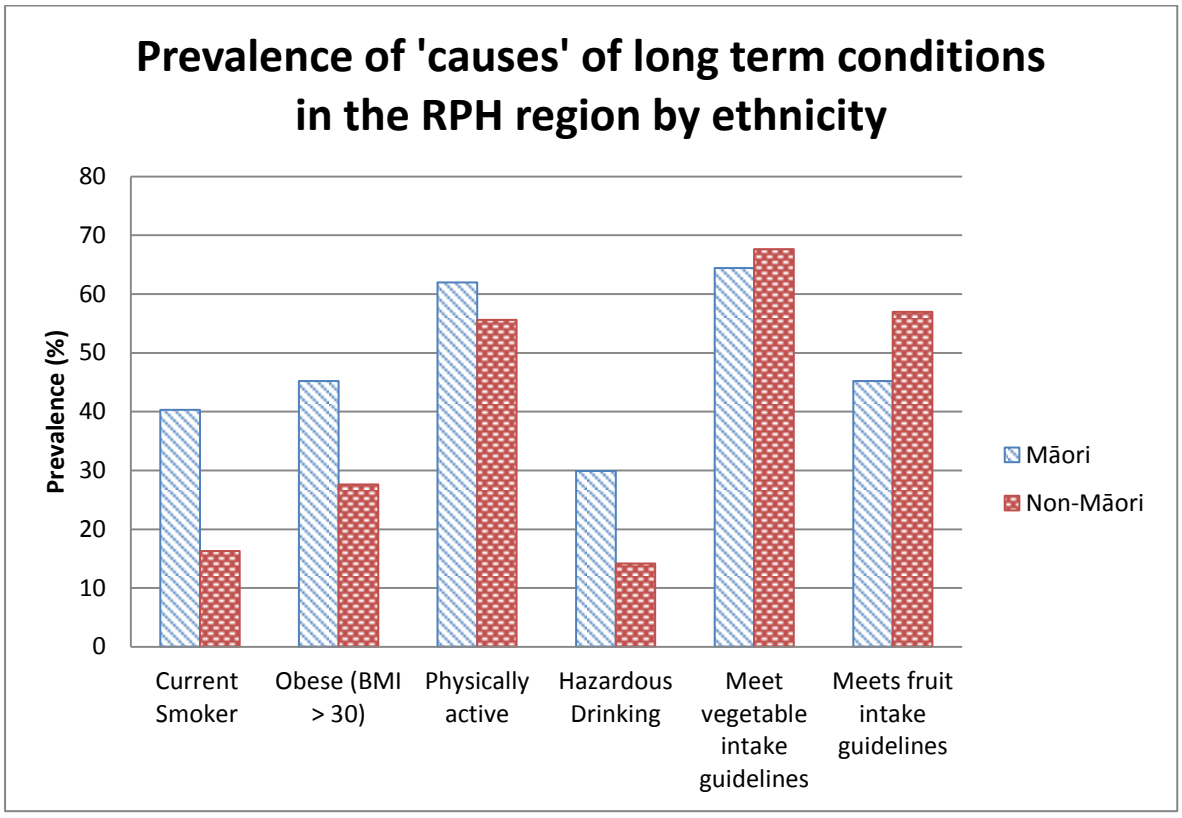


Figure 8: Prevalence of 'causes' of long term conditions in the Greater Wellington Region by ethnicity. Source NZHS 2011-2014 [12]

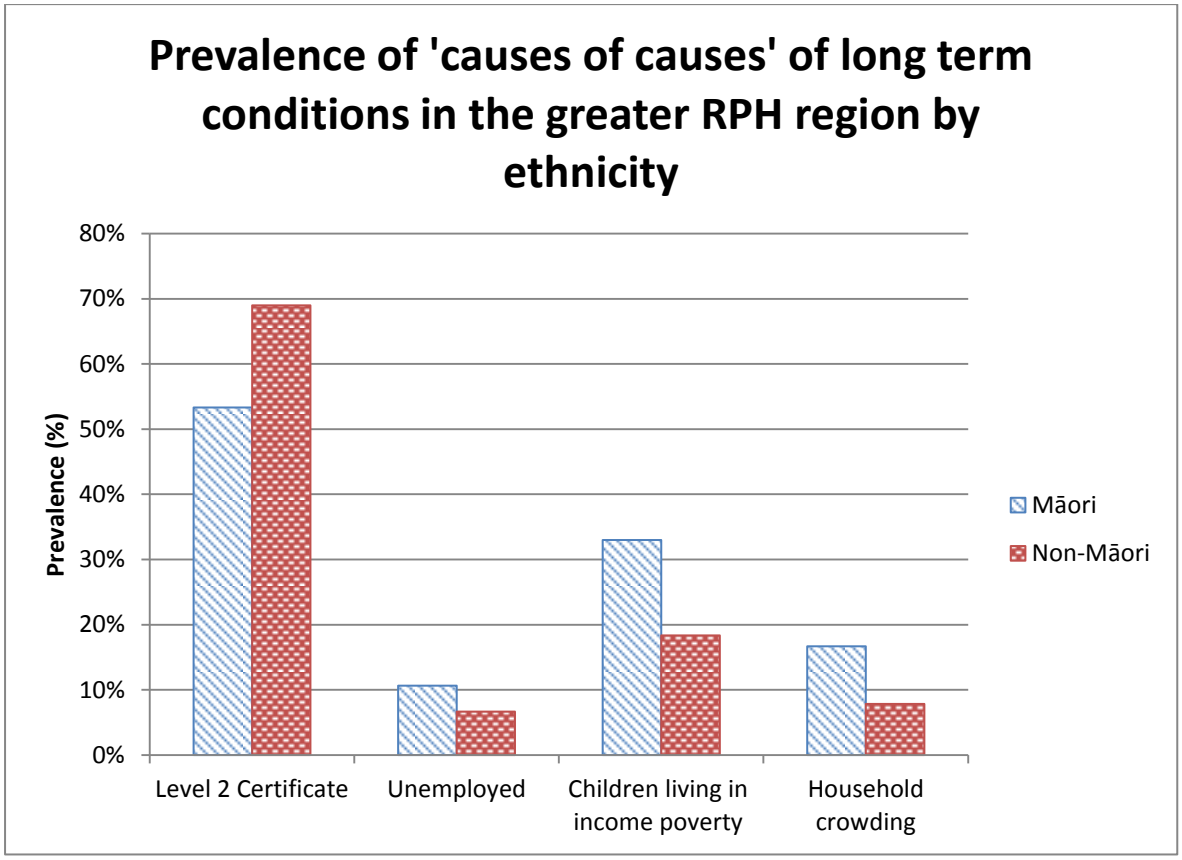


Figure 9: Prevalence of 'causes of causes' of long term conditions in the Greater Wellington Region by ethnicity. Source: B Robson et al Māori Health Profiles [40-42] The prevalence is calculated as an averaged prevalence across the three DHB regions.

Notes:

Level 2 Certificate: Adults aged 18 years and over with a NCEA Level 2 Certificate or higher

Unemployed: people are without a paid job, available for work and actively seeking work.

Income Poverty: Household income is equivalised using the revised Jensen scale. Low income is defined as an equivalised household income under $15,172.

Household Crowding: defined as needing at least one additional bedroom according to the Canadian National Occupancy Standard (based on the age, sex and number of people living in the dwelling).

Impact of colonisation and land loss on hauora Māori

Historical and contemporary colonisation are important 'causes of causes of causes' of long term conditions for Māori in New Zealand. Historical colonisaion invovled invasion, dehumanisation and the gaining of power from Māori by Pākehā [43]. Colonisation resulted in the stripping of health resources including language, culture and land, which continues to have significant adverse effects on hauora Māori [44].

Land loss

'Te toto o te tangata, he kai; te oranga o te tangata, he whenua.'

'While food provides the blood in our veins, our health is drawn from the land.' [45].

By the end of the 19th Century Māori owned less than 12% of the land they had owned in 1840 [46]. Land loss had an immediate effect on taha tinana; as land was taken from Māori they were

separated from their traditional food sources as well as their primary economic resource and pushed into poverty [47, 48]. Māori were also forced into overcrowded living conditions, which along with a breakdown of established sanitation systems and separation from reliable water supplies, facilitated the spread of devastating infectious diseases introduced by Europeans [46, 48, 49].

Individualisation of land ownership through the Native Lands Act was a direct attack on taha whānau. By isolating individuals, colonists aimed to undermine and "destroy the power of the tribal system" and breakdown Māori social unity [50]. Land loss was a key vehicle for alienation and assimilation, both of which have long lasting repercussions on taha hinengaro. The result was a feeling of inferiority for Māori [51]. For Māori, identity is intimately connected to place [52], consequently as they lost their land they also lost part of their identity, sense of self and worth – all of which are essential for sound mental health.

The alienation from land has an on-going effect on taha wairua. Māori connection with land is grounded in a belief that land is the creator of all things and provides both the spiritual and physical foundation and sustenance for life [48]. Losing land was much more than losing a commodity; it was losing a source of belonging and connection to the past. It meant losing security, stability and the nurturing principle of Papatūānuku [53].

Contemporary colonisation

"Unless we recognise colonisation as a deliberate and continuous process it is easy to assume that colonising events are accidental, inevitable and over." [43] Contemporary colonisation is characterised by continuing power imbalances and the persistence of white privilege and on-going marginalisation of indigenous peoples [54, 55].

Racism is one of the drivers of contemporary colonisation. Camara Jones describes three levels of racism [56]:

1) **Institutionalised racism**: is defined as "differential access to the goods, services, and opportunities of society by race"[56]. This is evident in New Zealand, with Māori more likely than and non-Māori to live in areas of high deprivation, have low income and low educational attainment [57]. This is an important cause of the inequitable distribution of long term conditions in New Zealand.
2) **Interpersonal racism:** is defined as "prejudice and discrimination, where prejudice means differential assumptions about the abilities, motives and intentions of others according to their race and discrimination means differential actions towards others according to their race"[56]. Self-reported experience of interpersonal racism is associated with poorer mental and physical health outcomes, as well as negatively impacting on health behaviour [58, 59].
3) **Internalised racism:** is defined as "acceptance by members of the stigmatised races of negative messages about their own abilities and intrinsic worth"[56]. This manifests as Māori becoming 'anti-Māori'[43].

Regional variance

Regional Public Health serves 3 DHBs, each with unique population profiles and health needs. Figure 10 shows the prevalence of long term conditions across the three DHBs. Of note there is a larger older population in the Wairarapa compared to Capital and Coast and Hutt Valley DHBs, which likely contributes to the higher rates of most long term conditions in Wairarapa [20].

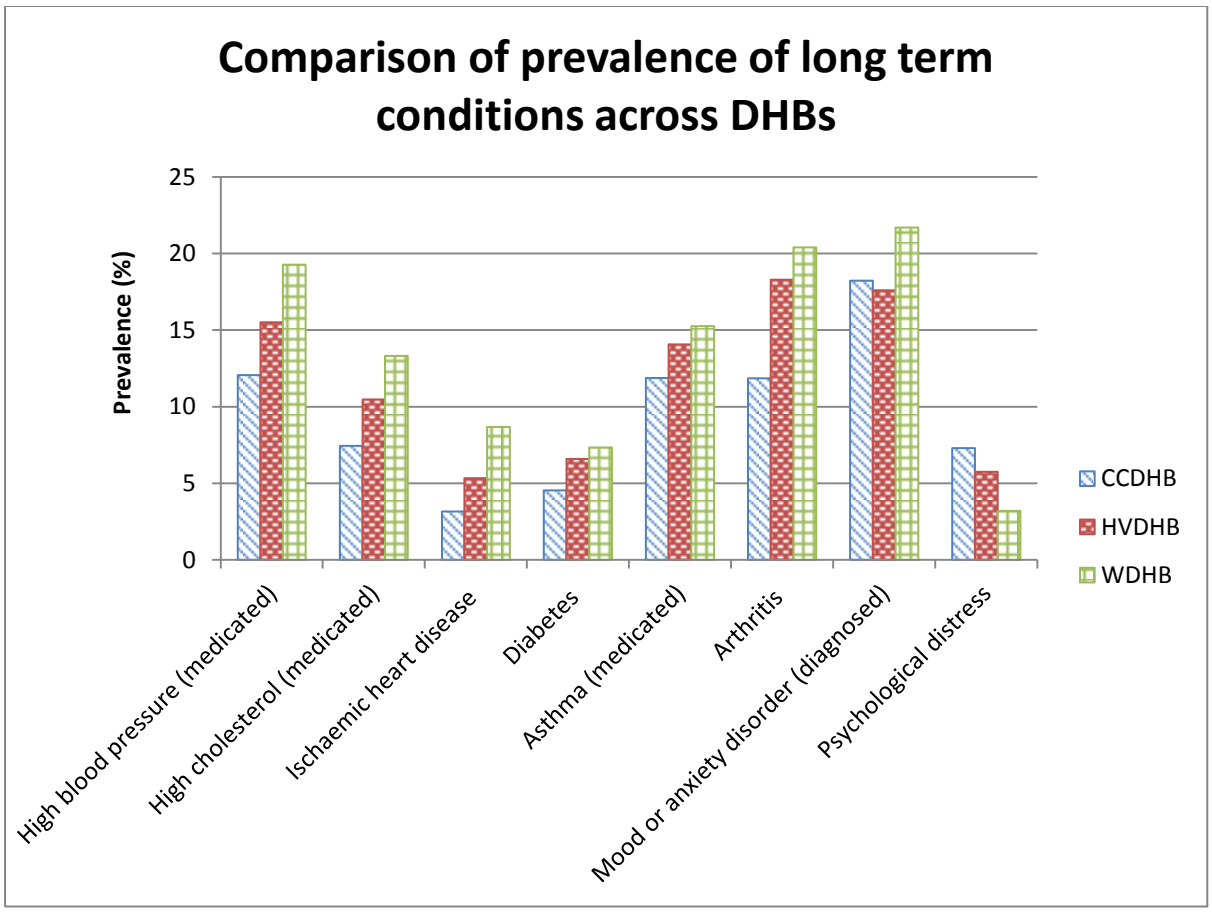


Figure 10: Comparison of the prevalence of long term conditions across the 3 DHBs. Source NZHS 2011-14 [12]

Figure 11 compares the prevalence of risk factors across the three DHBs. Again, there is considerable variation across the region.

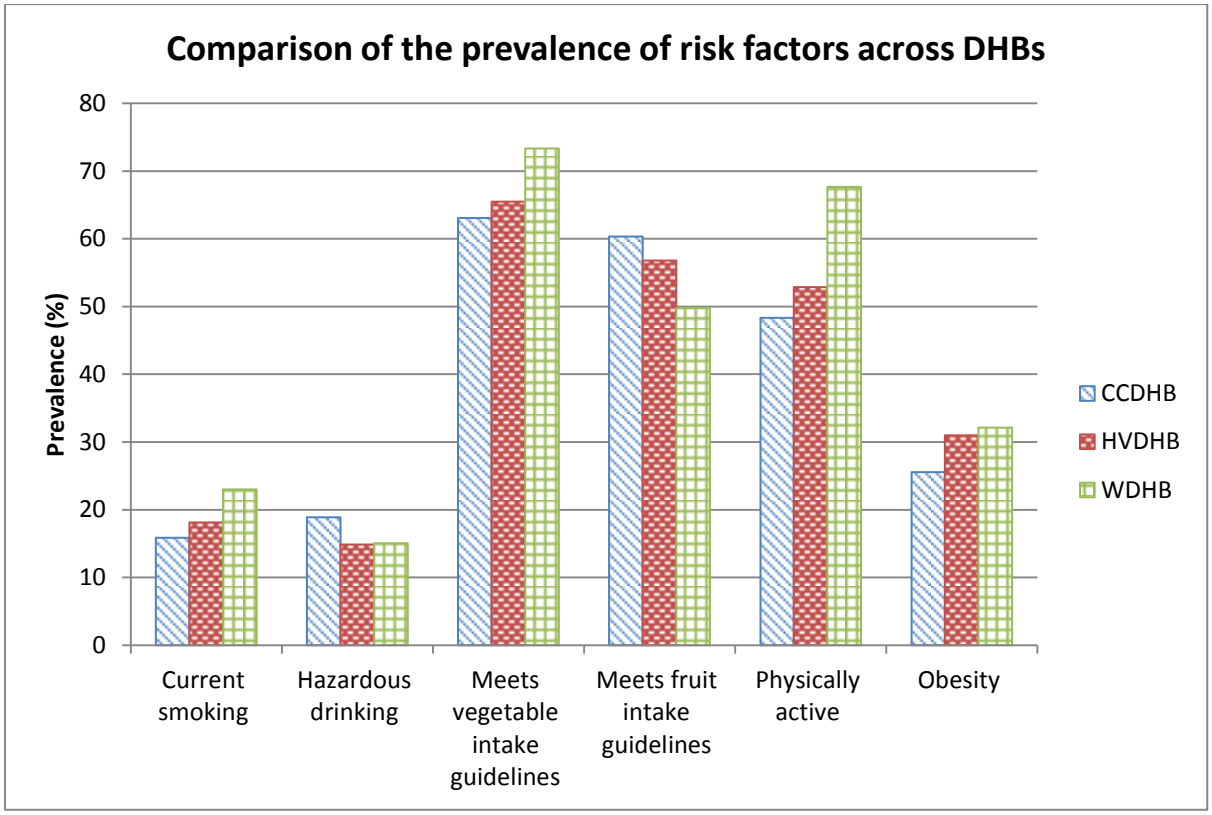


Figure 11: Comparison of the prevalence of key risk factors across the 3 DHBs. Source: NZHS 2011-14 [12]

Philosophy

Prevention

> *"You know, sometimes it feels like this. There I am standing by the shore of a swiftly flowing river and I hear the cry of a drowning man. So I jump into the river, put my arms around him, pull him to the shore and apply artificial respiration. Just as he begins to breathe, I hear another cry for help.*
>
> *So back into the river again, reaching, pulling, applying, breathing and then yet another yell. Again and again, without end, the sequence goes on. You know, I am so busy jumping in, pulling them to shore, applying artificial respiration, that I have no time to see who the hell is pushing them in upstream".* Irving Zola 1970

This plan aims to shift the focus upstream, and look at how long term conditions can be prevented.

Prevention is often thought about at four levels:

- *Primordial prevention:* aims to minimise future health hazards by addressing broad determinants of health such as environmental, economic, social and behavioural conditions that are known to increase the risk of disease.
    - Example: improving the quality and availability of housing, reducing child poverty
- *Primary prevention:* aims to prevent the onset of disease by changing exposures or behaviours that can lead to the development of the disease.
    - Example: smoking cessation, vaccinations, promotion of healthy diet
- *Secondary prevention:* aims to detect pre-clinical changes, which allows for early treatment and control of disease.
    - Example: Screening programmes and early clinical detection
- *Tertiary prevention:* aims to soften the impact of the disease, with the goal to enhance quality of life
    - Example: Cardiac rehabilitation following a heart attack, palliative care

It is suggested that primordial prevention is the responsibility of public policy, primary prevention the task of public health and health promotion services, secondary prevention the focus of preventive medical care and finally tertiary prevention the role of rehabilitation [60]. Clearly there is overlap between roles, but what is important to be aware of is that that prevention is wider than just public health, extending both to government policy and wider society and through to primary care and health care systems.

This long term condition prevention plan will focus on primordial and primary prevention, with the aim to prevent the onset of long term conditions. However, it is important that secondary and tertiary prevention also continue, both to prevent the deterioration of existing long term conditions in the community, but also because chronic conditions do not exist in isolation. This means that secondary and tertiary prevention of one condition may be primary prevention for another, for example early detection and management of high blood pressure can prevent the onset of cardiovascular disease.

Geoffrey Rose - Epidemiologist (1926-1993): Sick Populations and Sick Individuals

Geoffrey Rose described two approaches to prevention: the population approach and the high-risk approach [61]. The population approach targets interventions at a whole population (a country, a community, a school), so that everyone within the population receives the intervention, regardless of their individual risk of developing the disease. The high-risk approach aims to identify and manage those who are at highest risk of disease, and provide interventions to prevent them from developing the disease.

There are pros and cons to both approaches. The population-wide approach has the advantage of lowering the risk in the entire population, and recognises that society influences individual's behaviour. However, population wide approaches may offer minimal benefit to any one individual (the 'prevention paradox') and as such may be unappealing to the public and politicians.

In contrast the high-risk approach may offer substantial benefit to the individual if interventions are targeted specifically at them. However, high-risk interventions alone are unlikely to make a substantial difference to the disease in the whole population. This is due to the fact that the majority of cases of disease won't be caused by people who are at highest risk, because there are relatively few of them. Rather the majority of cases will be those who are at medium risk, simply because there are more of them.

This concept is illustrated in Figure 12. If you could shift the whole curve to the left then the whole population would be at lower risk, and there would fewer cases of disease. This means that even a small shift in the average population levels of several risk factors (such a blood pressure or dietary salt intake) can lead to a large reduction in the population burden of long term conditions [1].

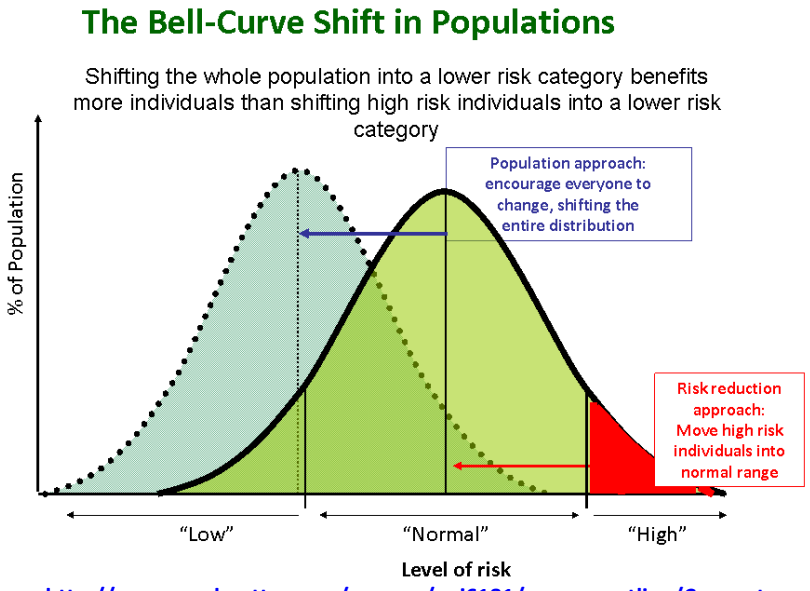


Figure 12: Source http://www.med.uottawa.ca/courses/epi6181/course_outline/Concepts-prev.htm

In reality population-wide and high risk approaches are complementary, and the approach used should take into consideration the distribution of the risk factor within the community and the type of intervention. The WHO recommends that population-wide approaches should form the central strategy for preventing the epidemic of long term conditions, but should be combined with interventions for individuals to meet the needs of individuals and the whole community [1].

The benefits of prevention

"*He is a better physician that keeps diseases off us, than he that cures them being sick on us; prevention is so much better than healing because it saves the labour of being sick*." Thomas Adams, 1618

There are several advantages to focusing on prevention, not least of which is preventing the 'labour of being sick'. Focusing on prevention also allows for more efficient health care spending. Even a small strategic investment in disease prevention can be highly cost-effective, and can even result in significant future health care savings [19, 62].

Preventing disease and ensuring good health benefits all sectors and society as a whole, as health, in itself, is an extremely valuable resource. Health and economic performance are interlinked, and by focusing on prevention we aim to ensure healthier students turn up to school, healthier employees attend work and a healthier population is presented to the healthcare system [63].

"*There is no wealth like health*." Wisdom of Sirach, Ecclesiastics

There are also economic benefits to optimising prevention to reduce inequalities in health. Alongside the clear social justice and moral imperatives to reduce inequalities, it is becoming increasingly recognised that inequalities are extremely costly [64]. The cost in New Zealand has not been calculated, but it is estimated that in the United Kingdom inequality in illness costs in the order of £55-65 billion (~110 billion NZD) per year in: productivity losses (£31-33 billion), lost tax and increased welfare payments (£20-32 billion) and healthcare costs (excess of £5.5 billion) [64].

People-centered

From a preventive health perspective it is important to understand key risk factors and look for intervention points to reduce the burden of long term conditions. However, it is also important to remember that people do not generally think of themselves as 'a person with a long term condition' or 'a person with multiple risk factors for developing a long term condition'. People living with long term conditions work hard to optimise their quality of life [65]. Figure 13 illustrates the multitude of factors that influence the quality of life of someone living with long term conditions. It is important to understand this when thinking about tertiary prevention and improving quality of life for people already living with long term conditions in the community.

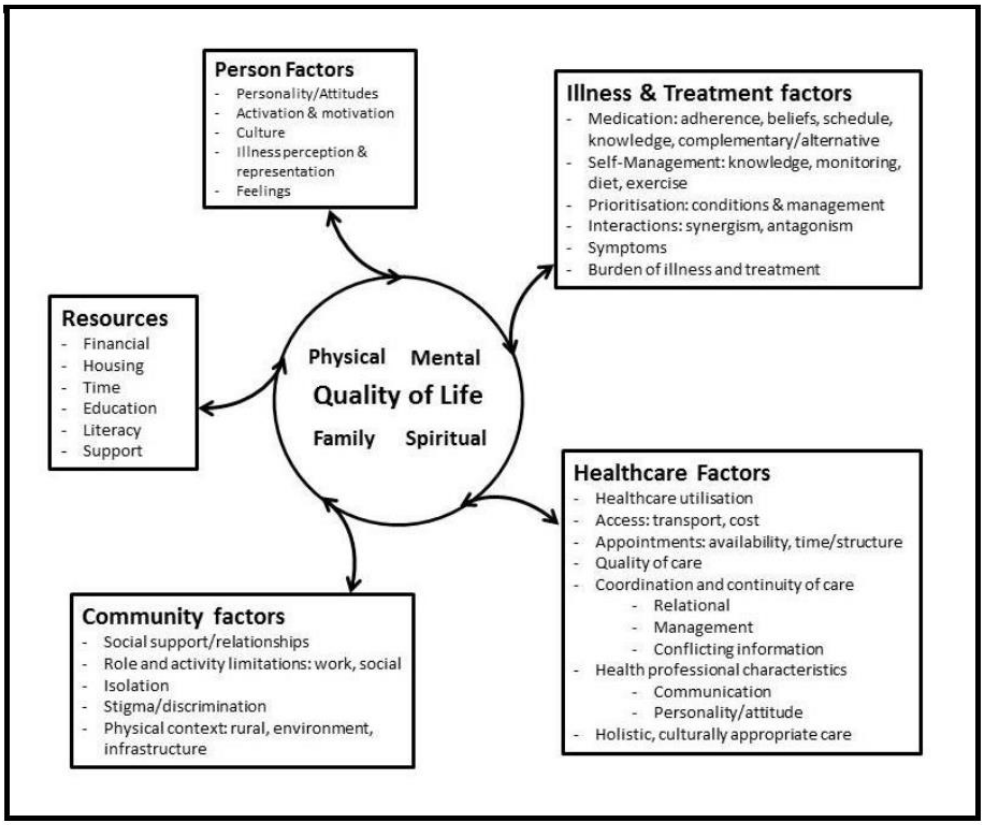


Figure 13: Multiple ways in which long term conditions can impact on a person's quality of life. Source: [66].

Whare tapa whā

Whare tapa whā is one model for understanding Māori health and well-being [46]. Māori health is underpinned by four dimensions: taha hinengaro (mental health); taha wairua (spiritual health); taha tinana (physical health); and taha whānau (family health). In te whare tapa whā, each dimension is represented as the wall of a house, with each wall being essential for the strength of the building. If one dimension is damaged or missing then the whole building is unbalanced and results in poor health [46]. This broad concept of health and wellbeing was used for this plan.

Reducing ethnic inequalities

Hauora IV outlines three main pathways to be considered when working towards health equity for Māori [43]:

1. Differential access to the determinants of health or exposures leading to disease incidence
2. Differential access to health care
3. Differences in the quality of care received.

The Ministry of Health publication 'Reducing Inequalities in Health' proposes an Intervention Framework (see Figure 14) to ensure that activities in the health sector help overcome health inequities at four levels [67]:

1. Structural – tackling the root cause of health inequalities: social, economic, cultural and historical factors that fundamentally determine health;

2. Intermediary pathways – targeting material, psychosocial and behavioural factors that mediate the impact of structural factors on health;
3. Health and disability services – undertaking specific actions within the health and disability services;
4. Impact – minimising the impact of disability and illness on socioeconomic position.

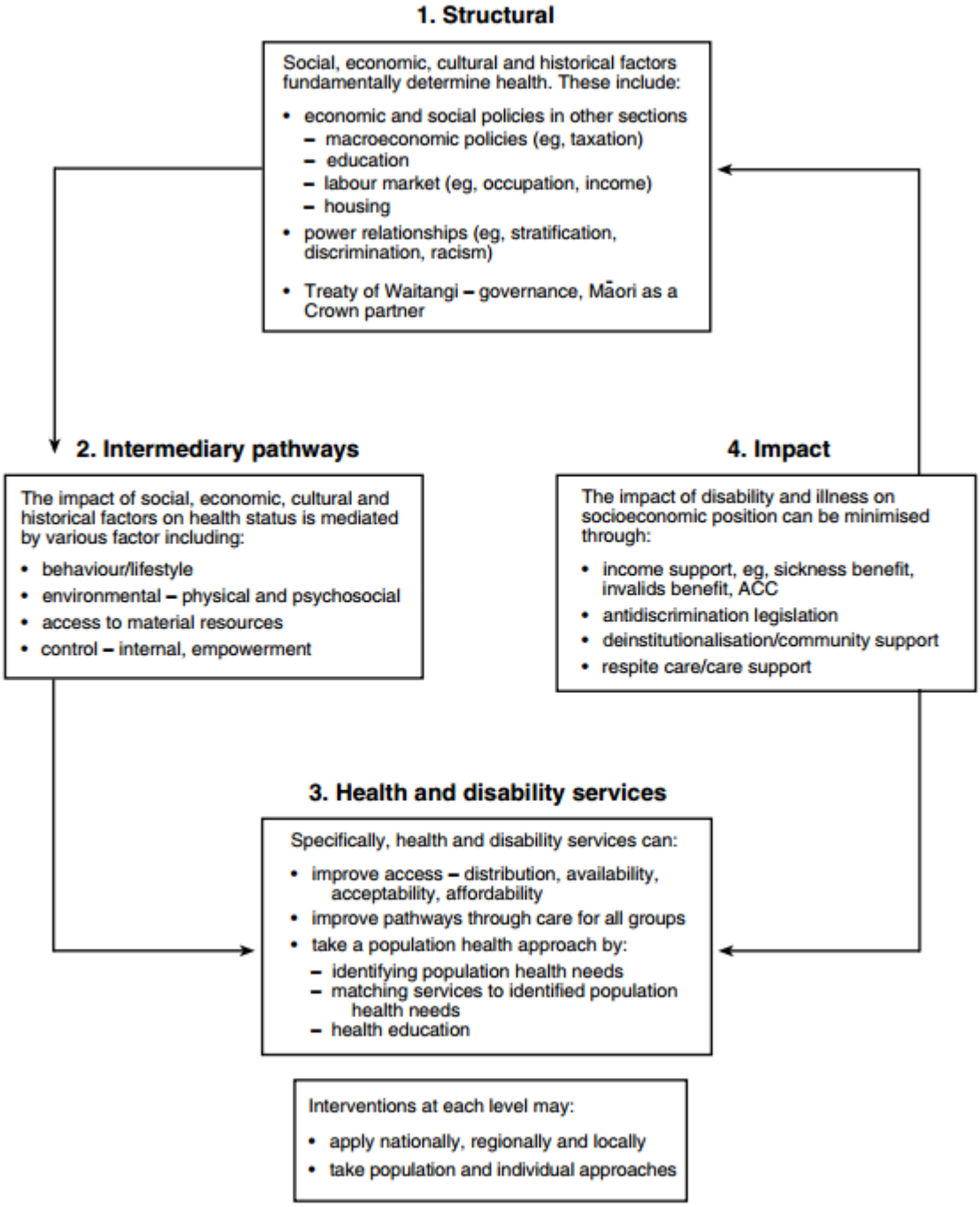


Figure 14: Intervention framework to improve health and reduce inequalities. Source MoH [67]

To assess whether actions will reduce inequalities in health, the Health Equity Assessment Tool has been developed to be used with the intervention framework [68]. It consists of ten questions:

1. What inequalities exist in relation to the health issue under consideration?

2. Who is most advantaged and how?
3. How did the inequalities occur? What are the mechanisms by which the inequalities were created, maintained or increased?
4. Where/how will you intervene to tackle the issue?
5. How will you improve Māori health outcomes and reduce health inequalities experience by Māori?
6. How could this intervention affect health inequalities?
7. Who will benefit most?
8. What might the unintended consequences be?
9. What will you do to make sure the intervention does reduce inequalities?
10. How will you know if inequalities have been reduced?

Environments and Settings

"Health is created and lived by people within the settings of their everyday life; where they learn, work, play, and love." Ottawa Charter 1986 [69]

The environment is an integral component of human health. This is captured in He Korowai Organga (New Zealand's Māori Health Strategy) with the inclusion of 'Wai ora: healthy environments'[70]. Wai ora signifies the importance of our environment, and acknowledges that the environment impacts on the health and wellbeing of individuals, whānau and communities [70].

The environment impacts both on the development of, and the experience of living with, long-term conditions. This includes the natural environment, the built environment and the settings of action for the prevention of long term conditions.

The creation of health supporting environments aims to make the healthy choice the easy choice [71]. Healthy environments can be created through a number of strategies including:

- A supportive built environment, such as: access to recreation areas, safe infrastructure for active transport and healthy housing.
- Legislation and regulation: policy for healthy food in schools, smoke free areas
- Communication strategies: e.g. coordinated messaging

Risk factors for long term conditions associated with the natural environment [3]:

- Air pollution: associated with respiratory and cardiovascular disease
- High UV exposure: associated with melanoma and other skin cancers
- Low UV exposure: associated with vitamin D deficiency, which can cause bone disease

Risk factors for long term conditions associated with the built environment [3]:

- Chemical and material exposures: e.g. asbestos associated with lung cancer
- Green space: associated with lower rates of some mental illnesses
- Damp and mould: associated with respiratory illness

Settings Approach

One effective strategy for prevention and health promotion is to target specific settings for action, such as schools or workplaces and social setting such as churches or club rooms. The healthy settings

approach, which has its roots in the Ottawa Charter for Health Promotion, has been shown to be one of the most popular and effective ways of promoting environments supportive of health. It involves holistic and multidisciplinary methods and puts emphasis on organizational development, participation, empowerment and equity [72]. This involves reflecting on work currently being undertaken and asking: What mechanisms have been developed to partner with schools, workplaces or social settings to promote health and prevent long-term conditions? Can these be futher developed or expanded?

Accessible Environments

It is also important to consider how the environment influences the experience of living with LTCs. The disability threshold can be altered by environmental changes, as illustrated later in Figure 29 (page 51). The environment can greatly impact a person's opportunities to participate in society, and the creation of accessible environments is a vital part of promoting quality of life and wellbeing.

Environmental Health

"*Man's attitude toward nature is today critically important simply because we have now acquired a fateful power to alter and destroy nature. But man is a part of nature, and his war against nature is inevitably a war against himself. . . . [We are] challenged as mankind has never been challenged before to prove our maturity and our mastery, not of nature, but of ourselves.*" Rachel Carson 1963 [48]

Over the last few decades there has been a shift in the understanding of environmental health, away from the idea that humans are targets of environmental toxins, to an increased understanding that humans are fundamentally dependent on the functions of the natural environment [73]. There is an increasing realisation that there "is only one ecology; not a human ecology on one hand and another for the subhuman…"[49]. Of course this holistic understanding of environmental health, which focuses on ecosystems and sustainability, is not new to most indigenous populations worldwide [48, 53].

For Māori, there is a traditional belief that the human form is inseparable from the environment, and so if you damage the environment you are damaging yourself [74]. Traditional Māori world view is based on balance and an understanding that if part of a system changes, then the whole system becomes unbalanced [53]. Traditionally Māori believe that use, or misuse, of the natural world can cause changes in its mauri (life force), which will cause shifts in the mauri of the related parts of the system, and a cascading effect will eventually change the whole system [75].

"*E tangi ana nga reanga o uta, e mahara ana nga reanga a taima ta aha ra e whakamahana taku ora kia tina*."
(When the land, river and sea creatures are in distress I have nothing to be proud of.) [53]

Section B

Developing a Framework for Action

Developing a framework for action

One of the challenges of preventing long-term conditions is the complexities. With communicable disease the cause, and therefore the intervention points, are direct and linear. With long term conditions the causes are complex, interrelated, indirect and external; system-wide change to prevent long term conditions is complex, and difficult [71]. For this reason, guidance was sought from international, national and regional plans, frameworks and initiatives on how best to approach the prevention of long term conditions.

What we aim to do

All public health policies, strategies, action plans and actions have one fundamental aim: to get individuals to change behaviour to prevent long term conditions. But individual behaviour change is hard. We have 'educated' the population at length on the risks and consequences of their actions, but still actions contrary to best health promoting actions take place.

This is because individuals act in the context of their environment, the community around them and the settings within they live complex lives. So, most public health action aims to improve the environment and settings in which people undertake their health promoting or health damaging behaviours.

Prevention of Long Term Conditions in New Zealand Political and Economic Context

Aim	Through	Outcome
Prevention of Long Term Conditions Increasing wellbeing	Lifestyle / behaviour **in** settings **and in** natural / physical / social environments across the life course	Reduced morbidity and mortality from long term conditions Increased health equity Increased wellbeing

Global guidance

In 2011 the United Nations General Assembly issued a political declaration to address the prevention and control of non-communicable diseases non communicable diseases [76]. As a member state, New Zealand committed to a range of prevention and treatment policies for non-communicable diseases. In 2013 this was supported by the release of the World Health Organization's Global Action Plan for the Prevention and Control of Non-communicable Diseases [2]. This action plan presents a set of nine voluntary targets (see Figure 15) to be achieved by 2025, including a 25% reduction in the risk of premature mortality from non communicable diseases [2].

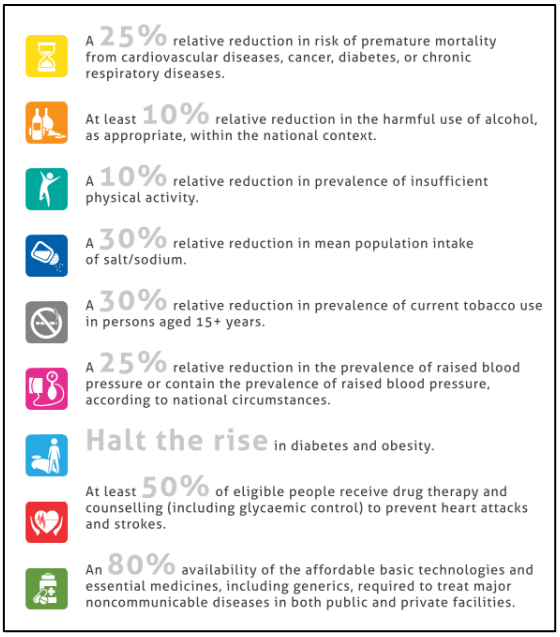


Figure 15: WHO Voluntary Global Targets [2]

WHO Global Action Plan for the prevention and control of non-communicable disease 2013-2020

Vision: a world free of the avoidable burden of non-communicable diseases
Goal: to reduce the preventable and avoidable burden of morbidity, mortality and disability due to non-communicable diseases by means of multisectoral collaboration and cooperation at national, regional and global levels, so that populations reach the highest attainable standards of health and productivity at every age and those disease are no longer a barrier to well-being or socioeconomic development.
Objectives:

1. To raise the priority accorded to the prevention and control of non-communicable diseases in global, regional and national agendas and internationally agreed development goals, through strengthened cooperation and advocacy.
2. To strengthen national capacity, leadership, governance, multi-sectorial action and partnerships to accelerate country response for the prevention and control of non-communicable diseases.
3. To reduce modifiable risk factors for non-communicable disease and underlying social determinants through creation of health-promoting environments
4. To strengthen and orient health systems to address the prevention and control of non-communicable diseases and the underlying social determinants through people-centred primary health care and universal health coverage
5. To promote and support national capacity for high-quality research and development for the prevention and control of non-communicable diseases.
6. To monitor the trends and determinants of non-communicable disease and evaluate progress in their prevention and control

WHO 'Best Buys'

In 2011 the WHO released a set of evidence-based "best buys" for tackling non-communicable disease [77]. These "best buys", summarised in Figure 16 are a set of interventions that are both highly cost-effective and also feasible to implement. Although they were designed for the particular resource constraints of low and middle income countries, the underlying logic behind their selection generally remains for a high income county like New Zealand.

Risk factor / disease	Interventions
Tobacco use	• Tax increases • Smoke-free indoor workplaces and public places • Health information and warnings • Bans on tobacco advertising, promotion and sponsorship
Harmful alcohol use	• Tax increases • Restricted access to retailed alcohol • Bans on alcohol advertising
Unhealthy diet and physical inactivity	• Reduced salt intake in food • Replacement of trans fat with polyunsaturated fat • Public awareness through mass media on diet and physical activity
Cardiovascular disease (CVD) and diabetes	• Counselling and multi-drug therapy for people with a high risk of developing heart attacks and strokes (including those with established CVD) • Treatment of heart attacks with aspirin
Cancer	• Hepatitis B immunization to prevent liver cancer (already scaled up) • Screening and treatment of pre-cancerous lesions to prevent cervical cancer

Figure 16: WHO proposed 'Best Buy' intervention for non-communicable disease. Source WHO [77]

WHO: integrated response to mental disorder and other chronic diseases

Based on a review of past and present efforts to improve mental well-being, the WHO released a paper outlining the governing principles for an integrated response to mental disorder and other chronic conditions in the health system. This included practical steps that can be taken, and are outlined in Figure 17.

OVERARCHING APPROACH	KEY PRINCIPLES OR FUNCTIONS	PRACTICAL STEPS THAT CAN BE TAKEN
Public health approach	Life course approach	(Re)design policies and plans to address the health and social needs of people at all stages of life, including infancy, childhood, adolescence, adulthood, and old age.
	Healthy living / behaviours	Promote mental and physical health and well-being through public awareness campaigns and targeted programmes.
	Person-centred, holistic care	Involve patients in the planning of their care; provide self-management support; promote and adopt a recovery approach to care and rehabilitation.
	Coordinated care	Provide training in chronic disease management and prevention; strengthen clinical and health management information systems; develop integrated care pathways.
	Continuity of care / follow-up	Develop or enhance case management mechanisms.
Systems approach	Governance and leadership	Ensure health policies, plans, and laws are updated to be consistent with international human rights standards and conventions.
	Financing	Identify and plan for future resource needs; extend financial protection to the poor, the sick, and the vulnerable; ensure mental health parity.
	Human resources	Train and retain non-specialist health workers to provide essential health care and support for mental disorders and other chronic diseases.
	Essential medicines	Ensure the availability of essential medicines at all levels of the health system (and allow trained, non-specialist providers to prescribe them).
	Information	Establish and embed health indicators for mental disorders and other chronic diseases within national health information and surveillance systems.
Whole-of-government approach	Stakeholder engagement	Support and involve organizations of people with mental disorders and/or other chronic conditions.
	Multisectoral collaboration	Establish a multisectoral working group to identify synergies and opportunities for integrated care and support.

Figure 17: Governing principles for an integrated response to mental disorders and other LTCs. Source WHO [24]

International approaches

Canada

Canada has both National and Provincial-level plans for the prevention of chronic conditions [78]. At a National level, their strategic priorities are [79]:

- Surveillance Transformation: Enhanced use of Data for Action
- Healthy Living: Focus on Common Risks for Chronic Disease
- Target Action on Major Chronic Diseases
- Knowledge Mobilization for Sustained Action
- Growing our People: Results for Canadians

The Canadian Public Health Association (CPHA) has also worked with a national advisory committee to review the prevention and control of chronic disease in Canada. One of their outputs was a tool for strengthening chronic disease prevention and management [71]. The Tool presents eight Critical Success Factors to 'think like a system' in the prevention of long term conditions [71].

1. Common Values and Goals
2. Focus on Determinants of Health
3. Leadership, Partnership and Investment
4. Public Health Capacity and Infrastructure
5. Primary Care Capacity and Infrastructure
6. Community Capacity and Infrastructure
7. Integration of Chronic Disease Prevention and Management
8. Monitoring, Evaluation and Learning

USA

The United States of America has a National Prevention Strategy, which aims to promote health and well-being [80]. The plan sets out four strategic directions and seven priority areas for action, which are outlined in Figure 18.

Strategic directions	Priority action areas
• **Healthy and Safe Community Environments**: Create, sustain, and recognize communities that promote health and wellness through prevention. • **Clinical and Community Preventive Services:** Ensure that prevention-focused health care and community prevention efforts are available, integrated, and mutually reinforcing. • **Empowered People:** Support people in making healthy choices. • **Elimination of Health Disparities**: Eliminate disparities, improving the quality of life for all Americans.	• Tobacco free living • Preventing drug abuse and excessive alcohol use • Healthy eating • Active living • Injury and violence free living • Reproductive and sexual health • Mental and emotional well-being

Figure 18: US National Prevention Strategy Strategic Directions and Priority Action Areas [80].

The Centers for Disease Control and Prevention (CDC) also has a Chronic Disease Prevention System, based around four domains as outlined in Figure 19 [4].

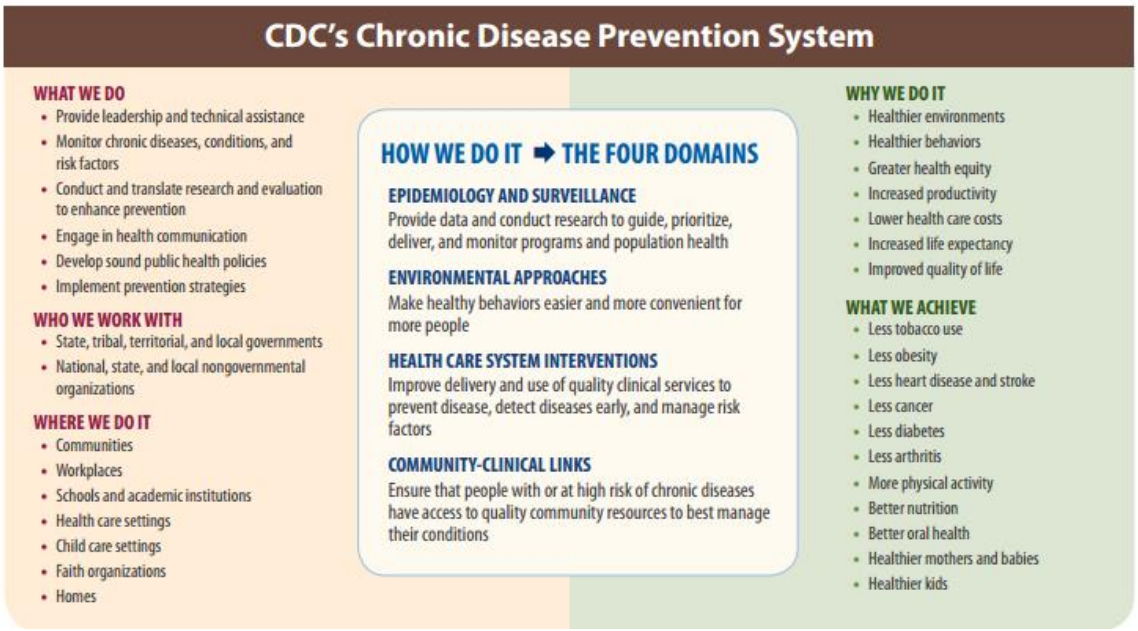


Figure 19: CDC's Chronic Disease Prevention System[4]

In 2016 the CDC released their 'Health Impact in 5 Years' (HI-5) initiatives [81]. The HI-5 initiative is based on an understanding that interventions based in the places where people live, learn, work, and play have the greatest impact on our health [81]. The 14 initiatives focus on non-clinical, community-wide approaches that have evidence supporting positive health impacts within five years ***and*** are cost-effective or cost-saving. The final list of interventions includes those addressing the social determinants of health and those making healthy choices the easy choices:

- Addressing the social determinants of health
  - Early childhood education
  - Clean diesel bus fleets
  - Public transportation system introduction or expansion
  - Home improvement loans or grants
  - Earned income tax credits
  - Water fluoridation
- Changing the context, making healthy choices the easy choices
  - School based programmes to increase physical activity
  - School based violence prevention
  - Safe routes to school
  - Motorcycle injury prevention
  - Tobacco control interventions
  - Access to clean syringes
  - Pricing strategies for alcohol products
  - Multi component workplace obesity prevention

Existing frameworks

Ottawa charter

The Ottawa Charter is a useful framework for primordial and primary disease prevention as well as health promotion. The Ottawa Charter outlines three basic strategies for health promotion:

1. Advocate
2. Enable
3. Mediate

The Charter also sets out five key priority actions [82]:

- **Build healthy public policy**: diverse and complementary approaches including legislation, taxation, fiscal measure and organisational change. Also involves identifying and removing obstacles to adopting healthy public policy in non-health sectors.
- **Create supportive environments**: Involves creating health promoting environments through safe living and working conditions, as well as protecting the natural environment.
- **Strengthen community action**: focus on empowerment of communities, so they have ownership and control of their endeavours.
- **Develop personal skills**: provision of education, information and skill development, allowing for individuals to have control over their own health.
- **Reorient health services**: shift the focus towards health promotion and prevention, rather than treatment and curative services.

Ottawa charter prerequisites for health

Although less frequently discussed, the Ottawa Charter also sets out eight prerequisites for health. Not all of these are under the influence of RPH or the health sector, but is useful to consider they can or could impact on the actions being embarked on to prevent disease.

- Peace
- Shelter
- Education
- Food
- Income
- A stable eco-system
- Sustainable resources
- Social justice
- Equity

Four Ps of Marketing Theory – Product, Promotion, Place, Price

One way of classifying population based interventions is the four Ps of Marketing Theory [83]:

- Product
- Promotion
- Place (availability)
- Price

By considering the 'Four Ps' it is possible classify interventions and identify other areas for potential action. This can be seen in Figure 20, using nutrition as an example.

	Voluntary public health interventions	Public health regulation
Product	Product reformulation (by manufacturers)	Compositional standards
Promotion (advertising, sponsorship)	Front of pack labelling Health and nutrition claims Advertising to children	Front of pack labelling Regulated Health and nutrition claims Advertising to children
Place (availability)	End of aisle Checkouts	Public meal provision Planning and licensing (e.g. fast food outlets)
Price	Price based promotions (e.g. buy one get one free)	Agricultural subsidies Health taxes

Figure 20: Using the 4 Ps - nutrition example. Source [83]

Dahlgren and Whitehead

The Dahlgren and Whitehead Social Model for Health maps the relationship between the individual and their wider environment [84]. The model places the individual at the centre, surrounded by the factors which influence their health: individual lifestyle factors, social and community networks, living and working conditions and the wider environment. The Dahlgren-Whitehead model is the most widely utilised illustration of the determinants of health, and remains useful for considering causes of ill health and interventions to improve health.

Figure 21: Dahlgren and Whitehead Social Model of Health. Source ESRC [85]

National guidance

New Zealand health strategy

An RPH plan for the prevention of long term conditions needs to be seen in the context of a New Zealand government strategy to improve the health of the population. The overarching government context for this work is the Refreshed New Zealand Health Strategy, with the vision:

"All New Zealanders: Live well, stay well, get well." [86]

In particular in the Roadmap of Actions for the New Zealand Health Strategy, Action Areas 8 and 9 refer to actions for the prevention and management of long term conditions.

	Actions
Action area 8	**Tackle long-term conditions and obesity** Increase the effort on **prevention, early intervention, rehabilitation and wellbeing** for people with long-term conditions, such as diabetes and cardiovascular disease, by addressing common risk behaviours such as obesity and intervening at key points across the life course
Action area 9	**A great start for children, families and whānau** Collaborate across government agencies, using social investment approaches, to improve the health outcomes and equity of health and social outcomes for children, young people, families and whānau, particularly those in priority groups or at risk.

Ministry of Health Long Term Conditions Outcomes Framework

One of the actions under 'Action Area 8' of the New Zealand Health Strategy was to agree on an outcomes framework for setting expectations and judging success. This has just been released by the Ministry of Health as Guidance on the National Expectations for the Prevention and Management of Long Term Conditions [87]. This document outlines the service design expectations that contribute to decreasing health loss from long term conditions in New Zealand. The guidance document acknowledges the importance of social determinants of health, as well as the continuum of health care from prevention and early identification through to management and treatment, rehabilitation and palliative care.

The document does not set specific targets, but it does outline a range of population outcomes and supporting measure, with the expectation that services can select measure that best fit their scope of work. This includes long term population outcomes (outlined in Figure 22) and short and medium term outcomes (Figure 23). The framework also includes a list of other suggested additional supporting measure as well as relevant national measures, which have been included in Appendix 2 and is also available on the Nationwide Service Framework Library (http://nsfl.health.govt.nz/service-specifications/long-term-conditions-outcomes-framework).

	Long term population outcomes (3-5+ years)		
	People live well	**People stay well**	**People get Well**
Indicators	**Decrease in mortality from LTCs**	**Decrease in morbidity from LTCs**	**Increase in equity of health outcomes**
Measures	• Life expectancy (Statistics NZ)	• Age standardised total DALYs lost rate per 1000 (MOH) • Age standardised ASH rates by age 45 to 64 years (MOH)	• All measures by ethnicity (and NZdep- aspirational)

Figure 22: Long term population outcomes from the MoH Long Term Conditions Outcomes Framework [87]

	Short and medium term outcomes (1-3 years)			
Indicator	**More people experience wellbeing and have healthy lifestyles**	**People are enabled to stay well in their own communities**	**People have good access to effective and responsive health services**	**People are supported to manage their LTC**
Measures	• Self-rated health status by ethnicity by NZDep (NZHS) • Overweight and obesity rates by age group, ethnicity and NZDep (NZHS)	• PHO enrolment (to identify populations not enrolled) (DHB) • Diabetes and CVD checks and action as follow up (DHB) • PHO and pharmacy barriers to access by ethnicity –self reported (NZHS) • HPV vaccine coverage by ethnicity and gender (MOH)	• Amenable mortality rate age 45 to 64 years (MOH)	• Rates of people with LTCs having care/wellness plans (DHB)

Figure 23: Short and medium term population outcomes from the MoH Long Term Conditions Outcomes Framework [87]

The document outlines what The Ministry od Health envisages successful approaches to delivering long term conditions services will look like. Notably it recommends that services focus on wellness through prevention and early identification. The document outlines the following design elements as pivotal for success in improving outcomes [87]:

1. Targeted prevention
2. Being evidenced based
3. Holistic/integrated approach to service design and delivery
4. Based on collaborative programmes and/or co-design
5. Health literacy
6. Workforce capacity and capability
7. Services delivered closer to home
8. Self-management support/programmes
9. Appropriate leadership and governance
10. Effective information technology solutions

Although some of these are more specific to management, rather than prevention, several are highly relevant and integral to work done at RPH.

Figure 24 outlines The Ministry's proposed Long Term Conditions Population Outcomes Framework, including the short and long term outcomes. This Framework is relatively comprehensive; however, could benefit from including the impact of built and natural environments, and also from the inclusion of settings for action.

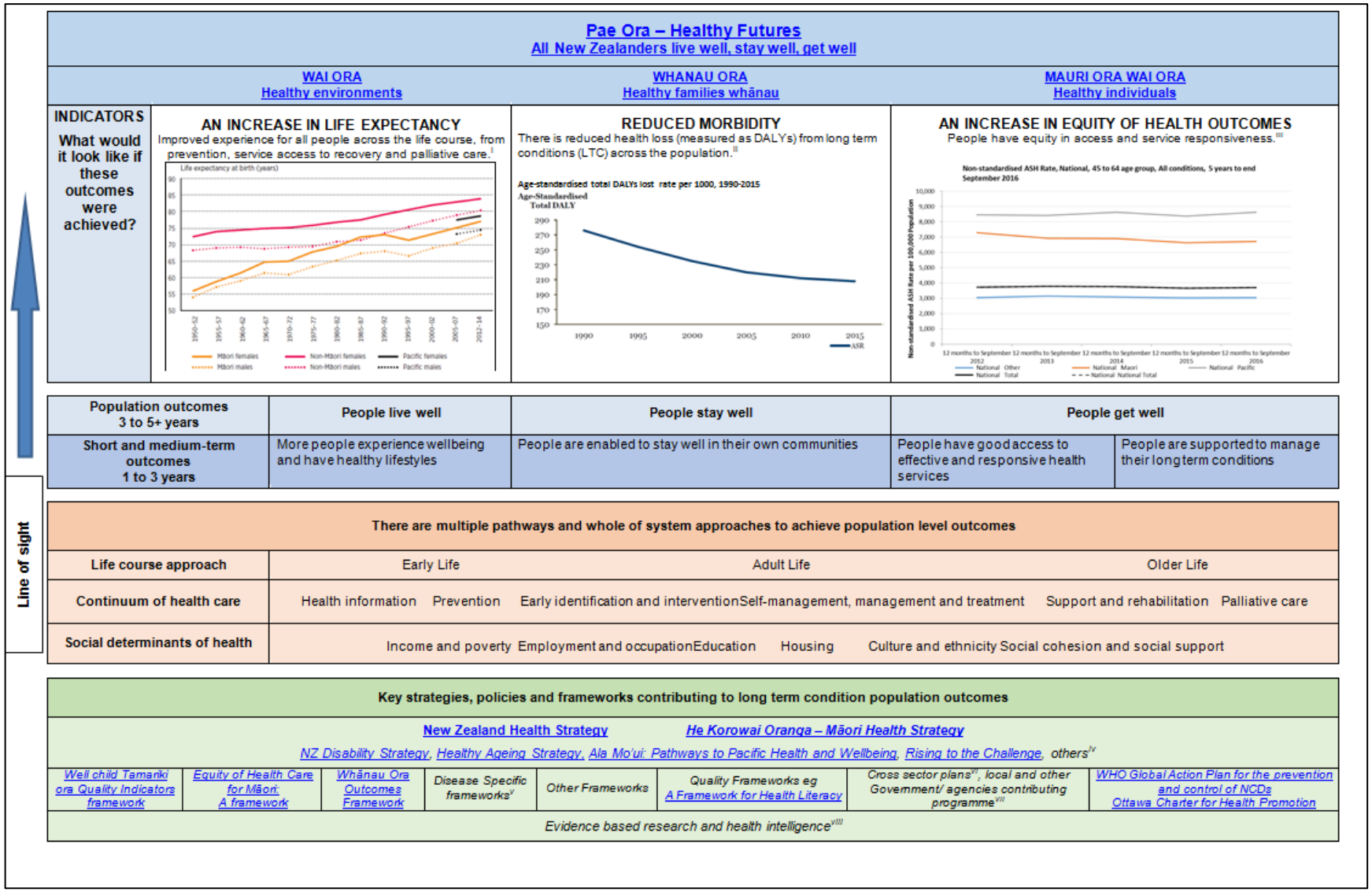


Figure 24: National Expectations for the Prevention and Management of Long Term Conditions Line of Sight Outcomes Framework [87]

Social investment agency

A new stand-alone Social Investment Agency will be launched on 1 July 2017 to replace the Social Investment Unit which is currently part of Ministry of Social Development. The aim of the Agency is to help social sector agencies better understand and meet the needs of the most at-risk New Zealanders and communities. It will help agencies better understand the collective impact of their interventions across an individual's life course. Greater use of data and evidence and a focus on measuring outcomes will create a system that looks for more opportunities to intervene sooner and more effectively. The Agency will have an independent Board comprising Chief Executives of Education, Health, Justice and Social Development with an independent Chair. It will be responsible for providing investment advice and implementation oversight. Given the agencies involved, this has a great potential for improving health and wellbeing and preventing long term conditions.

New Zealand Medical Journal viewpoint

In 2015 a Viewpoint was published in the New Zealand Medical Journal by Public Health and long term condition expects, which proposed a set of New Zealand specific targets that aligned with the WHO global targets [15]. These targets took into account the progress already made in New Zealand, as well as local priorities and feasibility. The Viewpoint also proposed a set of pragmatic actions for each target, with the aim being to trigger a national commitment and collaborative action towards improving prevention and control of long term conditions. These targets have been incorporated into the Framework. See Appendix 3 for a full summary of the targets and actions.

Winning ways to wellbeing

The Mental Health Foundation of New Zealand has adopted the "Five Ways to Wellbeing: Ētahi ara e rima ki te ngākau ora" to help people stay mentally well [88]. These were created based on the New Economics Foundation's Foresight Project on Mental Capital and Wellbeing [89]. The project reviewed the current evidence and identified five actions, which when built into everyday life, can improve the wellbeing of individual, whānau, communities and organisations [88]. This Five Winning Ways to Wellbeing are outlined in Figure 25.

Figure 25: The Five Winning Ways to Wellbeing. Source: Mental Health Foundation [88]

Systems approach to preventive health

Systems thinking for the prevention of long term conditions considers the multiple complex and dynamic systems that impact on long term conditions and enables a better understanding of these systems. The characteristics of these prevention systems might hold some innovative solutions to improve health outcomes. This way of thinking was initiated in Victoria (Australia) and has been introduced into New Zealand as Healthy Families New Zealand [90].

The theory of change would suggest that: "Large scale social change comes from better cross-sectoral coordination rather than from the isolated intervention of individual organisations." [91] If the approach is to change, the elements of the approach need to change as follows [92]:

Traditional preventive approach	**Whole of systems approach**
Projects	System networks and activation
Planning	Implementation and improvement
Experts lead	Communities lead
Technical leadership	Adaptive leadership
Knowledge transfer and translation	Knowledge co-creation
Meetings	Everyone in the room sessions
Training	Networks of practice

A dynamic systems approach to preventing long term conditions includes:

- Adopting a 'multiple theories' approach, incorporating complexity and socioecological systems
- Employs knowledge co-creation and co-production
- Builds capability to adopt, adapt and act on evidence informed interventions as events in the system

- Is in the business of creating multiple health promoting environments (as systems themselves)
- Focuses on building blocks as interventions themselves:
    - Harnessing the power of information
    - Developing a workforce that uses systems thinking
    - Leadership for systems change
    - Partners activating systems action
    - Financing the activation system.

There is a pilot site for Healthy Families New Zealand in Lower Hutt, led by the Hutt City Council [90].

Te Pae Mahutonga

Te Pae Mahutonga is a model for Māori Health Promotion. It was created by Sir Mason Durie as a tool to reflect Māori values in health promotion [93]. It is relevant to all New Zealanders.

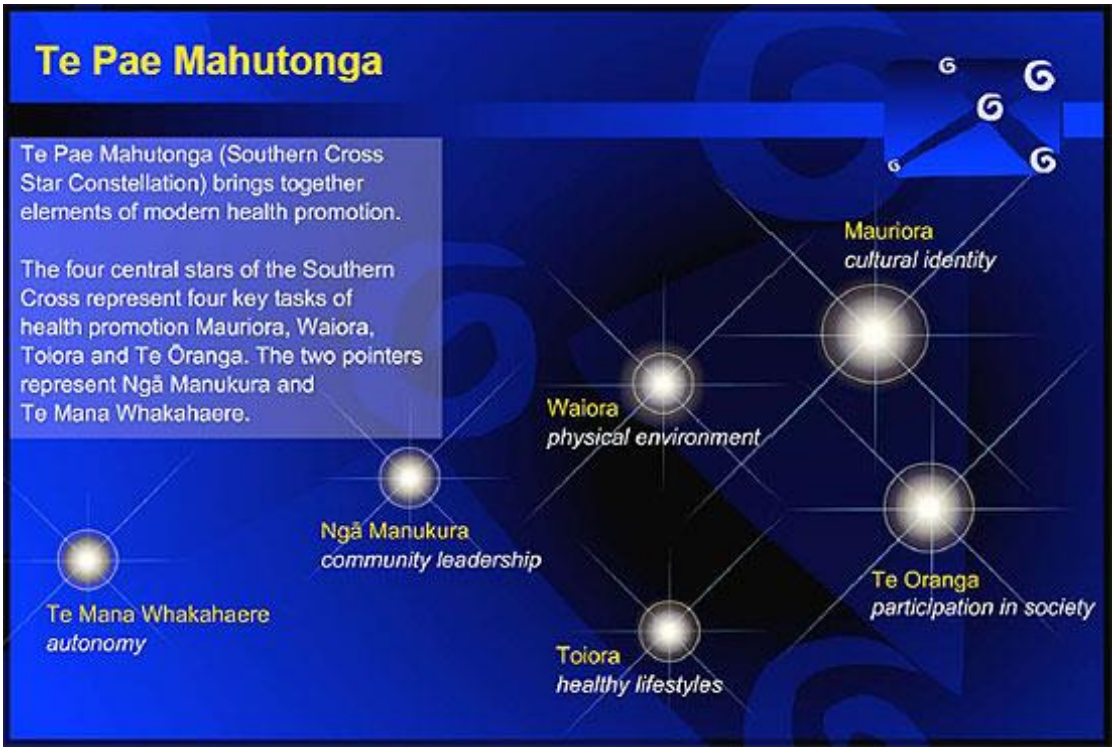


Figure 26: Te Pae Mahutonda. Source MoH

- Mauriora
    - Language and knowledge
    - Culture and cultural institutions such as marae
    - Maori economic resources such as land, forests and fisheries
    - Social resources such as whanau, Māori services, networks
    - Societal domains where being Māori is facilitated not hindered
- Waiora
    - Water free from pollutants
    - Clean air
    - Earth abundant in vegetation
    - Healthy noise levels
    - Opportunities to experience the natural environment

- Toiora
    - Harm minimization
    - Targeted interventions
    - Risk management
    - Cultural relevance
    - Positive development

- Te oranga
    - Participation in the economy
    - Participation in education
    - Participation in employment
    - Participation in the knowledge society
    - Participation in decision making

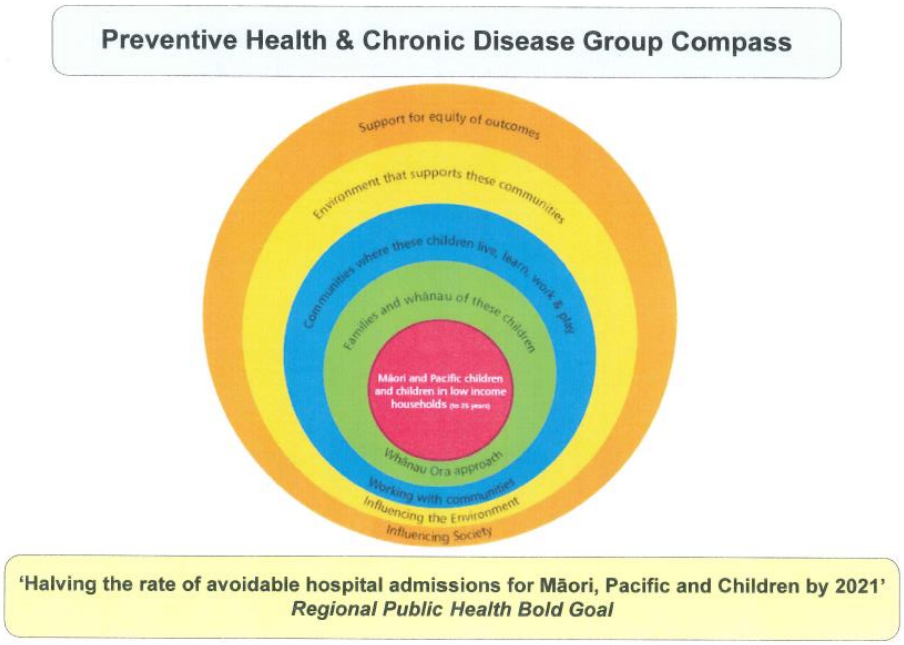
- Nga Manukura
    - Community leadership
    - Health leadership
    - Tribal leadership
    - Communication
    - Alliances between leaders and groups

- Te Mana Whakahaere
    - Control
    - Recognition of group aspirations
    - Relevant processes
    - Sensible measures and indicators
    - Capacity for self-governance

Regional guidance

Preventive Health and Chronic Diseases compass

The PHCD compass was developed in 2013 to help inform PHCD planning. The compass is RPH's adaptation of the Ottawa Charter for working with our communities.



Community Action Neighbourhood approach

The Community Action Neighbourhood Approach (CANA) works with communities to co-create actions, focusing on community driven goals. CANA is based on eight key principles:

- Empowerment
- Assets and strength based
- Responsive to residents needs and aspirations
- Enhanced support of residents voice in policy
- Proactive in addressing tobacco and obesity
- Long term commitment
- Addressing determinants of health
- Reducing inequalities

Māori Strategic Plan implementation

RPH developed a Māori Strategic Plan in 2014. The plan focuses on four pathways to strengthen RPH's contribution to improving Māori health and wellbeing.

1. Relationships
2. Workforce development
3. Accountability
4. Communication

Implementation of all aspects of the Māori Strategic Plan are vital for the effective prevention of long term conditions. Creating a strategic framework with outcome goals and measures will help ensure accountabiltiy for improving Māori health with regards to long term conditions.

Results based accountability

Using the Results Based Accountability method, there are two levels of accountability: population accountability and performance accountability.

Population accountability

This is about improving the quality of life for the whole population we are responsible for. For RPH it is about considering a high level population outcome. Our section of RPH is Preventive Health and Chronic Diseases Group. The group is about prevention of conditions such as: cardiovascular disease; respiratory diseases; diabetes; obesity; cancer; mental illness; family violence; poor oral health; injury; musculoskeletal disorders; and many other conditions. This involves considering results/outcomes and indicators, where we are going and how far we have gone on the journey

Note that for population accountability:

- No single agency or programme is responsible for achieving population wellbeing
- It is the result of many small steps by multiple agencies and people
- The indicators measure whether the overall result is being achieved

But we are accountable for working with others to achieve these outcomes. Working with others leads to performance accountability.

Performance accountability

Performance Accountability – performance measures, what we do to get there and is it taking us in the right direction. The three questions asked here are:

- How much did we do? – numbers of actions
- How well did we do it? – quality / % of satisfied clients / cost / workforce
- Is anyone better off? - % change, % behavior change, # improved attitude/behavior etc

The question 'Is anyone better off' feeds back into Population Accountability

Section C

Proposed Prevention Framework

Proposed Prevention Framework

The proposed Framework for Prevention of Long Term Conditions draws on all of the international, national and regional tools, plans and frameworks discussed in the previous section ('Developing a Framework for Action' pages 30 - 47) to create a framework specific for RPH.

Figure 28 presents the Framework, and outlines: why, who, what, where and how for the prevention of long term conditions. The Framework also sets out seven proposed key intervention domains. These are currently in draft form, and will be further developed, along with goals and indicators with feedback from PHCD and the wider RPH team.

Workforce

Implementation of this plan requires a strong and capable workforce, working across diverse roles. This includes working on both voluntary and regulatory intervention pathways. A separate Workforce Development Plan is under development for PHCD that covers in detail the requirements of the workforce.

This plan is specifically for RPH but to be successful will require working with the communities impacted by long term conditions, and others working across the health and social sectors.

In order to be successful it is vital that staff have a good understanding of health literacy to ensure interventions are delivered in an effective way. Historically the focus of health literacy was on the individual and their ability to understand health information; however, internationally there is growing recognition that the focus should be on having a health-literate health system and workforce [94]. The Ministry of Health has produced a Framework for Health Literacy, which includes expectation and actions for the health system, health organisations and the health workforce to take action to make health information and interventions more accessible [95]. Figure 27 outlines the 'Health workforce' segment of the Framework.

	Leadership and management Championing health literacy and taking the lead on a 'culture shift' towards a health-literate health system.	**Knowledge and skills** Improving our knowledge of how health literacy demands can be reduced and health equity achieved.	**Health system change** Being committed to a 'culture shift' so that change occurs at all levels of the health system, leading to better health outcomes for individuals and whānau and reduced health costs.
Health workforce	**Health workforce leadership is about being seen by peers, individuals and whānau as effective communicators, who champion good health literacy practice.** **What success looks like:** Every member of the health workforce raises awareness of health literacy and promotes good health literacy practice, with a keen eye on new ideas for ways to better communicate with patients. **Actions** ✓ Approach health literacy in a way that recognises levels of health literacy differ between individuals and can differ for an individual at different times of their life. ✓ Promote and coordinate action to raise awareness of, and build skills in health literacy practice among the health workforce and across the health system. ✓ Work in ways that build health literacy skills of individuals and whānau.	**The health workforce can contribute to improved understanding of good health literacy practice.** **What success looks like:** Health workforce members are knowledgeable about how they can build health literacy in their practice and among individuals and whānau. **Actions** ✓ Undertake training in effective health literacy communication (evidence-based) methods as a core part of professional development. ✓ Provide resources that are appropriate for the target audience and use a variety of media and approaches (including different technologies). ✓ When developing health education resources, seek feedback from individuals and whānau and use reference material such as *Rauemi Atawhai: A guide to developing health education resources in New Zealand.*	**The health workforce must be committed to good health literacy practice as a routine part of how they do things.** **What success looks like:** Individuals and whānau are supported to obtain, process and understand health information from everyone they have contact with in the health system, and are empowered to make informed decisions. **Actions** ✓ Build capacity for the health workforce to use plain language and proven health literacy practices (see for example, *Three steps to better health literacy*) . ✓ Create an environment where individuals can speak freely about their health care to relevant people in the health workforce. ✓ Assume that most individuals and whānau will at times have difficulty understanding and applying complex health information, and work on ways to make it less difficult.

Figure 27: Health Workforce contribution to Health Literacy. Source: MoH [94]

FRAMEWORK FOR PREVENTION OF LTCS

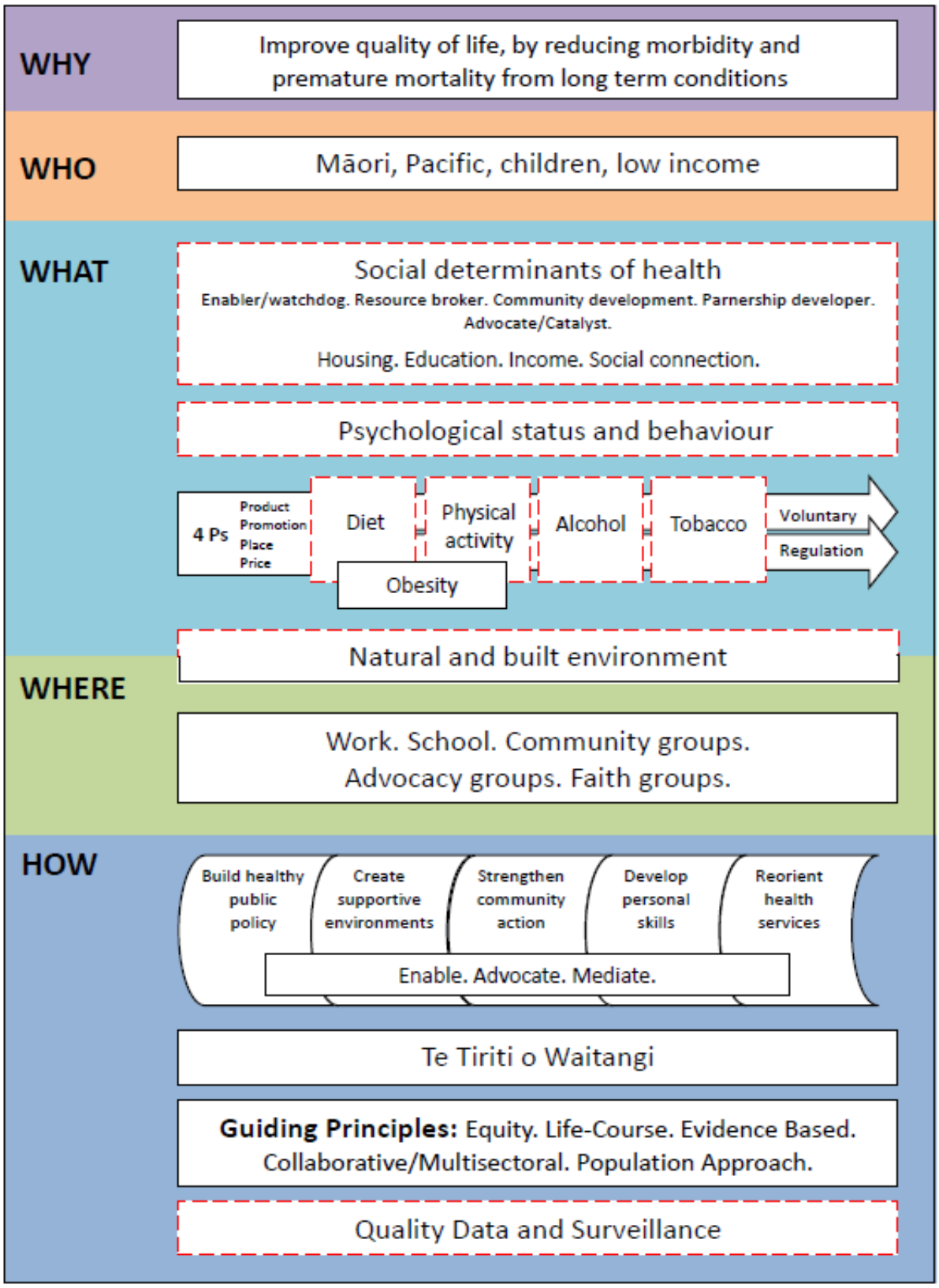


Figure 28: Proposed Framework for the Prevention of Long Term Conditions. Red hatched boxes indicated proposed key intervention domains

Guiding principles

Equity

There are marked ethnic inequalities in the burden of long term conditions and their risk factors. All work undertaken to prevent long term conditions must have an equity focus, and all targets must have an equity component.

Life course

As people age they accumulate exposure to modifiable risk factors for long term conditions [1]. Figure 29 demonstrates how the impact of risk factors increases over the life course. A life-course approach to the prevention of long term conditions acknowledges the cumulative impact of social and biological influences throughout life, and in particular the potential for intervention early in life to substantially reduce future illness [1]. Given the long duration of long term conditions, there are plenty of opportunities for prevention! [1]

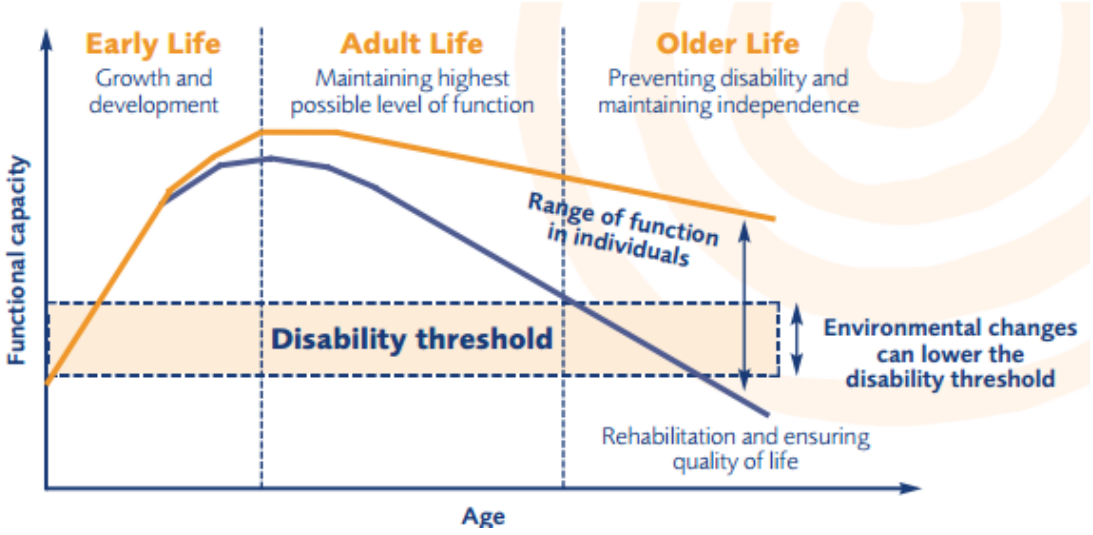


Figure 29: A life course perspective for maintenance of the highest possible level of functional capacity. Source [96]

Evidence based

Evidence, particularly for population based interventions, can be difficult to find and difficult to interpret. However, given the limited resources available for the prevention of long term conditions it is necessary to undertake interventions that are effective and ideally maximally cost-effective. This means consider all types of evidence including [83]:

1. Logic
2. Using analogies from other parts of work (e.g. tobacco, alcohol, salt)
3. Observation studies of determinants
4. Small-scale experiments
5. Evaluations of natural experiments
6. Modelling
7. Experience: should be shared!

Figure 30 shows a simple graphic that can be used when planning projects or reflecting on current work being undertaken to try and maximise impact with finite recourses. Each piece of work can be plotted on a graph of effort (including time, resources and cost) and impact. The general trajectory will be linear; with more effort comes more impact. However, it is worth taking some time to think about the outliers: what is getting high impact for low effort? Can this be replicated elsewhere? And conversely what is consuming large amounts of effort for little impact? Can this work be stopped and the effort invested elsewhere? This exercise can be done at an individual or a group level.

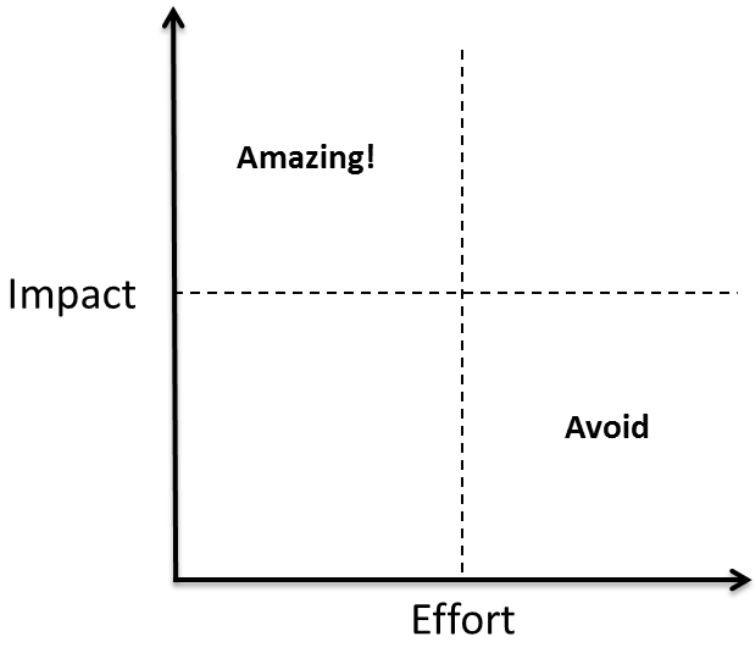


Figure 30: projects can be plotted on a graph of effort and impact to help work planning

Resources for using evidence

The Community Guide: "The Program Evidence Tool consists of a set of guidelines and worksheets that provide step-by-step support in identifying and applying relevant sources of evidence to strengthen local chronic disease prevention programming. The tool aims to balance scientific rigor with the needs and challenges of evidence use at the local level."
https://www.thecommunityguide.org/

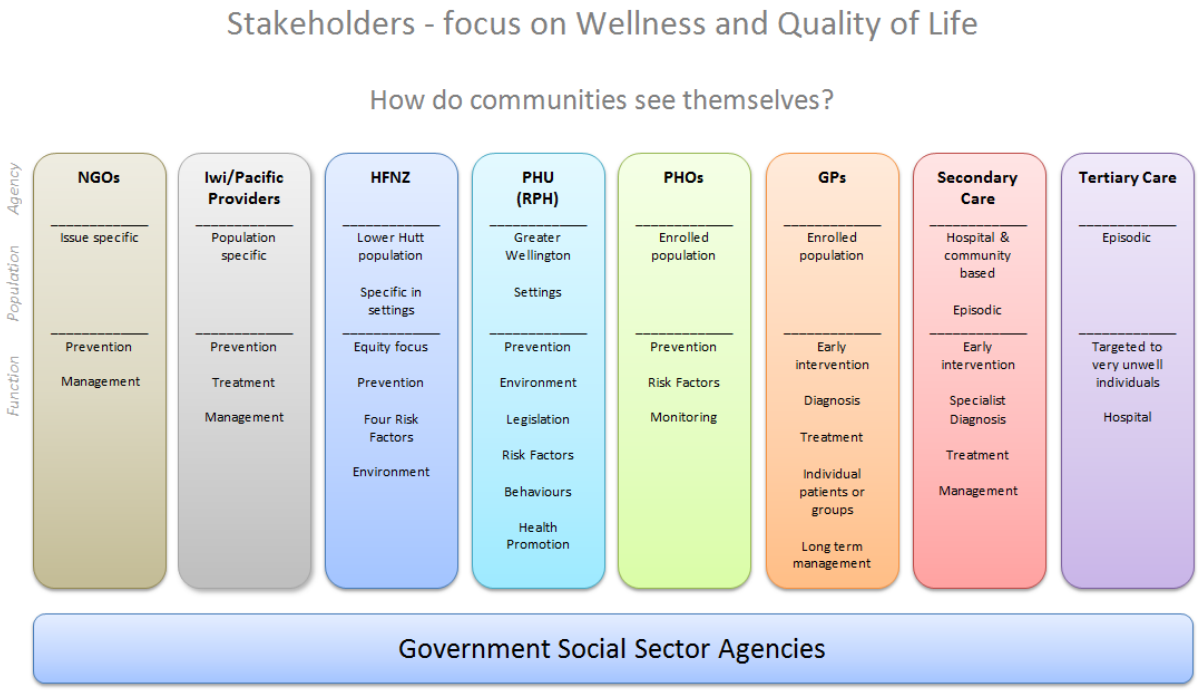
NICE Guidelines: Provides links to NICE guidelines to assist local authorities to address public health priorities. The public health document covers four key domains: improving the wider determinants of health, health improvement, health protection and healthcare public health and preventing premature mortality. https://www.nice.org.uk/advice/lgb5/chapter/Introduction

Cochrane Public Health: a collection of systematic reviews of population level interventions that address the structural and social determinants of health and other topics relevant to public health.
http://ph.cochrane.org/

Canadian Best Practices Portal: provides a "consolidated one-stop shop" for health professionals and public health decision-makers. The Portal links to credible resources and solutions to plan programs to promote health and prevent disease for populations and communities. http://cbpp-pcpe.phac-aspc.gc.ca/

Multisectroal/Collaborative action

The responsibility for preventing long term conditions is shared between both national and local government in collaboration with non-government organisations. This is vital, as several of the areas for change exist outside the health sector, which means that all sectors of government and society must be engaged in the prevention of long term conditions. To be successful this strategy is to be delivered by RPH, with networked actions through local offices of government agencies, Non Government Organisations, private sector, academia and communities. Engagement and inclusion of communities is vital to any prevention plan.



A communication plan will need to be developed for communicating the Long Term Conditions plan with the partner organisations.

Population approach

The WHO recommends that a population-wide approach should form the central strategy for preventing long term conditions (see page 24 for more details) [1]. This does not necessarily mean providing interventions to the whole RPH population, but targeting action at high risk populations. In practice this means working with low decile schools and high deprivation communities, who have differential access to the social determinants of health.

Key intervention domains

Intervention domain one: Social determinants of health

To be developed post further feedback

Addressing social determinants of health is key to the prevention of long term conditions in the region. Staff at RPH are limited in their sphere of influence with regards to some determinants, but there are actions that both individuals and the organisation can take to help address the social determinants of health.

The CDC HI-5 (Health Impact in 5 year) Initiatives [81]
Addressing the social determinants of health:

- Early childhood education
- Clean diesel bus fleets
- Public transportation system introduction or expansion
- Home improvement loans or grants
- Earned income tax credits
- Water fluoridation

At an individual level, Labonte described five potential roles for health authorities in addressing the social determinants of health. These are outlined in Figure 31. All staff at RPH should consider the roles they are currently practising and whether they can incorporate other roles into their work.

Educator/watchdog	A combination of increasing public awareness about health determining social and environment conditions, and monitoring those conditions for their effects on health status.
Resource broker	Making internal resources (personnel, finances, material goods) more readily available to groups working on health determinants, whether or not these actions are undertaken in the name of "health."
Community developer	Supporting community group organisation and action on health determinants, through dedicated community development/health promotion staff and grants programs.
Partnership developer	Engaging in joint programming and policy development work, locally, regionally and provincially, with those in the public, private and civil society sectors with a "stake" in health determinants.
Advocate/catalyst	Developing and advocating statements on policy options that influence health determinants, especially to more senior government levels

Figure 31: The role of health authorities in addressing social determinants of health[71]

There is also the question of how social determinants of health are assessed and monitored in the community, and how they are recognised in core business, planning and evaluation functions of RPH.

	Proposed goal	**Possible indicator**
Individual	Staff are aware of their potential roles in addressing social determinants of health and seek out opportunities to expand their role	tbc
Organisation	A set of departmental social determinants of health is developed and regularly assessed and monitored	tbc

Useful References and Resources for addressing Social Determinants of Health:

- Centers for Disease Control and Prevention. Tools for Putting Social Determinants of Health into Action. Available online at: https://www.cdc.gov/socialdeterminants/tools/index.htm
- Commonwealth Secretariat. (2011). Taking up the challenge of non-communicable diseases in the Commonwealth: 17 good-practice case studies. Available online at: http://www.hauora.co.nz/assets/files/Resources/Taking%20up%20the%20challenge%20of%20NCDs%20in%20the%20Commonwealth%202011es.pdf
- Labonte, R. (2002). A population health implementation approach for health authorities. Available online at: http://www.southshorehealth.ca/component/docman/doc_download/63-pop-health-guide-for-health-authorities
- Marmot, M. et al. (2010). Fair Society, Healthy Lives: The Marmot Review. Available online: http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-the-marmot-review-full-report.pdf
- National Collaborating Centre for Determinants of Health. (2010). Integrating Social Determinants of Health and Health Equity into Canadian Public Health Practice: Environmental Scan 2010. Available online at: http://nccdh.ca/images/uploads/Environ_Report_EN.pdf
- Population and Public Health Branch, Atlantic Region. (2002). An Inclusion Lens: A Workbook for Looking at Social and Economic Exclusion and Inclusion. Available online at: http://seniorspolicylens.ca/Root/Materials/Adobe%20Acrobat%20Materials/Social_and_Economic_Inclusuin_Lens.pdf
- World Health Organization Commission on the Social Determinants of Health. Resources available on-line at: http://www.who.int/social_determinants/en/

Position statements

To be developed

Intervention domain two: Psychological status and behaviours

To be developed post further feedback

Neuropsychiatric disorders (which include neurological disorders, mental disorders and addiction disorders) are the leading single cause of health loss in New Zealand [16]. As well as being an outcome of interest in itself, psychological status also shapes other risk behaviours and can directly cause biological changes to influence the development of other long term conditions [25].

Given the high burden of disease should RPH be investing greater resources in this area of work? Preventive mental health work may well be occurring during other work pathways at RPH, or being completed by other organisations; are RPH staff aware of what work is being undertaken in the region?

	Proposed goal	**Possible indicator**
Possible goal 1	Consider focusing more resources in mental well-being prevention	Tbc
Possible goal 2	Undertake a stocktake of mental health prevention/promotion activities occurring in the greater Wellington region to ensure adequate resources are being invested given the large burden of disease.	Tbc
Possible goal 3	Staff are conscious of how the work they are doing contributes to mental wellbeing	

Possible interventions include: efforts to create positive psychological characteristics through modifying the social relationships and the psychosocial environment in homes, schools and workplaces and helping young people to improve their social-emotional competence [25].

Psychological status influences risk factor behaviours singly, collectively and in many social environments.

Action on mental wellbeing can be woven into actions on ‘causes’ and ‘causes of the causes’ of long term conditions in a systems approach.

Position statements

To be developed

Intervention domain three: Diet

To be developed post further feedback

WHO targets	30% relative reduction in mean population intake of salt/sodium
	Halt the rise in diabetes and obesity
NZMJ recommendations	30% relative reduction in mean daily salt intake to 6g per day by 2025
	Reduction of childhood overweight and obesity prevalence to 25% by 2025 with reductions in the ethnic and socioeconomic gradients in prevalence.
	Reduction of total energy intake from saturated fat for adults from 13% to 11% by 2015
Proposed RPH target	

Position statements

To be developed

Intervention domain four: Physical activity

To be developed post further feedback

WHO target	10% relative reduction in prevalence of insufficient physical activity
	Halt the rise in diabetes and obesity
NZMJ recommendations	A 10% relative reduction in physical inactivity from 49% to 44% in adults, and from 33% to 30% of children by 2025.
	Reduction of childhood overweight and obesity prevalence to 25% by 2025 with reductions in the ethnic and socioeconomic gradients in prevalence.
Proposed RPH target	

Position statements

To be developed

Intervention domain five: Alcohol

To be developed post further feedback

WHO target	10% relative reduction in the harmful use of alcohol by 2025
NZMJ recommendation	10% relative reduction in the harmful use of alcohol by 2025
Proposed RPH target	

Position statements

To be developed

Intervention domain six: Tobacco

To be developed post further feedback

WHO target	30% relative reduction in prevalence of current tobacco use in persons aged 15+ years
NZMJ recommendation	Reduction of daily smoking prevalence to <5% by 2025
Proposed RPH target	

Intervention domain seven: Quality data and surveillance

To be developed post further feedback

Surveillance is a core public health function. Timely and accurate information on risk factors, distribution and trends is essential to allow for prioritisation, programme planning and evaluation.

Health information technology may enable increased efficiency and timeliness of public health surveillance.

Surveillance information is provided to the Ministry of Health under RPH contractual obligations. Often information is gathered and offered to communities that could usefully be passed on the Ministry of Health. Small changes in people centred activities and behaviours can signal the 'direction of travel' in communities, which are valuable to note.

Position statements

To be developed

Intervention domain eight: Natural and built environments

To be developed post further feedback

The natural and built environment has been included as both a 'what' and a 'where' in the Framework. This is due to the fact that the environment is both a place where interventions occur, and also recognises the importance of the environment in the maintaining health and wellbeing.

People live in both the natural and built environments and in settings – in Ottawa Charter terms "where people live, learn work and play". Public health interventions can influence these environments through both regulatory and non regulatory pathways. These need to be considered as an intervention domain in the framework.

Position statements

To be developed

Links with other plans and activities

The RPH business plan illustrates the relationships between the five core public health functions and the RPH action plans and activities [97]. This Long Term Conditions Plan has been written with the intention of informing activities going forward.

Throughout this plan, reference has been made to many international, national and local plans and strategies. All of these are useful sources of information to develop the Key Intervention Domains further. Of particular note is the work RPH Healthy Environments and Disease Control group is undertaking on housing.

The work on long term conditions relates to work on other modifiable risk factors for long term conditions such as [98]:

- Air quality and water quality
- Communicable diseases
- Disabilities and demographic change
- Violence and unintentional injuries

Importantly, this long term conditions prevention work must align with the national level strategies and plans referred to in the MoH Long Term Conditions Outcomes Framework on Page 37, including:

- NZ Health Strategy
- He Korowai Oranga – Maori Health strategy
- NZ Disability Strategy
- Healthy ageing Strategy
- Ala Mo'ui – Pathways to Pacific Health and Wellbeing
- Rising to the Challenge
- Well Child Tamariki Ora Quality indicators framework
- Equity of Health Care for Maori – a Framework
- Whanau Ora Outcomes Framework*
- Framework for Health Literacy

* The Whanau Ora Outcomes Framework is being considered for use in the RPH Strategic Plan (under development). The RPH Strategic Plan and the Long Term Conditions Prevention plan are complementary in influencing the future direction of RPH work. Hence the Whanau Ora Outcomes Framework has not been included in detail in the Long Term Conditions Prevention Plan, but will form a link between the two plans.

The next stage for this Plan is to develop the Key Intervention Domains and use these in planning the work for RPH to go forward.

Appendix 1

Definitions of risk factors and long term conditions used in the report [40, 99].

Current smoking	Has smoked more than 100 cigarettes in lifetime and currently smokes at least once a month
Hazardous drinking	Has a hazardous drinking pattern, as defined by a score of 8 or more on the 10-question AUDIT (Alcohol Use Disorders Identification Test). Hazardous drinking refers to an established drinking pattern that carries a risk of harming physical or mental health, or having harmful social effects to the drinker or others.
Meets vegetable intake guidelines	Meets vegetable intake guidelines (eats three or more servings of vegetables each day)
Meets fruit intake guidelines	Meets fruit intake guidelines (eats two or more servings of fruit each day)
Physically active	Has done at least 30 minutes of moderate-intensity physical activity (or equivalent) on five or more days in the past week
Obesity	Body mass index (BMI) of 30+, or equivalent for <18 years
High blood pressure (medicated)	Has ever been told by a doctor that they have high blood pressure, and takes medication for this condition (excludes pregnant women)
High cholesterol (medicated)	Has ever been told by a doctor that they have high cholesterol, and takes medication for this condition
Ischaemic heart disease (diagnosed)	Has been admitted to a hospital with a heart attack at some time in their life, and/or has ever been diagnosed with angina by a doctor
Stroke (diagnosed)	Has ever been told by a doctor that they have had a stroke (not including transient ischaemic attacks, which are sometimes called ministrokes)
Diabetes (diagnosed)	Has ever been told by a doctor that they have diabetes (excluding diabetes during pregnancy)
Asthma (medicated)	Has ever been told by a doctor that they have asthma and uses medication (inhalers, medicine, tablets or pills) for this condition
Mood or anxiety disorder (diagnosed)	Ever diagnosed with a mood (depression or bipolar) and/or anxiety disorder
Psychological distress	A score of 12 or more on the Kessler-10 (K10) scale. This indicates a high or very high probability of having an anxiety or depressive disorder. Note: it is unclear how people report stress following a natural disaster, or how the K10 screen for psychological distress performs under these conditions. Therefore the results on psychological distress for Canterbury DHB should be interpreted with caution.
Level 2 Certificate	Adults aged 18 years and over with a NCEA Level 2 Certificate or higher
Unemployed	People are without a paid job, available for work and actively seeking work.
Income Poverty	Household income is equivalised using the revised Jensen scale. Low income is defined as an equivalised household income under $15,172.
Household Crowding	Defined as needing at least one additional bedroom according to the Canadian National Occupancy Standard (based on the age, sex and number of people living in the dwelling).

Appendix 2

Long Term Conditions Outcomes Framework – Measures (Part B) work in progress (at 30 March 2017)

Part B collates a range of available measures and data sources that tell the story of service delivery and show the collective contribution to the national population outcomes for long term conditions (LTC). Part B is used with the LTC Population Outcomes Framework- line of sight (Part A), and the National expectations for the prevention and management of long term conditions document published at www.nsfl.health.govt.nz/service-specifications/long-term-conditions-outcomes-framework

Choose the indicators and measures, including the System Level Measures that best assess your local population needs and monitor progress towards achieving the outcomes. In some cases measures are aspirational. This table combines government, Ministry of Health monitoring information and DHB reports. It will be updated as other measures are developed.

Table key: ASH: Ambulatory Sensitive Hospitalisation, BPS: Better Public Services, CVD: Cardiovascular Disease, DALYs Disability Adjusted Life Years, HT: Health Target, MOH: Ministry of Health, NZDep: New Zealand Deprivation Index, NZHS New Zealand Health Survey, SLM: System Level Measure, MSD: Ministry of Social Development. (Type of measure or data source is listed in brackets).

	Long term population outcomes (3-5+ years)		
	People live well	**People stay well**	**People get well**
Indicators	**Decrease in mortality from LTCs**	**Decrease in morbidity from LTCs**	**Increase in equity of health outcomes**
Measures	• Life expectancy (Statistics NZ)	• Age standardised total DALYs lost rate per 1000 (MOH) • Age standardised ASH rates[i2] by age 45 to 64 years (MOH)	• All measures by ethnicity (and NZdep- aspirational)
Other suggested supporting	• Mortality rates for each LTC condition (Statistics NZ) • National Screening rates for	• DALYs lost from LTCs[ii] (MOH) • Self-reported prevalence rates each LTC condition (NZHS) Also Virtual Diabetes Register , NZ Cancer Registry etc	

measures	breast and cervical cancer (MOH) • Amenable mortality rate by age 45 to 64 years (MOH)	• Mental illness-psychological distress (NZHS)	
Relevant national measures	• Amenable mortality rate by age 0-4 years (SLM)	• Faster cancer treatment[iii] (HT) • Standardised ASH rates by age groups[iv3] (SLM0-4 year olds)	

	Short and medium term outcomes (1-3 years)			
Indicators	**More people experience wellbeing and have healthy lifestyles**	**People are enabled to stay well in their own communities**	**People have good access to effective and responsive health services**	**People are supported to manage their LTC**
Measures	• Self-rated health status by ethnicity by NZDep (NZHS) • Overweight and obesity rates by age group, ethnicity and NZDep (NZHS)	• PHO enrolment (to identify populations not enrolled) (DHB) • Diabetes and CVD checks and action as follow up (DHB) • PHO and pharmacy barriers to access by ethnicity –self reported (NZHS) • HPV vaccine coverage by ethnicity and gender (MOH)	• Amenable mortality rate age 45 to 64 years (MOH)	• Rates of people with LTCs having care/wellness plans (DHB)
Other suggested supporting measures	• Healthy nutrition rates by age and by ethnicity (NZHS) • Healthy physical activity rates by age and by ethnicity (NZHS) • Breastfeeding rates by ethnicity • Sleep duration (NZHS for 2017/18) • Socio-economic measures such	• ASH rates for each LTC condition (MOH) • Psychological; distress by age, ethnicity, NZDep (NZHS) • Suicide rates by age, by ethnicity (Statistics NZ and MOH) • Raised blood cholesterol % treated (NZHS) • Raised blood pressure, % treated; %	• Barriers to access to primary care and prescriptions by age, ethnicity and NZDep (NZHS) • Trust and confidence in GP by ethnicity and NZDep (NZHS) • Individual's health literacy	• DHB achievement of health literacy checklist (DHB) • Green Prescription rates (DHB) • Active Families referrals • High blood pressure medicated (NZHS) • High cholesterol, medicated

	as employment and income rates by ethnicity and NZDep (NZHS and MSD[4]) • Smoking rates by age group and ethnicity (NZHS) • Hazardous drinking rates by age group and by ethnicity (NZHS) • National fluoridation coverage – i.e. number of people living in areas that have fluoridated water (MOH)	normotensive (NZHS) • Raised BS; % treated (NZHS) • interRAI NZ data analysis[5] report by age and ethnicity (DHB) • Social Community connectedness (interRAI NZ data analysis[6] report) (DHB) • PHO and pharmacy utilisation by age and by ethnicity rates (NZHS)	experience measures by DHB (2017/18 NZHS) • Chronic Health Conditions module 2013/14 (NZHS) • Coronary stent rates by ethnicity (DHB)	(NZHS) • High Blood Sugar % treated (NZHS) • Mental health diagnoses by % treated (NZHS)
Relevant national measures	• Babies live in smoke-free household at age 6 weeks by ethnicity (SLM) by NZDep • Better help for smokers to quit (HT) • Increased Immunisation (HT) • Reducing long term welfare dependence (BPS1) • People living in insulated and heated homes • Increase participation in quality early childhood education (BPS2)	• Raising healthy kids B4 School Check and obesity referrals (HT)	• Faster Cancer Treatment (HT) • Improved access to elective surgeries (HT) • Total acute bed days per capita (SLM17) • Amenable mortality rate for 0-4 year olds (SLM)	

[4] Ministry of Social Development www.msd.govt.nz/about-msd-and-our-work/publications-resources/index.html for labour force information, statistics, home ownership etc

[5] www.centraltas.co.nz/assets/Health-of-Older-People/National-interRAI-Data-Analysis-Annual-Report-2014-15.pdf See the spreadsheet of Home Care assessment data aggregated to DHB level, and Long Term Care Facility assessment data aggregated to DHB region level, provided for all outcome scales and Clinical Assessment Protocols.

[6] www.centraltas.co.nz/assets/Health-of-Older-People/National-interRAI-Data-Analysis-Annual-Report-2014-15.pdf Alongside the report is a spreadsheet which contains Home Care assessment data aggregated to DHB level, and Long Term Care Facility (LTCF) assessment data aggregated to DHB region level. It is provided for all outcome scales and Clinical Assessment Protocols (CAPs).

	• Increase infant immunization rates and reduce the incidence of rheumatic fever (BPS3) • Reduce the number of assaults on children (BPS4) • Boosting skills and employment (BPS5-6)			

Notes:

NZ Health Survey results for 2011-14 are available by DHB, with breakdowns by sex, age group (15-24, 25-44, 45-64, 65+ years) and ethnicity (Maori, non-Maori). www.health.govt.nz/publication/regional-results-2011-2014-new-zealand-health-survey

System Level Measures data: www.nsfl.health.govt.nz/dhb-planning-package/system-level-measures-framework/data-support-system-level-measures

[i] ASH rates: www.nsfl.health.govt.nz/accountability/performance-and-monitoring/data-quarterly-reports-and-reporting/ambulatory-sensitive Baseline data for target setting for 2017/18 and for 2016/17 quarter two performance reporting.

[ii] Health Loss in NZ www.health.govt.nz/nz-health-statistics/health-statistics-and-data-sets/new-zealand-burden-diseases-injuries-and-risk-factors-study

[iii] Health Targets www.health.govt.nz/new-zealand-health-system/health-targets

[iv] ASH rates: www.nsfl.health.govt.nz/accountability/performance-and-monitoring/data-quarterly-reports-and-reporting/ambulatory-sensitive Baseline data for target setting for 2017/18 and for 2016/17 quarter two performance reporting.

Appendix 3

NZMJ viewpoint [15]

Factor	WHO target	NZ target	Justification	Action
Tobacco	30% relative reduction in prevalence of current tobacco use in persons aged 15+ years.	Reduction of daily smoking prevalence from current daily prevalence overall (14%), Māori (37%), Pacific (23%), Asian (7%) to <5% by 2025.	This target meets all the criteria and is a reinforcement of the Government's commitment to this goal. 'Business as usual' will not achieve the Smokefree 2025 goal. Achieving an overall adult prevalence of smoking of <5% (for all ethnic groups, and in men and women) will require halving the uptake of smoking and doubling the current quit rate	Develop a strategic plan for reaching the 2025 Goal that could include: 1.Continued and increased tobacco taxation 2. Passage of the standardised tobacco packaging ('plain packaging') legislation 3.Increasing funding for sustained, research-based mass media campaigns 4. A register of retailers with strong enforcement and penalties for those selling to minors 5. Research informing new approaches to support smokers to quit 6. Smokefree cars where children are passengers.
Childhood obesity	0% increase in children and adolescents.	Reduction of childhood overweight and obesity prevalence from 33% to 25% by 2025, and reductions in the ethnic and socioeconomic gradients in prevalence.	Childhood obesity has increased by almost 30% in 6 years, from 8% in 2006/07 to 11% in 2012/13. One-third of New Zealand children are obese or overweight and significant ethnic and socioeconomic differences exist: 41% of Māori children and 62% of Pacific children are overweight or obese; children living in the most deprived areas are 10 times as likely to be obese as those in the least deprived areas. The target of 25% is the current level of childhood obesity in Australia. These reductions in prevalence and inequalities are ambitious targets. Improved physical activity levels in children are important for a range of reasons but will make only a small contribution to achieving the obesity target. The focus must be primarily on food and nutrition.	Focus on the following areas for action 1.'Bottom up' community-based interventions that prioritise at-risk populations 2.'Top down' regulatory approaches that include: Restricting exposure of children to marketing and promotion of unhealthy food and beverages; developing a comprehensive food and nutrition plan for children including food standards for early childhood services and schools; improving nutrition labelling to enable individuals to make healthier choices about food purchases for their families; taxing or introducing other regulatory measures for sugar-sweetened drinks.

Salt intake	A 30% relative reduction in mean population intake of salt/sodium.	A 30% relative reduction in mean daily salt intake from current 9g 6g per day by 2025.	New Zealand's salt intake has not declined over the last four decades. New Zealanders are currently estimated to consume at least twice the recommended intake of salt. A 30% reduction will mean that the salt consumed per person per day in NZ would fall from 9 grams to 6 grams, still higher than WHO recommendations (5 grams per day per person) but realistic given the challenges and timeframes. Achieving this target will have a major impact on population blood pressure levels, heart disease and stroke rates, and possibly also stomach cancer. This target meets all the criteria although accurate monitoring of population salt intakes is a challenge.	Develop a national salt reduction strategic plan for reaching the 2025 goal that could include: 1. Setting up an action group with strong Government leadership and scientific credibility 2. Setting progressively lower salt targets for a comprehensive range of food categories, with a clear time frame for achievement 3. Initiating a consumer awareness campaign 4. Undertaking independent monitoring of progress at 3-5 year intervals.
Saturated fat intake	Not included as a WHO target	Reduction of total energy intake from saturated fat for adults from current 13% to 11% by 2025.	Saturated fat intake is the key underlying cause of much of the coronary heart disease burden in New Zealand and contributes to the cancer burden. Despite declines since the 1960s, saturated fat intake is still excessive, and is one of the highest globally. In the most recent National Nutrition Survey (2008/09) self-reported saturated fat intake was 13% of total energy for adult New Zealanders (14% for Māori), far higher than the Australasian nutrient reference value of 8 to 10% of total energy intake, including trans fats. Trans fat intakes in NZ are on average below the 1% of total energy intake recommended by WHO but they should be monitored at regular intervals to ensure they remain so.	Develop a strategic approach to saturated fat reduction that should include: 1. Reducing the saturated fat content of processed foods and commercially deep fried foods such as many takeaways. 2. A public education campaign that informs and reduces confusion about the difference between low fat diets, and diets where saturated fat is replaced with healthy fats (the latter being the best approach for reducing risk of coronary heart disease).
Harmful use of alcohol	At least 10% relative reduction in the harmful use of alcohol by 2025.	A 10% relative reduction in the harmful use of alcohol from	Alcohol is a major and preventable cause of NCD burden in New Zealand and contributes to a wide range of social disorders. A full range of cost-effective interventions is available. This issue	Commit to a comprehensive, evidence-based approach (as recommended in the Law Commission's 2010 report "Alcohol in our lives: curbing the harm") that should include:

		the current 16% to 14.5% by 2025.	has limited political feasibility at present, but public acceptance of the recently reduced drink driving limits appears high.	1. Restricting access via price and other levers 2. Restricting advertising and promotion 3. Educating the public about the harms of alcohol misuse 4. Enacting appropriate legislation with effective enforcement.
Physical activity		A 10% relative reduction in physical inactivity from 49% to 44% in adults, and from 33% to 30% of children by 2025.	Physical inactivity is a major and preventable cause of NCD burden in New Zealand. Only 54% of New Zealand adults currently meet the guidelines for achieving at least 30 minutes moderate-to-vigorous physical activity on most days of the week. Only two-thirds of New Zealand children currently meet the guidelines for achieving at least 60 minutes of daily moderate-to-vigorous physical activity on most days of the week.	Develop a set of priority actions consistent with WHO recommendations that should include: 1.Promoting physical activity through public awareness campaigns and policies that improve access, acceptability and safety of walking and cycling (such as those that encourage active transport, recreation, leisure and sport and better urban planning) 2. Provide well-resourced high quality Health and Physical Education in preschools, schools and tertiary institutions, including opportunities for physical activity before, during and after the school day.
Health systems	At least 50% of eligible people receive drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes.	Increased uptake of evidence-based medications and behavioural interventions following an NCD event or diagnosis.	Only 60% of people having had a heart attack take the recommended medications that can halve the risk of another heart attack. Adherence to prescribed medication and lifestyle interventions (such as quitting smoking) is important for effective management of diabetes, CVD, respiratory conditions and some cancers. Targets for CVD risk assessment are in place but there are currently no targets for CVD risk management.	Develop a strategic approach that could include: 1.Agreement on national targets for the management of CVD and Diabetes 2. Equipping health professionals with relevant skills (e.g. risk communication, motivational interviewing, shared decision making, goal setting, and health literacy) to support people to take their prescribed medications and make lifestyle changes. 3. Making available fixed-dose combination CVD medication (polypills) for people with high CVD risk and low adherence to prescribed CVD medications.

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