

HEALTHIER
LIVES

He Oranga
Hauora



Healthier Lives

He Oranga Hauora

RESEARCH STRATEGY 2019 – 2024



Healthier Lives

Our challenge

The health of New Zealanders is improving overall. However, while the impact of infectious diseases has reduced over the last century, the last 50 years have seen a striking increase in non-communicable diseases (NCDs) – chronic conditions that develop as a result of factors such as our environment, genes, lifestyle and social connections.

Unfortunately, improvements in health have not been shared equally by all groups in our population. Rates of NCDs are strongly associated with rates of deprivation. Significant and unacceptable health inequities persist for Māori and Pacific peoples, people living in rural and isolated areas, and people who experience socio-economic disadvantage.

Cancer, cardiovascular disease, diabetes and obesity are four of the major NCDs. Together these four diseases account for well over a third of total death and disability in New Zealand and cost the nation hundreds of million dollars each year. The personal loss of lives cut short is incalculable.

That's why Healthier Lives is focusing its efforts on finding better ways to prevent these four diseases, and better ways to treat those who suffer from them.

So how can we reduce the burden of these major New Zealand health problems?

And how can we make health outcomes more equitable for all New Zealanders?



Healthier Lives

Our goals

Healthier Lives has two main goals:

1. to reduce the burden of major New Zealand health problems by improving the prevention and treatment of cancer, cardiovascular disease, diabetes and obesity;
2. to reduce inequitable health outcomes so that all New Zealanders can lead healthier lives.

In the first phase of operation (2015 – 2019), Healthier Lives set up a number of research

projects which have led to some highly promising results. Details and highlights from this phase are available on the Healthier Lives website **healthierlives.co.nz**.

For the next phase (2019 – 2024), Healthier Lives will build on research already underway while sharpening our focus within three research themes. There will be an even stronger focus on achieving health equity for all groups within our population, and we will start to examine population-wide approaches to the prevention of disease.



Photo: Members of the Healthier Lives Governance Group and Science Leadership Team at the launch of Healthier Lives, Ōtākou Marae, December 2015.

Our Vision / Te Kitenga

Our vision is of Aotearoa New Zealand with equitable health outcomes and a substantially reduced burden of non-communicable diseases.

Tō mātou kitenga kia noho a Aotearoa New Zealand hei whenua he ōrite ngā putanga hua hauora mō te tangata, kia iti iho hoki ngā pūkauranga o ngā māuiui kāore e taea te tuku ki te tangata kē.

Our Mission / Te Whāinga

Our mission is to enable delivery of the right preventions and treatments to the right populations, communities and individuals.

Tō mātou whāinga he hora i ngā mahi ārai mate e tika ana, me ngā rongoā hoki, ki ngā taupori, ngā hāpori me ngā tāngata e tika ana.



Research themes

In 2019 – 2024, Healthier Lives will undertake research within three complementary and, in some cases, overlapping themes:

THEME 1	Healthy food and physical activity environments	<i>population level</i>
THEME 2	Culturally-centred health interventions for Māori and Pacific peoples	<i>community, whānau ora and fanau ola approaches</i>
THEME 3	Precision medicine	<i>individually targeted</i>

No quick fix

Because there is rarely one single cause of non-communicable disease, there is no simple solution.



THEME 1

Healthy food and physical activity environments



This is an entirely new area of work for Healthier Lives, following recommendations from our International Science Advisory Panel.

We'll look at how we can intervene to improve health at the population level, as opposed to focusing on community action or individual behaviour change, which our other research themes focus on. Across the world, this population approach has been effective in reducing the overall burden of non-communicable diseases.

Population approaches aim to lower a whole population's risk for developing a particular disease, no matter what an individual's or group's actual risk might be. This is because the largest number of cases of disease occur not in those at high risk, but in those who have a lower level of risk (simply because there are more of them). A population approach can therefore substantially, and equitably, reduce overall the burden of disease (Figure 1).

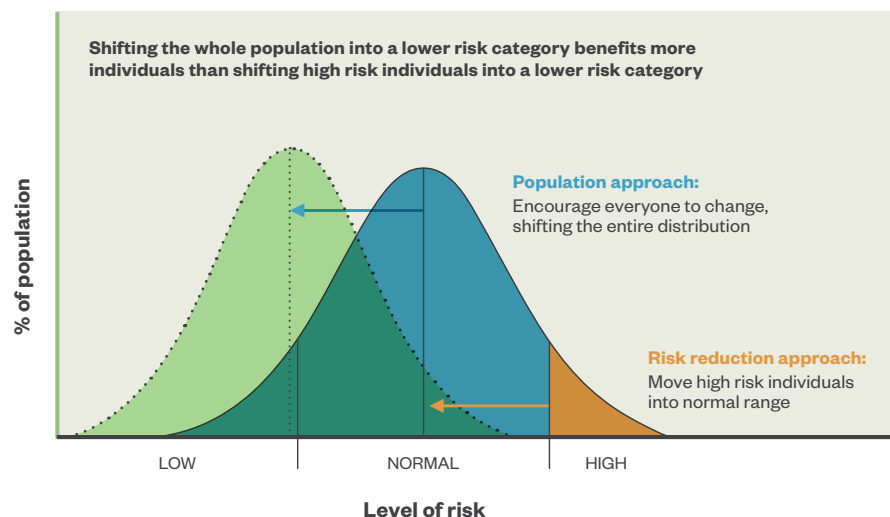


Figure 1: The bell curve shift in population risk – benefitting more individuals

Source: Rose G. Sick Individuals and sick populations. *Int J Epidemiol*. 1985; 12:32-38

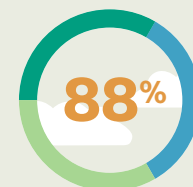
We'll explore how the world in which we live influences what we eat and how active we are, and whether specific changes to food and activity environments can lead to better and more equitable health for all, and lessen the burden of our four target diseases.

We'll also examine the impact of different interventions (such as food labeling and reformulation, or changes to transport infrastructure) on health outcomes, and what changes might be needed to improve the food and physical activity environments. These findings can then be used as a basis for future policies aimed at improving New Zealanders' health and wellbeing.



Major cause of health loss

88% of health loss (death and disability) in New Zealand is attributed to non-communicable diseases, also known as chronic diseases or long-term conditions.



THEME TWO

Culturally-centred health and wellbeing

Māori and Pacific peoples approach health and wellbeing in a holistic way; a person's whole being – social, mental, physical, emotional and spiritual – and their connections to whānau or fanau are considered essential in order to sustain wellbeing. Theme Two will draw on this holistic approach, as well as other cultural factors unique to the New Zealand experience.

Specifically, we will focus on the vital role of communities, neighbourhoods, whānau and fanau in determining and fostering wellbeing. At its centre, this theme affirms the desire of families and communities to influence the services, practices and priorities relevant to their health. It also recognises that health risk factors, detection and treatment are interlinked throughout a person's life, and across generations, within



communities, and that cultural factors play an important role in good health. This approach is strongly supported by the Whānau Ora Iwi Leaders' Group, as a partner in the Challenge.

All our research projects within this theme will be co-designed with interested communities and groups. In the past, much research was designed and led by academics alone, with little or no input from the communities themselves.

But co-design, inviting the full participation and partnership of communities at all stages of research projects – from formulating the research question to putting results into practice – is far more likely to effectively address inequities in health and wellbeing.

Photo: by Chris Williams

Preventable

Over a third of all health loss in New Zealand results from preventable causes, such as poor diet, tobacco and alcohol consumption and not enough exercise.



THEME THREE

Precision medicine



Precision medicine is the future of health care, allowing doctors to tailor medical treatment to the characteristics – genes, environment, lifestyle – of individual patients.

We are looking at ways to improve the management of cancer and cardiovascular disease, refining tools to help individuals who have received a diagnosis or been identified as having a particular susceptibility or risk.

Cancer management

Healthier Lives has already developed and is testing a simple, cost-effective, DNA-based (or 'genomic') diagnostic test for cancer progression that could be used in many locations around the country. It could particularly benefit people living in isolated rural areas who currently have to travel to larger centres for tests.

The test uses a laboratory procedure that detects circulating tumour DNA (ctDNA) to measure a patient's response to treatment at an early stage in the treatment programme. This will lead to patients only receiving treatments which are clearly effective against their cancer.

It can also provide early evidence of relapse, without the need for high-cost imaging technology available only at major hospitals.

Two cancers were targeted in phase 1 – colorectal cancer and melanoma. Colorectal is the most common cancer in New Zealand and the rate in Māori is increasing dramatically. New Zealand has the highest melanoma rate in the world and, although Māori have lower rates of this cancer, they are more likely to die if they do develop it. In the next phase we will extend the ctDNA diagnostic test to other common cancers, test its implementation in rural settings and work towards embedding it in clinical practice.

Cardiovascular disease management

In the first phase, Healthier Lives undertook research to refine cardiovascular disease risk prediction equations for Māori, Pasifika, Indian and Chinese people, which contributed to the development of improved risk screening guidelines for GPs.

An individual's genetic makeup contributes to their risk of



Photo: Healthier Lives cancer researchers in the laboratory.

developing many chronic diseases. Risk is also affected by a series of complex interactions with the environment over a lifetime. These include nutrition, microbiota (such as fungi, viruses and bacteria), smoking, toxin and drug exposure, psychological stress, physical environment and levels of activity.

Many of these environmental changes can subtly modify a person's genes ('epigenetic' changes), providing an opportunity to quantify and better manage

their risk of disease. Most of the population falls into an intermediate risk range and better tools are needed to identify who to target for medical management and lifestyle interventions. In the next phase we will use epigenetics to provide more precise, personalised and equitable prediction and prevention of metabolic conditions and cardiovascular disease.

Three principles to guide our research

All research activities in Healthier Lives' next phase will be guided by these principles:

1. Seeking to increase equitable health outcomes
2. Enacting Treaty partnership and Vision Mātauranga
3. Co-designing research projects with partners.

Increasing health equity

Progress towards health equity is a central goal for all our research. Experience shows that a 'one size fits all' approach to health services is unlikely to result in equity. This approach may even increase inequities among different groups of people, including Māori and Pacific peoples, people with lower socio-economic status and rural populations.

It's clear that Healthier Lives cannot address all the factors that lead to inequities; but our focus on research shaped by the real concerns of a community or culture is a major step in the right direction.

So, too, is our emphasis on 'big picture' or systems thinking that asks: *What is the broad range of actions and changes needed to improve health, and how might the health system contribute to this?*

Reducing health inequities is at the heart of our research strategy, for example by helping to accurately predict risk of heart disease for ethnic groups at highest risk, developing health programmes that work for Māori and Pacific peoples and removing barriers to cancer care for rural and lower socio-economic groups.

Enacting Treaty Partnership and Vision Mātauranga

The Challenge is working alongside Māori in recognition of their status as tangata whenua and partners in Healthier Lives, helping to shape our research. Māori individuals and communities are also providers, leaders, recipients and the users of new knowledge and health services; as such, they are referred to as stakeholders in Challenge research. Healthier Lives will contribute to Vision Mātauranga by producing high-quality health research that is driven by Māori priorities, consistent with tikanga Māori, and results in mātauranga that is highly valued by all.

Photo: Healthier Lives diabetes research team preparing to co-design research with end-users

Co-designing research

Healthier Lives is committed to co-designing research with partners, stakeholders and communities as a way to improve the outcomes of research. This means allowing those who deliver or use particular health services to have a say in what kinds of research questions are asked and how problems are defined. It gives people the opportunity to use and develop their own knowledge and skills alongside researchers.

There are a number of well defined co-design methodologies. Authentic co-design with communities is complex. It can be a time and resource intensive process because communities must be allowed to

participate at a pace that works for them. Numerous practical challenges can occur, such as how to reach agreement about ownership and use of intellectual property and mātauranga Māori, and how to adapt strict ethics approval processes to ensure they are acceptable and feasible for communities.

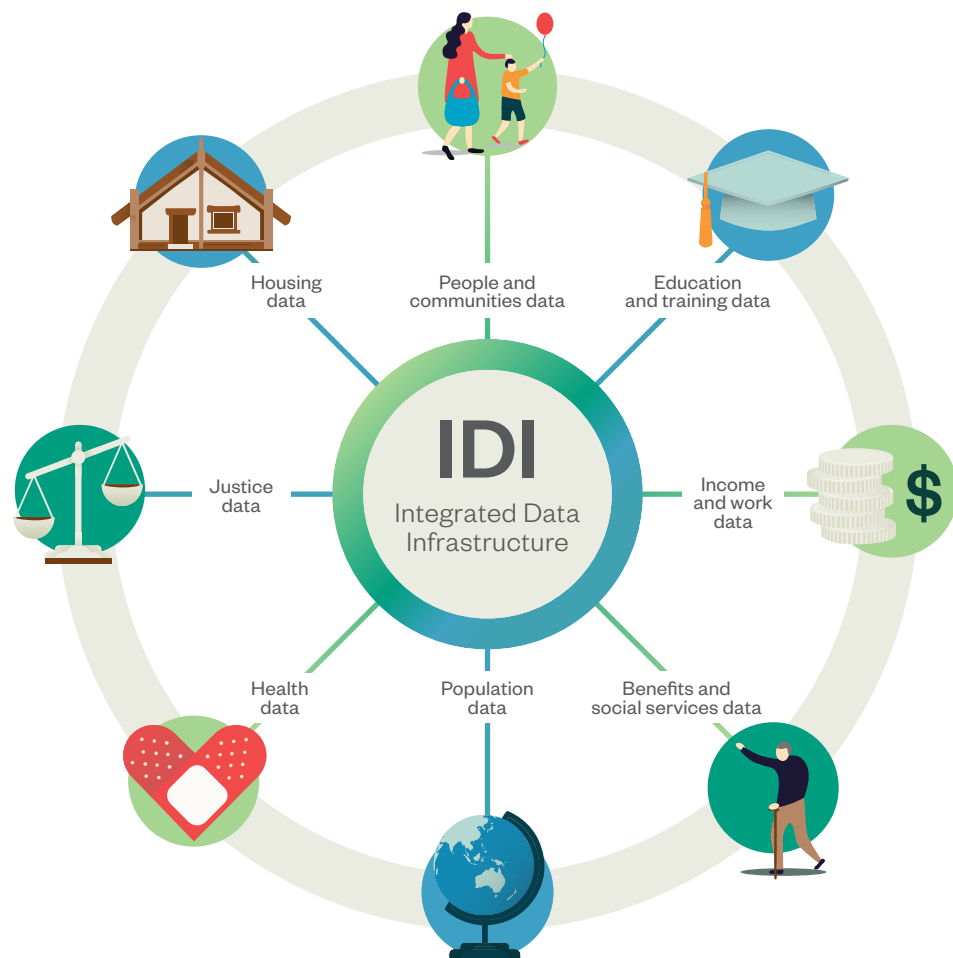
Co-design approaches within Healthier Lives will range from authentic co-design of research with the 'end users' of research (individuals and communities) to working closely with the 'next users' of research (health providers and policy makers) in the design, conduct and implementation of research.



Powerful tools

Two powerful analytical research tools will be used across Healthier Lives:

1. **Big and linked data** – greater use of nationally-held data banks as a research tool so that our research is informed by the most current and relevant information;
2. **Evaluation** – measuring the effectiveness and cost-effectiveness of interventions in reducing the burden of non-communicable diseases and meeting social or cultural needs.



Big data helps answer the big questions

New Zealand has some of the best health data in the world. It is a hugely valuable (and cost-effective) resource for researchers and policy-makers but we are not yet making full use of it.

Over the last decade, Statistics New Zealand has been creating an integrated data system that links anonymised information about individuals from health records, government and non-government agency records, the Census and other surveys. The data covers the whole country, includes historic data and is extremely broad in scope, including health, social and economic information.

This rich resource can give us a detailed and accurate picture of New Zealanders' health and wellbeing, which we can use to develop better health policies, programmes and services. Several Healthier Lives research projects have already made good use of this high-quality data. In the next

phase, the Challenge will establish a fund to improve the access of researchers and policy-makers to high-quality big data, with particular focus on supporting Māori researchers and decision-makers.

Evaluation

Policies, programmes, practices all need to be evaluated for their effectiveness – in terms of health impacts, costs, implementation and social/cultural 'fit'. This is essential to ensure that research investment leads to the best possible healthcare value.

Research itself is a form of evaluation. However, in the next phase all research projects will have an additional evaluation component in their budget. Healthier Lives will provide research teams with the expertise needed to build appropriate economic evaluation measures into their research design. We will also explore opportunities for common outcome measures that can be used across similar projects.

World ranking

New Zealand has the third highest rate of obesity amongst OECD countries. One in three adults is obese. Rates of obesity are 1.6 times higher amongst those in our communities who are most deprived.



Collaboration for impact

Working with other Challenges on lifelong health and wellbeing

Healthier Lives primarily focuses on health and well-being in the middle years of life. Two other National Science Challenges (NSCs) – A Better Start and Ageing Well – look at the early and later years respectively.

Encouraged by feedback from our partners, the three Science Challenges have agreed to collaborate in ‘life-course’ research, looking at the whole of peoples’ lives rather than isolated segments.

This makes good sense. The quality of a person’s later years, for example, can be greatly influenced by all that they experienced earlier in life – the food they ate, the care they received (or didn’t receive), their level of activity, their environment, and their genes.

This joint research will draw on New Zealand’s life-course research expertise and big data resources, adopt inter-generational, whānau orā and fanau ola approaches, and have a strong focus on wellbeing.

We also have good links with other NSCs and research groups. For example, there is also a strong

overlap between health, healthy neighbourhoods and the built environment, a focus of Building Better Homes, Towns and Cities NSC.

We will continue to work closely with a wide range of partners and stakeholders in the design and delivery of health programmes and interventions because this collaborative approach promises the most positive outcomes for New Zealand.

Global reach and impact

New Zealand is a small country but we can still make a big impact.

Along with strong links to the World Health Organization, Healthier Lives has extensive international networks and relationships which contribute significantly to our research.

And far from being a one-way flow, researchers elsewhere in the world have learned much from our teams: in particular, our commitment to co-designed research that gives a real voice to the questions and concerns of indigenous peoples. This approach has been studied and taken up by other countries.



Photo: Collaboration in action at a Healthier Lives workshop to scope and prioritise research.

New people, fresh ideas

National Science Challenges are collaborative research programmes whose job it is to ‘assemble the best teams’ to achieve a mission. This includes a responsibility to bring in new people with fresh ideas. In the next phase, Healthier Lives will include a mix of new and continuing research.

Where new research is to be undertaken, focused workshops will be held to discuss future priorities. A range of researchers and policy makers from across New Zealand will have the opportunity to participate. Opportunities will also be sought to introduce new researchers in continuing research projects.

Exchanging knowledge

Healthier Lives places strong emphasis on clear communication and sharing information with our partners and key stakeholders, including: Whānau Ora Iwi Leaders Group, Cancer Society, Diabetes New Zealand, Health Promotion Agency, Health Research Council, Heart Foundation, Ministry of Health, Ministry of Primary Industries, Public Health Association and Toi Tangata.

We will continue to engage and communicate the progress and findings of our research to a wide variety of audiences, including the general public and the research community. Meetings, newsletters, reports, workshops, media articles, outreach activities and social media engagement will ensure good two-way knowledge exchange.

Visit our website, sign up to our newsletter, follow us on Twitter, or contact us if you wish to find out more or provide feedback.

Excellent science

Science doesn't stand still. New questions arise, findings are challenged, more research needs to be done. But the one constant is our commitment to excellence at every stage.

That means assembling the best teams of scientists, working with community and clinical partners to tackle pressing health problems, keeping abreast of international scientific developments, and undertaking research that is relevant to New Zealand's unique population.

Our science leaders have a strong track record of achievement in their own fields of research, a record of publishing in influential peer-reviewed journals, and a proven ability to work collaboratively.

Photo: Testing samples for cancer biomarkers.



National **SCIENCE** Challenges

National Science Challenges: Taking a more strategic approach

New Zealand is facing some tough issues. Among them, climate change, inadequate housing stock, rapid technological change and the rising burden of non-communicable diseases. Each is important and finding workable solutions will take a coordinated research effort and the resources to implement the findings of research.

That's why in 2013 the Government decided to take a more strategic approach to its science investment, and 11 National Science Challenges were set up, including Healthier Lives.

Each challenge takes a collaborative (multi-disciplinary and multi-institutional) approach, where researchers from universities work with those from other research institutions, iwi, non-government organisations, communities and businesses.

A wide range of groups and individuals help set the research goals and put the findings of research into practice. Science Advisory Panels, made up of world-leading researchers, provide an international perspective to ensure that the best science is undertaken.


In total, over \$320 million in funding has been allocated for two five-year phases for the 11 Challenges, the first from 2013 – 18 and the second from 2019 – 24. Healthier Lives has been allocated funding of \$31 million over ten years.






**Healthier Lives
National Science Challenge**

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