
New Zealand Health Research Strategy

Public Discussion
Document

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Ministers' foreword

This discussion document seeks your views on informing New Zealand's first health research strategy. The strategy will set out a vision, mission, guiding principles and strategic priorities for health research for the next 10 years. It will also contain specific actions to ensure we collectively move towards achieving our vision. Your feedback will help inform and guide the development of the health research strategy.

New Zealand's first health research strategy aims to generate more value from our investment in health research over the next 10 years. The recent review of the Health Research Council of New Zealand noted the lack of strategic direction for the health research and innovation system in New Zealand and the potential to generate more economic and health benefits for New Zealand. It also found that connections and coordination between the relevant government agencies, health researchers, end users and the commercial sector could be strengthened.

The health research strategy will seek to build excellence through a more cohesive and connected system. It will provide a clear strategic direction for research, including supporting progress towards the goals of the three health and wellbeing National Science Challenges: *A Better Start*, *Ageing Well* and *Healthier Lives*. The strategy will enhance the uptake of research results and maximise the economic and scientific benefits from our internationally recognised strengths in health research. It will also improve New Zealand's ability to attract and retain health researchers, including clinicians with an interest in research.

Health research is an international endeavour, supported by governments, industry and philanthropic organisations around the world. Over many decades New Zealand researchers have made important contributions to this global effort. Importantly, our health research has also generated impacts of particular relevance to the health of New Zealanders. At the same time, health research has contributed to New Zealand's fast-growing medical technology and biotechnology sectors, generated spillovers to our biological economy and enhanced our international profile through demonstrating scientific excellence.

As the Ministers responsible for health, science and innovation, we aim to support strong partnerships between health care providers, research organisations and industry to build an integrated, dynamic and adaptive health research and innovation system. The current landscape offers good opportunities to do this – but there are also potential barriers and missed opportunities. Objectives, priorities and mandates need to be clear to facilitate effective collaboration and maximise value.

The Government has an important leadership role in the health research and innovation system through setting the overall direction. Given that much health research is for the public good, the public sector has an enduring role in funding and performing health research. The National Statement of Science Investment signalled that the Government will seek to increase investments in health research. We will invest in both short- and long-term research endeavours across the many fields of health research. A high-performing research and innovation system in New Zealand will be critical to achieving the outcomes sought in the New Zealand Health Strategy Future Direction.

Hon Steven Joyce
Minister of Science and Innovation

Hon Dr Jonathan Coleman
Minister of Health

1 Why does New Zealand need a health research strategy?

Health research is a global endeavour supported by governments, industry and philanthropic organisations around the world, and New Zealand researchers are well connected to this international community. We benefit from being an active player in this global pursuit as it helps us address the health needs of our own populations and puts us in a better position to adopt and contribute to the latest knowledge and innovations from offshore. At the same time, we have to ensure that research contributes to our understanding of how to address New Zealand-specific health issues, including how to achieve equity of health outcomes and meet the needs of our diverse and changing population.

Health research includes biomedical sciences, public health, clinical and health services research. Māori and Pacific health research are particularly important components of health research in New Zealand.

Health research contributes to improvements in the health, social and economic wellbeing of New Zealanders and is a large and high-performing part of New Zealand's science system. Health research helps generate knowledge and evidence that lead to changes in clinical practice, new products and technologies, public health interventions, improved ways of delivering health services, and changes in health, disability and social policy. Health research also results in broader benefits for the biological economy and manufacturing and food industries, and generates high-tech medical technology and biotechnology firms.

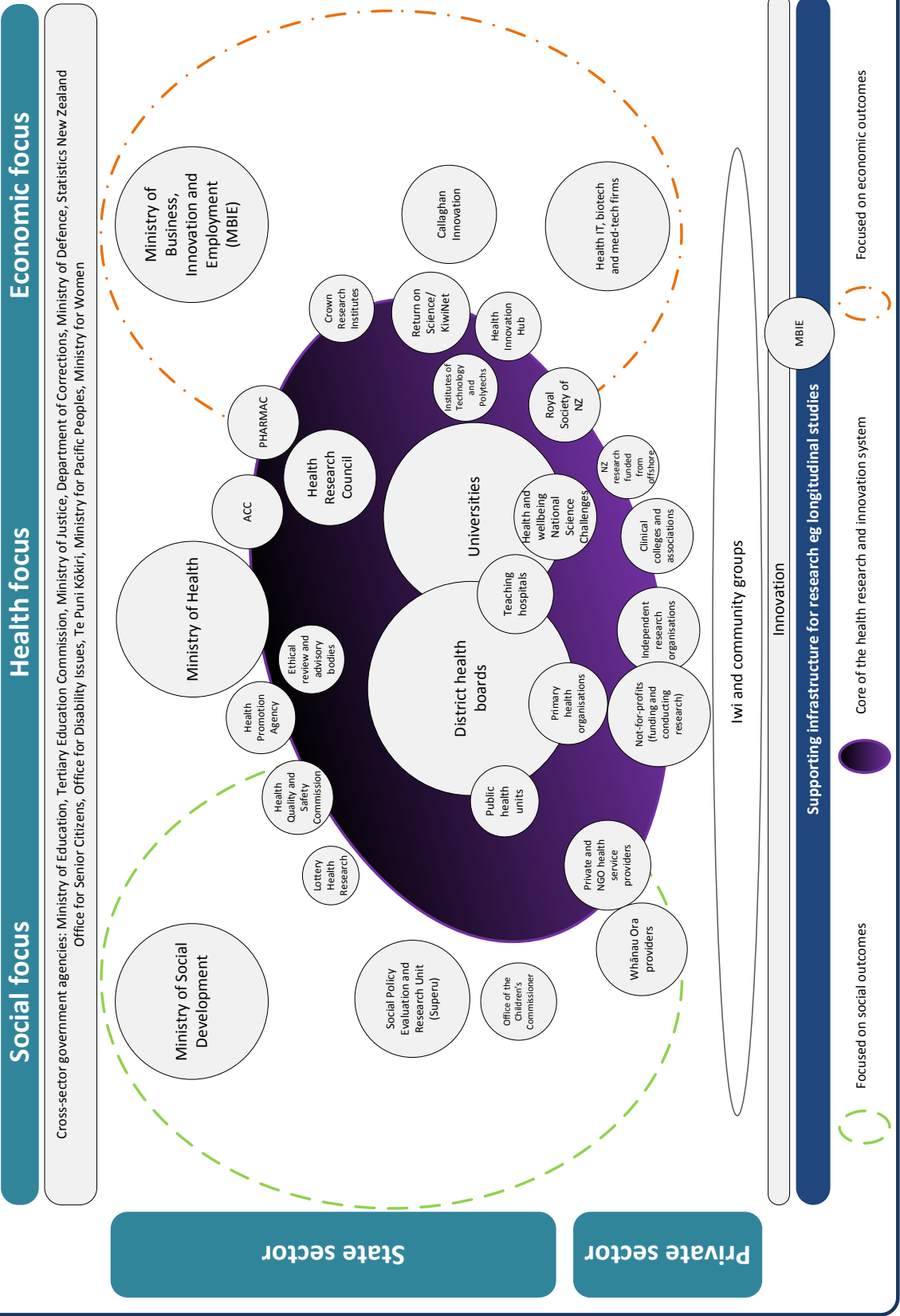
The vision of the New Zealand Health Strategy Future Direction is that *“All New Zealanders¹ live well, stay well, get well”*. Health research can make important contributions to delivering on the five strategic themes of the health strategy: people-powered, closer to home, value and high performance, one team and smart system. The National Statement of Science Investment (NSSI) recognises that New Zealand has significant strengths in health research and that the Government will seek to increase funding to the sector over time. Investments will support short- and long-term research endeavours across the many fields of health research.

New Zealand's system for health research and innovation is complex, with multiple contributors and outcomes. The figure on the following page is a visual representation of the system. As with any schematic, the diagram is a simplified version of reality and only shows the main contributors and their predominant place in the system. The interconnections of health, economic and social outcomes and the multiple roles and relationships of institutions are difficult to capture fully in a two-dimensional diagram.

The recently completed review of the Health Research Council of New Zealand (HRC) found that stronger connections and coordination across contributors in the health sector and the science and innovation system would enhance the impact of the government's investment in health research. The HRC review also highlighted the need to further consider the role of the district health boards in performing health research; how to improve the uptake of innovative solutions across the health sector; and the appropriate balance of investment across the various fields of health research.

¹ The word 'all' reflects the need for a fair and responsive health system that reduces disparities in health outcomes for key groups, including Māori, Pacific peoples, and disabled people.

Contributors to New Zealand's health research and innovation system



Cross-sector government agencies: Ministry of Education, Tertiary Education Commission, Ministry of Justice, Department of Corrections, Ministry of Defence, Statistics New Zealand, Office for Senior Citizens, Office for Disability Issues, Te Puni Kōkiri, Ministry for Pacific Peoples, Ministry for Women

The development of a health research strategy is an opportunity to identify where New Zealand can add greatest value to the domestic and international body of health research by clearly identifying our unique knowledge needs, filling local and international knowledge gaps, building on our internationally recognised research strengths and responding to new and emerging opportunities. This work also enables us to take stock of our health research workforce, including clinicians with an interest in research, and identify areas that may need strengthening to ensure researchers can meet our current and future needs.

The health research strategy will support New Zealand's health and disability system² and align with the NSSI, the New Zealand Health Strategy Future Direction, the National Science Challenges, other health strategies, the New Zealand Disability Strategy and government priorities.

- **The National Statement of Science Investment** sets out the vision for New Zealand's science system. It recognises that New Zealand has significant strengths in health research and that the Government will seek to increase funding to the sector over time.
- **The New Zealand Health Strategy Future Direction** signals opportunities for the health sector to think and work differently. This includes working together to create a smart and high-performing health system. Findings from health research provide evidence to support this.
- **The three health and wellbeing National Science Challenges are *A Better Start, Ageing Well* and *Healthier Lives*.** These fund research that addresses the complex, long-term, national-scale issues facing the health and wellbeing of New Zealanders.
- **Other health strategies** include He Korowai Oranga: Māori Health Strategy, 'Ala Mo'ui: Pathways to Pacific Health and Wellbeing, the Health of Older People Strategy, and Rising to the Challenge: The Mental Health and the Addiction Service Development Plan.
- **The New Zealand Disability Strategy** has the vision of a society that highly values the lives and continually enhances full participation of disabled people. The strategy is currently being updated. Research findings can provide the evidence to help achieve the vision of the updated strategy.
- **The social investment approach** focuses on identifying and understanding the needs of different groups of New Zealanders and finding ways to meet them more effectively. An example of this approach is the Children's Action Plan.
- **Government priorities:** Current Government priorities are:
 - **delivering Better Public Services.** This includes:
 - Result 3: Increasing infant immunisation rates and reducing the incidence of rheumatic fever. The Ministry of Health leads the work to achieve this result
 - Result 2: Increasing the participation in quality early childhood education
 - Result 4: Reducing the number of assaults on children
 - **responsibly managing Government's finances**
 - **rebuilding Christchurch**
 - **building a more competitive and productive economy.**

² The range of organisations contributing to the health of New Zealanders, including but not restricted to district health boards and other Crown entities established through the Public Health and Disability Act 2000.

2 You can help shape the strategy

Your views on the future direction of health research in New Zealand are needed to help us develop a meaningful strategy that will guide the health research sector over the next 10 years.

This document provides a starting point for discussion by setting out a proposed vision, mission and guiding principles for health research in New Zealand over the next 10 years (Section 3). We are seeking your views on these.

We would also like to hear your suggestions about the strategic priorities and actions you consider necessary to get the best value out of New Zealand's investment in health research and create a more effective and sustainable health research and innovation system. The document provides some examples of strategic priorities to spur discussion.

Sections 3 and 4 contain specific questions to guide your input and feedback. We are particularly interested in your responses to these questions as they will help in the design of the strategy.

Who we are seeking views from

- Researchers and research teams
- Universities, including faculties and research offices
- Health care provider organisations, district health boards, primary health organisations and private health providers
- Health sector agencies, including regulatory bodies
- Clinical staff, clinical colleges and professional associations
- Disabled people's organisations and the wider disability sector
- Independent research organisations
- Industry
- Non-profit organisations
- Community groups, including Māori and Pacific organisations
- Iwi
- Funding agencies
- The general public

How you can help shape the strategy

1. Return your responses to the list of questions in Appendix 1 by 29 July 2016.
2. Write a submission in response to the issues and questions raised in this document by 29 July 2016.
3. Participate in a focus group discussion in June or July 2016.

For more information about how to share your views, visit:

<http://www.health.govt.nz/publication/nz-health-research-strategy-consultation>

The Ministry of Health, Ministry of Business, Innovation and Employment (MBIE) and the HRC will analyse the information gathered from the focus groups and the submissions. This input will inform the development of the health research strategy, in particular the strategic priorities and action areas.

Submissions and other responses to the discussion document may be the subject of requests for information under the Official Information Act (1982). If this happens the Ministries will release the information to the person who requested it. However, if you are an individual, rather than an organisation, the Ministries will remove your personal details from the submission if you check the following box:

- I do not give permission for my personal details to be released under the Official Information Act 1982.

3 Setting the vision and direction for health research in New Zealand

The health research strategy will guide decisions on health research in New Zealand over the next 10 years. It is proposed the strategy will contain a vision, mission, guiding principles, strategic priorities and actions. The box below describes each of these key components.

Key components of the strategy

Vision – our desired future state for health research in New Zealand in 10 years' time

Mission – the contribution and main roles of the various contributors to the health research system in working towards the vision

Guiding principles – operating parameters and ways in which contributors to the system will work in order to achieve the vision and mission

Strategic priorities – what priority directional pathways are needed to achieve changes in the work and interactions of the contributors

Actions – specific sets of activity that are aimed at realising the strategic priorities

As a starting point for discussion, the next page shows a proposed vision, mission and guiding principles for the strategy. The following sources informed the draft proposal:

- international and local health literature and strategies on health research and innovation
- characteristics of high-performing research and innovation systems
- the strategic refresh of the Health Research Council
- analysis of New Zealand health sector and health research issues
- global advancements in science and technology.

Questions we are seeking views on

1. Does the proposed vision capture what you see as the desirable future state for health research in New Zealand by 2026?
2. Are there additional aspects that you think should be included in the vision?
3. Does the proposed mission capture key contributions and roles that are needed to achieve the vision – if not, what do you think should be included?
4. Do these proposed guiding principles clearly state the operating principles and values that are needed to achieve change over the next 10 years?
5. Do you think additional guiding principles are needed?
6. Taken together, do you think the proposed vision, mission and guiding principles will set the framework for a more cohesive and connected health research and innovation system?

PROPOSED VISION FOR 2026

New Zealand will have a more dynamic, well-connected and world-leading health research and innovation system that markedly improves the health and social and economic wellbeing of all New Zealanders

BY 2026, WE WANT TO SEE:

- a highly integrated, dynamic and adaptive health research system making a meaningful contribution to a smart health system and to social policy and practice
- clinicians actively involved in health research, enabling effective translation of research results
- widespread use and adoption of new and emerging technologies and innovations, such as genomics, genetics, epigenetics, nanotechnology and robotics
- excellent science and more domains of high-impact and world-leading research
- meaningful collaborations across the life and social sciences and with engineering
- strong connections to the biological economy, the manufacturing sector and food industries
- a stronger health-related commercial sector with growing high-value exports



PROPOSED MISSION

Develop strong partnerships to build an integrated, dynamic and adaptive health research and innovation system based on excellence and impact

<p>Researchers:</p> <ul style="list-style-type: none"> <input type="checkbox"/> undertake more world-class research <input type="checkbox"/> use cutting edge approaches and techniques <input type="checkbox"/> fill key gaps in knowledge on the health of New Zealanders <input type="checkbox"/> contribute to the international knowledge pool for health research and life and social sciences <input type="checkbox"/> foster the uptake of research findings 	<p>Entities performing research:</p> <ul style="list-style-type: none"> <input type="checkbox"/> sustain high-performing teams of researchers <input type="checkbox"/> provide excellent facilities and support services <input type="checkbox"/> foster close relationships with world-leading research institutes and the health sector 	<p>Health and social sector agencies, communities, participants and users:</p> <ul style="list-style-type: none"> <input type="checkbox"/> participate in setting the research agenda <input type="checkbox"/> co-innovate with researchers <input type="checkbox"/> rapidly adopt cost-effective and appropriate knowledge and innovations emerging from health research <input type="checkbox"/> engage in reciprocal relationships with other contributors to the system 	<p>Government and funding agencies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> provide strategic leadership, coordination and alignment within stable policy settings <input type="checkbox"/> support necessary infrastructure <input type="checkbox"/> incentivise excellent research and pathways to impact 	<p>The commercial sector:</p> <ul style="list-style-type: none"> <input type="checkbox"/> develops technologies and solutions in partnership with health sector agencies <input type="checkbox"/> works with the research sector and health system to take validated and cost-effective innovations to market
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PROPOSED GUIDING PRINCIPLES

- ❖ System-wide health research priorities are established using transparent processes, are clearly communicated and revised periodically
- ❖ Investment is based on agreed priorities which support the excellence and impact pillars of the National Statement of Science Investment and the directions of the NZ Health Strategy
- ❖ Investment decisions are transparent, complementary and informed by specialist expert advice and end users
- ❖ Funding arrangements drive excellent and collaborative research, break down interdisciplinary barriers and encourage innovative methodologies and use of big data
- ❖ Decision-making acknowledges the special relationship between Māori and the Crown under the Treaty of Waitangi
- ❖ Research approaches and methodologies give effect to the Vision Mātauranga policy and acknowledge different worldviews including Pacific research frameworks
- ❖ Activities and outputs are monitored regularly and evaluations of their short-, medium- and long-term impact routinely undertaken

4 Strategic priorities

The strategy will include a number of strategic priorities. These will inform policy settings and government investment in the health research and innovation system over the next 10 years.

The strategic priorities will turn the vision and mission into specific goals and areas of work. Each strategic priority will therefore be clearly linked to the strategy's vision and mission. Strategic priorities are not limited to a particular institution or part of the system, but point to effort required from across the various parts of the system. Quantifiable targets may be developed for the strategic priorities and progress tracked.

The essence of a strategic priority is to answer two questions.

- 1 What are the things we want to do differently?
- 2 What do we want more or less of?

On the following pages are five examples of possible strategic priorities. They are intended to indicate what is meant by a strategic priority and to spur discussion on priorities for New Zealand's health research and innovation system.

We want to hear what you think should be the strategic priorities for health research in New Zealand. The questions in the box below have been provided to stimulate discussion about what could be included in the strategic priorities for the strategy. You may also wish to comment on the focus and content of the five examples of strategic priorities.

Questions we are seeking views on

7. What do you think should be the focus of the strategic priorities in the health research strategy?
8. What do you think of the example strategic priorities?
9. What specific actions could help us achieve the strategic priorities you have identified?
10. How could health research best support the directions of the New Zealand Health Strategy Future Direction?
11. Where do the challenges and opportunities lie for health research in New Zealand?
12. How can we build a more cohesive and connected system?
13. In what areas could health research in New Zealand make the greatest difference to the health and wellbeing of all New Zealanders over the short term and into the longer term?
14. How can we ensure health research generates knowledge and understanding that can help address the health needs of all New Zealanders?
15. How can we get more excellent science and high-impact research?
16. How can we improve the uptake of research results and innovations?

Example One: Improving investment settings and processes of health research

The National Statement of Science Investment recognises the significant strengths New Zealand has in health research. It also makes a commitment to increase funding for health research over time and to consider how to leverage the results for greater economic benefit, in addition to the social and health benefits. The Government will ensure funding levels correspond to the impacts health research is delivering for New Zealand, mindful that health research is a global endeavour. The challenge over the next 10 years is to ensure funding priorities, settings and processes achieve maximum value for money and support an effective and sustainable health research and innovation system.

Improving investment settings and processes of health research could focus on the following:

1. Setting health research priorities through robust and transparent processes involving more partnerships with those who have a stake in health research. In addition to the final health research strategy, the key mechanism for this will be the HRC's three-year investment plan which will take into account the research funded through other mechanisms supporting health research. Processes will balance multiple and at times competing interests such as:

- meeting current health and health system information needs
- addressing the social, environmental and community dimensions of New Zealanders' health
- addressing the health needs of specific populations, in particular Māori health
- responding to new and emerging health threats
- building on existing research strengths and capabilities
- supporting inquiry, exploration and excellence.

2. Incentivising excellence and impact of government investment in health research. This might include:

- funding those opportunities that are more responsive to strategic directions and priorities and that bring together the best minds to focus on these priorities
- assessment criteria that reward excellent science and pathways to impact
- assessment processes that incentivise collaboration, multidisciplinary approaches and engagement with end users
- funding research that uses innovative research methods, new analytical tools and linked large datasets
- funding mechanisms that are flexible enough to respond to emerging opportunities
- processes that are trusted and transparent with high standards of peer-review, that reduce complexity and transaction costs, deliver value for money, and are underpinned by a continuous quality improvement approach.

3. Improving alignment and coordination across the funding landscape. Currently the funding of health research is relatively complex with various funds and programmes, but the majority of public funding originates from two sources: (1) MBIE which provides funding to the HRC, National Science Challenges, the Marsden Fund and Callaghan Innovation; and (2) the Tertiary Education Commission which provides institutional funding to universities and funds the Centres of Research Excellence, several of which have significant health research components. We need to establish clearer boundaries and responsibilities to improve alignment, remove duplication, fill critical gaps in funding and be clearer about the degree of alignment with the National Science Challenges.

4. Strengthening international collaboration of New Zealand researchers. Working with international partners and researchers:

- increases our ability to address health challenges and improve the health of indigenous populations
- facilitates our access to valuable international research infrastructure
- provides collaborative opportunities for our researchers to work with the best in their field
- attracts international investment to New Zealand.

Example Two: Unlocking the factors determining health and wellbeing for New Zealanders now and into the future

Genetics, environment and circumstances determine our health and wellbeing. The factors determining health include our social and economic environment, our physical environment, human biology and our individual characteristics and behaviours.

These conditions have resulted in the persistent health disparities and inequalities in health outcomes experienced by many New Zealanders, especially Māori and Pacific populations, some Asian subgroups, refugees, migrants, people with mental health conditions, disabled people and frail older people.

Research can help us better understand and respond to the complex set of conditions that determine our health and wellbeing at individual, whānau, community and population levels.

A range of funding mechanisms supports health research in New Zealand. The three health and wellbeing National Science Challenges are tackling the biggest science-based issues and opportunities facing New Zealanders.

Unlocking the factors determining health and wellbeing for New Zealanders now and into the future could focus on the following:

1. Giving greater priority to support the research that addresses the greatest gaps in our knowledge. This might include:

- domestically: research to enable equity of health outcomes for all ethnicities and demographics across a changing population, with changing expectations and demands
- internationally: research where we can add to the knowledge base
- commercially: research to seek commercial opportunities for research.

2. Funding more research of particular relevance to New Zealand. This might include:

- biomedical and public health research that could help reduce the impact of health conditions that currently cause a large burden of ill health and disability in New Zealand, for example long-term conditions
- biomedical research of particular relevance to Māori and Pacific populations
- public health research that considers New Zealand's particular environment and social context, including research on family violence, substance abuse and mental health
- research with the potential to reduce health inequalities and disparities across New Zealand's diverse demographic and population groups, paying particular attention to the needs of the Māori and Pacific populations and the disabled population
- research with the potential to improve New Zealand's health system and health service delivery, making better use of routine data held by the health system
- research niches that New Zealand can exploit because of its size and unique characteristics, such as demographic composition and good health data
- research into preventative health measures, including injury prevention.

Example Three: Improving connections across the health research and innovation system

An integrated, dynamic and adaptive health research and innovation system requires strong connections across the institutions and contributors. Strong connections can increase the quality of research, increase innovation and strengthen the impact of research.

Effective innovation systems exhibit a number of key characteristics, including:

- excellent research and science that supports novelty and discovery and generates useful knowledge, evidence and innovation
- collaborative research endeavours across disciplines, faculties, institutions, boundaries and borders
- enduring ties between researchers and end users, which extend from setting the research agenda, to innovating together, to the application and uptake of research findings
- effective uptake mechanisms to ensure research results are used by society and processes are in place to smooth bottlenecks
- capturing the spillover benefits of research, such as commercialisation and creation of high-tech firms and industries.

Improving connections across the health research and innovation system could focus on the following:

1. Encouraging more collaborative research that spans different disciplines and institutional boundaries. This is at the heart of the National Science Challenges. Increasingly, breakthroughs are occurring across research areas and disciplines as science becomes more complex. Addressing societal challenges requires putting the best minds together from across disciplines, including biomedicine, public health, health services delivery, environmental research, engineering and other areas. Some projects require scale which means putting together research teams from across institutions and national borders, and complementary leading expertise is often found offshore.

2. Fostering more co-innovation where researchers are working seamlessly with health care providers, patients, industry and communities. This covers setting the research agenda, conducting the research, and getting findings from the lab to the patient, whānau, communities and health system. Joint appointments between universities and hospitals, and secondments to industry are critical and could receive particular attention.

3. Turning our med-tech and biotech industries into a mainstay of the New Zealand economy. New Zealand's health care firms are growing quickly and New Zealand has a thriving medical technology sector. Some biotech companies are born directly from biomedical research. Strengthening the commercialisation pipeline from health research into successful commercial ventures is critical to maximising economic benefits. An important consideration is ensuring appropriate mechanisms exist for capturing the commercial opportunities arising from innovations developed in district health boards.

4. Improving connections across the life sciences. New Zealand has particular strengths in the life sciences which are important to the primary sector. Improving knowledge exchange across health research, agricultural science and other life sciences would maximise spillover benefits from investment in health research.

Example Four: Enhancing the uptake of health research results across the social and health sectors

Health research results can benefit the health of all New Zealand by informing changes to policies and practices. These may be changes to clinical practice, improvements to health or social policy, changing how health services are provided or the creation of new products or technologies.

A variety of factors influence the uptake of health research findings, including:

- engagement with end users throughout the research process, which can make uptake smoother. This is a particular focus of the National Science Challenges. End users include health and social sector agencies, clinicians, community groups, iwi and not-for-profit organisations
- whether further research or testing of the intervention is required, such as through clinical trials, feasibility studies or technology assessments
- the cost of adopting new interventions and their affordability and suitability. Value for money, effectiveness, efficiency and suitability for New Zealand communities and our health system are all factors in determining which health interventions to adopt. Tools such as health technology assessment and systematic reviews can assist with these decisions.

Generally in New Zealand the uptake of health research results is relatively ad hoc and it can take a long period of time for research findings to inform our policies and practices. Regulatory settings may also affect the uptake of new knowledge and innovations.

The uptake of health research results across the social and health sectors could be enhanced by focusing on the following:

1. Improving the relationships and engagement between those conducting research and end users. Improved knowledge, skills, learning and other actions resulting from research can have impacts on multiple end users, including:

- district health boards and other health funders and providers
- central government
- clinical organisations
- patients, whānau and communities.

2. Better access to, and dissemination of, research results. For example, this can be achieved through:

- open access to research results
- production of synthesis reports
- providing opportunities and resources for researchers to present and advocate for their findings, such as at conferences.

3. Having a clear understanding about the role that district health boards play in performing and hosting research as well as in adopting new health interventions.

4. Enhancing mechanisms for identifying and prioritising new health technologies.

Example Five: Providing research infrastructure and building skills

A key part of enabling the delivery of high-quality, high-impact health research is providing access to the best infrastructure – the tools, techniques, technology platforms, databases and skills.

This strategic priority focuses on how best to build, facilitate access to, share, maintain and sustain core infrastructure for health research. This will enable us to exploit advances in technology, the power of large and linked or integrated data, rapid changes in methodological approaches and techniques, and the emergence of new or converging disciplines. These advancements have the potential to transform health research and New Zealand's health system.

Providing research infrastructure and building skills could focus on the following:

1. Developing a strategic and coordinated approach to infrastructure resourcing and management. A strategic approach would help us to:

- identify our current and potential future infrastructure needs
- consider investment in infrastructure from regional, national and international standpoints
- provide the opportunity to achieve the greatest access to infrastructure for the money invested
- maximise the benefits and use of linked health datasets.

2. Providing access to cutting-edge technologies in a timely, sustainable and cost-effective way. Technology can dramatically increase both the reach and impact of health research.

- Advances in the field of what is collectively known as 'omics' (a field of study in biology such as genomics and proteomics) are changing how clinical services are delivered by making personalised medicine viable, with more person-specific tools for identifying, preventing, diagnosing and treating disease.
- Advances in nanotechnology are leading to changes in diagnosing disease through developments such as the 'lab-on-a-chip' where one or several laboratory functions are integrated on a single chip.
- Advances in ICT have led to (i) the ability to link, interrogate and mine large datasets; and (ii) new ways of delivering health care, such as telehealth, to rural and remote communities.

3. Building the health research workforce, identifying the gaps and developing the skills. Particular focus could be on:

- attracting and retaining clinicians with an interest in health research
- investing in capacity and capability in Māori and Pacific health research, ICT, omics, biocomputing, health informatics and health economics
- encouraging and supporting researchers to work across traditional boundaries and disciplines, and to adopt new approaches and innovative methodologies.

4. Enhancing New Zealand's ethics processes to ensure effective protection of research participants while operating an efficient process for approving research proposals. Protection of participants is particularly important for disadvantaged or vulnerable population groups, such as many disabled people.

5 More about health research

Health research has underpinned advances in human longevity, nearly or completely eradicated previously crippling diseases, and generated whole new ways of treating illnesses and conditions. Health research has also identified how factors such as housing, passive smoking, air quality and access to health services influence health and wellbeing and the actions that can address these factors. Researchers have come up with new approaches to health care and service delivery as well.

Health research encompasses discovery in the fields of human health and wellbeing, and often draws on multiple perspectives. Interpreted broadly, it includes health aspects of nutrition and food hygiene. Health research across the four traditional areas of biomedical, public health, clinical and health services research is intensifying. Moreover, valuable contributions are increasingly found at the intersections of different fields and disciplines. Health research also encompasses research on disability and rehabilitation. This includes research on the lives of disabled people, how to address their health needs and improve their independence, and the factors that cause impairments.

To be effective, health research needs to be scientifically robust and usable, taking into account consumer and patient needs. It also has important links to clinical teaching: it improves the quality of teaching and raises the skills of clinicians. Research that goes beyond traditional domains or disciplines is increasingly needed to tackle today's complex health challenges. High-quality health research, particularly at the interface between biomedical, clinical and new technologies research, can lead to the creation of innovative medical technology and biotechnology firms.

Health research also intersects with other areas of research, particularly the life sciences. For instance, health research often feeds into the agricultural and biological sciences and vice versa. The results of public health research often inform social policy. Other research areas can apply to and have an impact on health. These areas include the social sciences, environmental protection, the biological sciences and biotechnology, various branches of engineering, nanotechnology, agriculture and food, and information and communications technologies (ICT).

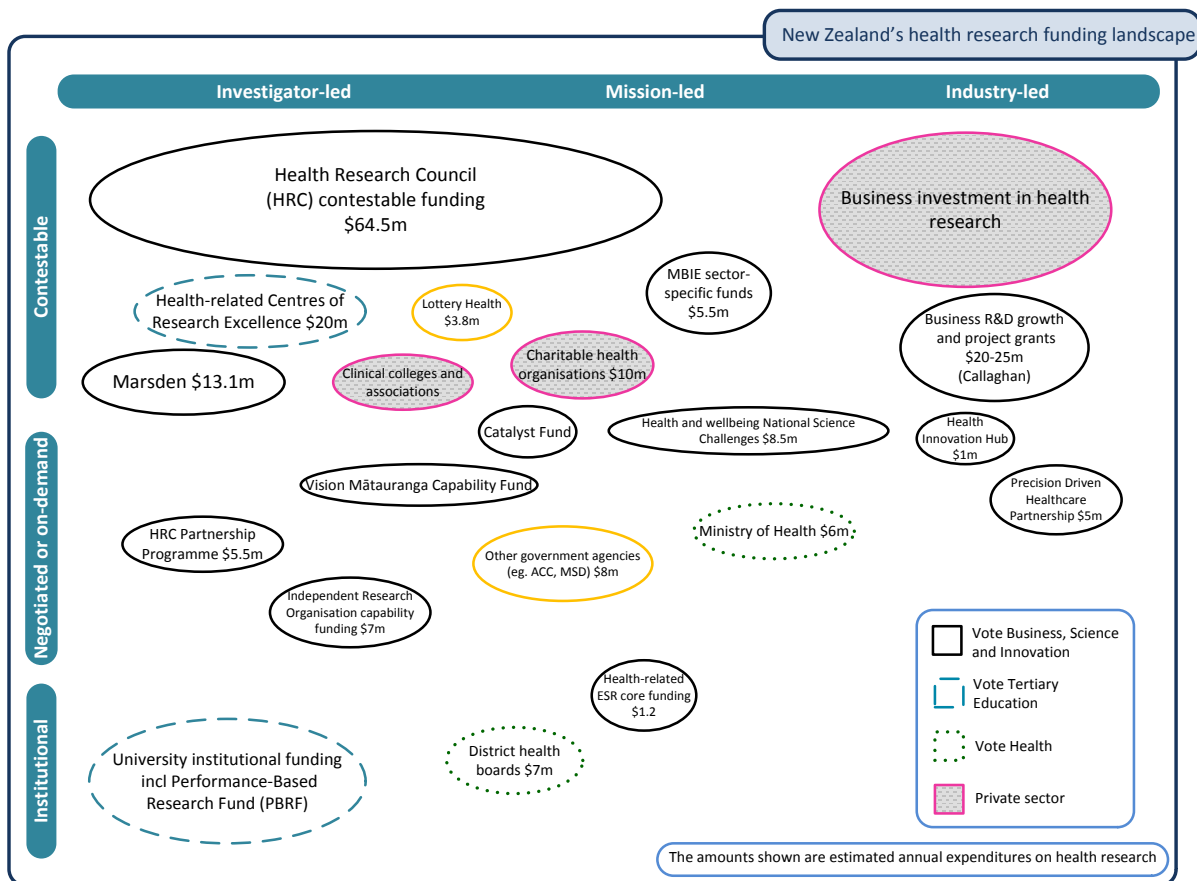
Health research is a global endeavour, supported by governments, private companies and philanthropic organisations around the world. The knowledge generated by health researchers is not confined within national borders, but is increasingly shared internationally. Researchers are forming more extensive global networks, drawing on the work of their peers in other parts of the world and contributing to the development of global knowledge and innovation.

Research findings may inform further research, product development, clinical guidelines, social or health policy or changes in how health services are provided. After the findings of a research project are published, a number of steps must often be taken before a practical outcome can be achieved. These steps are often envisaged as a pipeline that leads to outcomes such as a new or improved health intervention or marketing of a new product. These pipelines can be complex and spread over a long period.

5.1 Health research in New Zealand

Health research makes up a significant part of the science system in New Zealand. In 2014 health research accounted for 11% of all research and development expenditure in New Zealand, at \$299 million, and more than a third of New Zealand’s academic outputs.³ In terms of scientific quality, New Zealand’s health research compares well internationally. The average field weighted citation impact (FWCI) of New Zealand articles is above the Organisation of Economic Co-operation and Development (OECD) average in six of the eight health research journal categories.

Universities undertake the bulk of health research (60%) in New Zealand, but the private sector’s share is increasing. In terms of funding, the Government is currently the primary investor in health research through the HRC, the Centres of Research Excellence, the National Science Challenges and institutional funding to the universities. Philanthropic funding for health research is growing, but is still very small compared with other OECD countries. Figure 2 below shows the funding landscape for health research in New Zealand. It includes those funds that are specifically designed for health research and those funds available for all areas of research, including health research. The figures are approximate only and are mostly for 2014.



³ SciVal, extracted May 2015.

Māori health research is an important component of health research in New Zealand. It creates knowledge that is essential for improving the health of Māori and creating healthy Māori communities. Māori approaches and knowledge can also inform improvements to the health of all populations. In recent decades, the HRC has played a formative role in supporting the development of Māori health research centres and researchers. This support enabled some Māori communities to undertake their own health research. Māori health research encompasses Māori research methodologies such as kaupapa Māori research. The HRC has also taken a leadership role in developing a Pacific health workforce.

Pacific health research is a particularly important component of health research in New Zealand. Pacific research needs to encompass Pacific research frameworks, such as fonofale, which is based on elements of a Samoan fale. These research frameworks bring Pacific life and cultural dimensions to the research.

A key reason for investing in health research in New Zealand is to raise our capacity to quickly tap into and use the latest findings, most of which are generated offshore. Health researchers in New Zealand can inform better decision-making by assisting in translating global knowledge into local settings. As a result of past investments in health research, New Zealand's health researchers have made significant discoveries of benefit to New Zealanders, as well as to people around the world.

Health research also has the potential to create economic benefits for New Zealand. Health services and systems around the world are expanding, opening up significant opportunities to New Zealand firms.

A number of factors raise the quality of health research and make New Zealand attractive as a health research destination. For example, New Zealand has:

- a small, geographically isolated population
- a diverse demographic
- an efficient ethics review process
- rich health data, particularly patient-level information
- health researchers with an international reputation
- strong linkages between health research and the biological and agricultural sciences.

These factors provide researchers with an environment conducive to answering some of the more challenging questions in health research, such as how to reduce health inequalities between ethnic groups, or at what stage in the life course it is best to make specific health interventions. They also present New Zealand with the opportunity to attract international investors, researchers and companies seeking to undertake health research.

Appendix 1: List of consultation questions

To develop a successful health research strategy, we will need your help to identify the challenges and opportunities for health research in New Zealand and how to respond to them.

This document provides a starting point for discussion by setting out a proposed vision, mission and guiding principles for health research in New Zealand over the next 10 years. It also provides several examples of strategic priorities.

The specific questions below are designed to guide your input and feedback. We are interested in your responses to these particular questions, as they will inform the development of the strategy. The following diagram summarises the intention of the strategy.



You can choose to engage by making a written submission before 29 July 2016, having your say on the website of the health research strategy before 29 July 2016, or engaging in one of the focus group discussions. For details on these options, visit the health research strategy website: www.health.govt.nz/publication/nz-health-research-strategy-consultation.

Questions about the health research strategy

1 Does the proposed vision capture what you see as the desirable future state for health research in New Zealand by 2026?

- Yes
- No

Please provide reasons and comments below.

2 Are there additional aspects that you think should be included in the vision?

- Yes
- No

Please provide reasons and comments below.

3 Does the proposed mission capture key contributions and roles that are needed to achieve the vision?

- Yes
- No

If not, what do you think should be included?

4 Do these proposed guiding principles clearly state the operating principles and values that are needed to achieve change over the next 10 years?

Yes

No

Please provide reasons and comments below.

5 Do you think additional guiding principles are needed?

Yes

No

Please provide reasons and comments below.

6 Taken together, do you think the proposed vision, mission and guiding principles will set the framework for a more cohesive and connected health research and innovation system?

Yes

No

Please provide reasons and comments below.

7 What do you think should be the focus of the strategic priorities in the health research strategy?

8 What do you think of the example strategic priorities?

9 What specific actions could help us achieve the strategic priorities you have identified?

10 How could health research best support the directions of the New Zealand Health Strategy Future Direction?

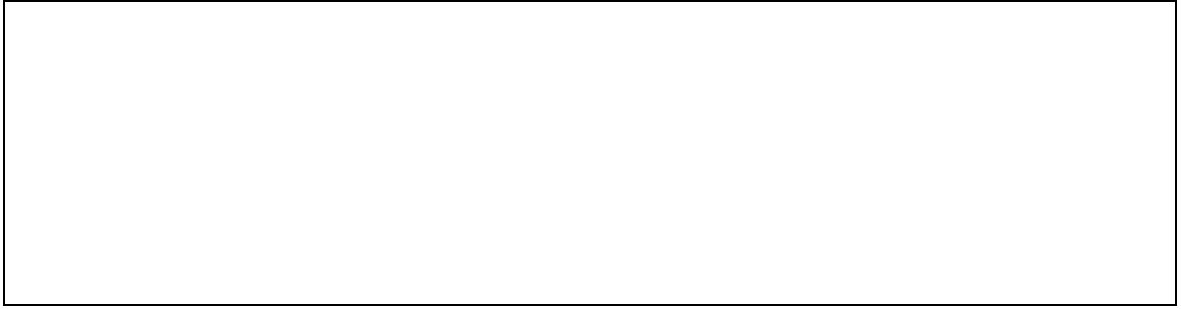
11 Where do the challenges and opportunities lie for health research in New Zealand?

12 How can we build a more cohesive and connected system?

13 In what areas could health research in New Zealand make the greatest difference to the health and wellbeing of all New Zealanders over the short term and into the longer term?

14 How can we ensure health research generates knowledge and understanding that can help address the health needs of all New Zealanders?

15 How can we get more excellent science and high-impact research?

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16 How can we improve the uptake of research results and innovations?

A large, empty rectangular box with a thin black border, intended for a written response to question 16.