



## Future Pathways for Health and Medical Research

### New Zealanders for Health Research Submission on Te Ara Paerangi Future Pathways Green Paper

#### Recommendations

1. The forthcoming RSI White Paper explicitly states that “the government funded components of New Zealand’s RSI system exist to drive significant improvements in New Zealand’s and all New Zealanders’ environmental and personal well-being, and future prosperity, through the mandated application of results of excellent research into all aspects of government ministry”.
2. Principles for determining the scope and focus of research priorities comprise identification of:
  - a. Imminent and serious external and intrinsic environmental risks
  - b. Imminent and serious risks to New Zealanders’ health and well-being
  - c. Opportunities for significantly enhancing economic prosperity through development of existing and new resources; and also:
  - d. Responsiveness to priorities identified by Māori
  - e. Avoidance of unnecessary duplication by taking into account the focus of external entities such as the TEC and business
3. More work be done to explore how the health research system can best uphold Te Tiriti obligations and opportunities, including consideration of how to embed Te Tiriti within the fabric of the health research system, in decision making, in the health research workforce and processes, in collecting advice and information, and in health research outcomes
4. The RSI system dispenses with current requirements for different research disciplines to compete with each other for scarce generic resources (eg health and medical research vs climate change research vs plant and food research etc) in favour of larger allocations associated with each research priority, with the actual amount and growth trajectory determined by the sector’s share of GDP, and potential for environmental impact, impact on health and wellbeing, and economic impact.
5. Direct government investment in health research be increased to 2.4% of direct government health care costs over the course of the next decade, requiring an investment growth trajectory of 17.1% per annum

6. Pathways to impact be afforded exclusive attention as a chapter in its own right in the forthcoming RSI White Paper
7. A health (or health and social science) CRI-like entity be created to undertake and fund health and medical research, provide for health research workforce development and retention, and facilitate processes for translating research results into policy and practice
8. An agency be created within the health CRI-like entity to identify and promulgate up to date evidence based best practice standards and guidelines for clinical care and service delivery
9. Government health research investment be both significantly lifted and allocated to sustain a world class health research workforce, with health research and health researchers embedded as essential components of the health system itself.
10. Government institution generic research infrastructure and overhead costs be met directly by the institution's primary funder, and be uncoupled from research grants funding
11. Momentum in the implementation of the Government's existing Health Research Strategy be both maintained and lifted, with its principles incorporated into the forthcoming RSI White Paper.

## Overview

The government through MBIE has released its Te Ara Paerangi Future Pathways Green Paper<sup>1</sup> - a consultation document on a “multi-year programme focused on the future of New Zealand’s research system. The programme seeks to start an open and wide-ranging conversation on a range of issues facing the research system, how these issues might be addressed, and how to take advantage of emerging opportunities”<sup>2</sup>.

New Zealanders for Health Research (NZHR) is New Zealand’s peak body representing the entire health and medical research pipeline. We are committed to bringing about best possible health for all New Zealanders, and we’re on a mission to increase investment in health research as an essential and embedded component of all parts of New Zealand’s health system, responsive to New Zealanders’ unique health imperatives.

Upon reading the Future Pathways Green Paper (FPGP) we wonder if health research has inadvertently become something of an orphan (possibly not the only one) within New Zealand’s wider research, science and innovation (RSI) system, noting that it barely rates a mention in the FPGP, and that it has never benefited from the support of a unifying CRI. NZHR therefore welcomes the FPGP as an opportunity to contribute

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<sup>1</sup> MBIE 2021. Research Science and Innovation. Te Ara Paerangi Future Pathways Green Paper.

<https://www.mbie.govt.nz/dmsdocument/17637-future-pathways-green-paper>

<sup>2</sup> <https://www.mbie.govt.nz/science-and-technology/science-and-innovation/research-and-data/te-ara-paerangi-future-pathways/>

to the development of New Zealand’s research, science and innovation sector, and system, both as a whole and with a focus on health and medical research specifically. Our submission seeks to offer a solutions based approach with recommendations for the RSI system as a whole, which in turn will optimise conditions for health research to also flourish.

Paraphrasing the FPGP’s aspirations for New Zealand’s research system as a whole NZHR wants to see a modern, future-focused health research system for New Zealand. “It needs to be adaptable for a rapidly changing future, resilient to changes, and connected: to itself, to industry, to public sector users of health research [including the health system], and internationally. Such a system will need to reflect New Zealand’s unique opportunities and challenges. It will need to embed Te Tiriti across the design and delivery attributes of the system, and enable opportunities for mātauranga Māori. It will also need to recognise that research is a global undertaking and seek to stand alongside the best systems in the world”<sup>3</sup>.

We believe that any redevelopment of the country’s RSI system should follow the logic of form following function<sup>4</sup>. Only after the “why” or the purpose of the RSI has been identified - and only then - will it be possible to logically determine the “how” or what the RSI system should look like in order for it to realise its purpose.

This submission responds to the key issues presented in the FPGP. It has been developed in consultation with New Zealand health research system stakeholders, together with NZHR members as presented in Appendix A, and has been specifically endorsed and amplified by the New Zealand Multiple Sclerosis Research Trust (NZMSRT) by way of the unsolicited letter presented in Appendix B. It draws upon NZHR submissions developed for other contexts<sup>5</sup> as well as health research related submissions on MBIE’s 2019 Draft RSI Strategy<sup>6</sup>.

## Issues

This submission addresses the following key issues:

1. RSI system purpose
2. Research priorities
3. Mātauranga Māori and embedding Te Tiriti in the research system
4. Government research funding and investment
5. Pathways to impact
6. Design and structure of the funding system and research institutions
7. Workforce development
8. Research infrastructure
9. The place of the existing Health Research Strategy

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<sup>3</sup> FPGP p19

<sup>4</sup> “In addressing the fundamental question of what New Zealand’s future RSI system looks like, it is important the institutional structure is designed to support the outcomes we wish to achieve”. Universities New Zealand - Te Pōkai Tara. 2022. Te Ara Paerangi - Future Pathways Green Paper Submission <https://www.universitiesnz.ac.nz/sites/default/files/uni-nz/documents/UNZ%20submission%20on%20Te%20Ara%20Paerangi%20-%20Future%20Pathways%20Green%20Paper.pdf>

<sup>5</sup> As published on NZHR’s website [www.nz4healthresearch.org.nz](http://www.nz4healthresearch.org.nz)

<sup>6</sup> MBIE. November 2019. <https://www.mbie.govt.nz/document-library/search?keywords=draftresearchscienceinnovationstrategy&df=&dt=&start=0>

## RSI system purpose

The FPGP neither explicitly articulates the RSI's purpose nor states why it should exist and attract government support.

One might infer from the FPGP's introduction that MBIE's view is that the RSI system exists to meet "the challenges and opportunities of the future" and "to drive New Zealand's future prosperity and well-being".<sup>7</sup> It can be further inferred that MBIE intends that this is specifically the purpose of the government funded component of the RSI system.

NZHR believes that the RSI White Paper (RSIWP) - which is expected to be the successor document to the FPGP - should explicitly state (rather than imply) why New Zealand's government funded RSI system exists, and that the above inferred purpose should be expressed in more ambitious terms.

International comparisons suggest that New Zealand is already a relatively prosperous and healthy country but at the same time we could be doing significantly better. The above implied purpose omits any reference to what New Zealand's future prosperity and well-being should look like, fails to explicitly relate the RSI system to New Zealanders themselves, and nor does it acknowledge that the RSI system can only be a driver of prosperity and well being if complementary systems and processes are in place to enable that to happen.

NZHR therefore recommends that the RSIWP explicitly states that "the government funded components of New Zealand's RSI system exist to drive significant improvements in New Zealand's and all New Zealanders' environmental and personal well-being, and future prosperity, through the mandated application of results of excellent research into all aspects of government ministry".

The remainder of this submission assumes that this is in fact the purpose of the RSI system in the context of the FPGP.

## Research priorities

The FPGP notes<sup>8</sup> that "Priorities will be an expression of the most important matters for New Zealand that can be enabled through the research system. They will not describe all research activity that will happen. They will describe a sub-set of research with a particular focus of activity and resources. There will remain funding and support for investigator-led research that takes place outside of these priorities".

Given that NZHR believes that the purpose of the government funded component of the RSI system is to drive significant improvements in New Zealand's and all New Zealanders' environmental and personal well-being and future prosperity, it follows that any research priorities should be a direct reflection of these imperatives - which we note are not mutually exclusive given that good health will often be a precursor

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<sup>7</sup> FPGP p17

<sup>8</sup> FPGP p27

to improved prosperity, and that environmental wellbeing and prosperity can be catalysts for improved personal health and wellbeing.

Broadly, there are currently three sets of de facto priorities operating simultaneously in New Zealand comprising the focuses of the Crown Research Institutes, the TEC funded Centres of Research Excellence and the National Science Challenges respectively. Although priorities may also be implied by annual budgets and activities of government departments these three are the ones that reflect systematic albeit sometimes historical attempts to determine what is important.

This leaves us with the following current key priorities as summarised in the table below and detailed in Appendix C, where it can be seen that based on the consistent attention they have received from CRIs, the NSC's and the CoREs the country's top de facto research priorities comprise: weather and climate; freshwater safety; food safety and security; geological hazards resilience; and biodiversity. Given that the CoREs are out of the FPGP's scope, for MBIE the de facto top research priorities extend to also include land resources, agriculture and aquatic resources and environments.

### Government Funded Research Priorities

	Priority	CRI	NSC	CoRE
A	Weather and climate hazards resilience	✓	✓	✓
A	Freshwater safety	✓	✓	✓
A	Food safety/security and nutrition	✓	✓	✓
A	Geological hazards resilience	✓	✓	✓
A	Biodiversity	✓	✓	✓
B	Land resources	✓	✓	
B	Agriculture	✓	✓	
B	Aquatic resources and environments	✓	✓	
B	Energy	✓		✓
B	Health and diseases <sup>9</sup>		✓	✓
B	Biosecurity and resilience		✓	✓
C	Minerals	✓		
C	Nuclear science	✓		
C	Forestry and wood products	✓		
C	A better start for young people		✓	
C	Aging well		✓	
C	Housing and urbanisation		✓	
C	High tech		✓	
C	Quantum technology			✓
C	Materials development			✓
C	Enhancing Māori creativity			✓
C	Poverty reduction			✓
C	Rebuilding civil society			✓

<sup>9</sup> NZHR acknowledges that some CRI research will have an impact on health outcomes; however none of the current CRIs specifically include health research as a significant core function

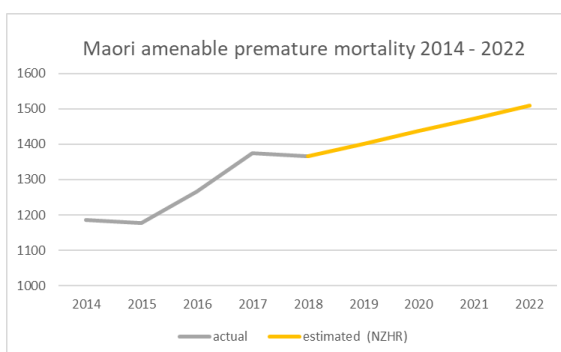
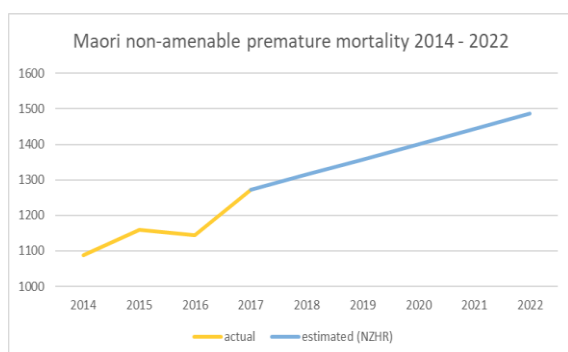
NZHR does not believe that the above priorities comprise an “expression of the most important matters for New Zealand that can be enabled through the research system”<sup>10</sup> In response to the FPGP’s key question of what principles could be used to determine the scope and focus of research priorities we recommend that their determination should be based on identifying:

- Imminent and serious external (eg impacts of climate change) and intrinsic (eg earthquakes) environmental risks
- Imminent and serious risks to New Zealanders’ health and well-being (eg infectious diseases, antibiotic resistance, causes of premature amenable and non-amenable mortality including for example but not limited to lifestyle diseases and cancer)
- Opportunities for significantly enhancing economic prosperity through commercial development of existing and new natural and other resources (eg space technology, lithium production, health technology, green energy, data warehousing etc); and also:
- Responsiveness to priorities identified by Māori
- Avoidance of unnecessary duplication by taking into account the focus of external entities and activity such as the TEC, business, philanthropy and international research

### Mātauranga Māori and embedding Te Tiriti in the research system

A breakdown of the total premature amenable and non-amenable<sup>11</sup> mortality figures for Māori and non-Māori is presented below<sup>12 13</sup>. Despite the apparent similarity of the Māori and non-Māori trend lines, the source documents indicate that age standardised Māori premature mortality rates per 100,000 population are running at about twice the rate for non-Māori for both non-amenable and amenable mortality.

It can be inferred from these figures that current and past approaches to undertaking and translating the results of health research have not served Māori well in terms of life outcomes.

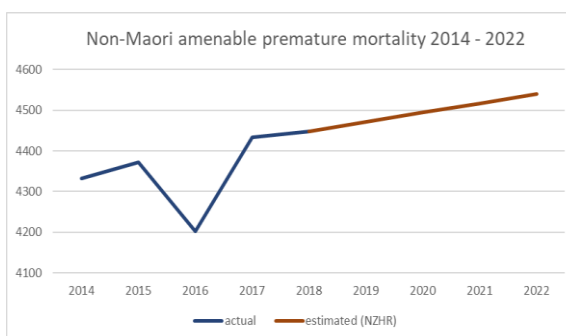
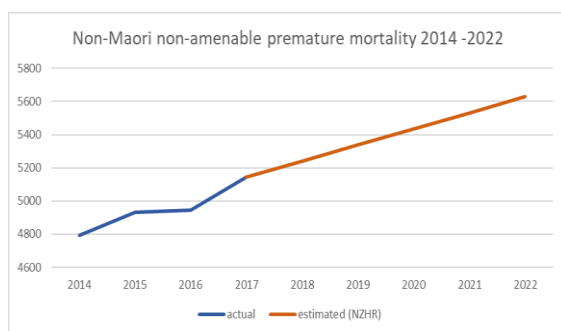


<sup>10</sup> FPGP p.27

<sup>11</sup> Amenable mortality is defined as premature deaths (deaths under age 75) that could potentially be avoided, given effective and timely health care. That is, early deaths from causes (diseases or injuries) for which effective health care interventions exist and are accessible to New Zealanders in need. Non-amenable premature mortality is total deaths under age 75 minus amenable premature deaths.

<sup>12</sup> [amenablemortality\\_2016\\_dhb\\_ethnicity\\_years\\_rates\\_summary\\_202106.xlsx \(live.com\)](https://www.health.govt.nz/publication/mortality-2017-data-tables)

<sup>13</sup> <https://www.health.govt.nz/publication/mortality-2017-data-tables> and earlier tables



Adopting the language of the FPGP, NZHR agrees, and indeed recommends, that more work should “be done to explore how the health research system can best uphold Te Tiriti obligations and opportunities. We must consider how to embed Te Tiriti within the fabric of the health research system, in decision making, in our processes, in collecting advice and information, in our workforce, and in health research outcomes...we need to reimagine how to give life to Māori health research aspirations, the right ways to enable mātauranga Māori - Māori knowledge - in our health research system and the interface between mātauranga Māori and other activities in the system”<sup>14</sup>

## Government and other health research investment levels, trends and trajectories

The FPGP states that “Government funding that supports research activities in New Zealand has increased significantly since 2010, by around 75 per cent. With it, the system has grown and done much more. However, the way in which funding is distributed has led to precarity in organisational revenue for CRIs, despite the overall funding increases, and we continue to observe elements of unproductive competition across all organisations in the research system. Overall, we see a system where demand for its support far outstrips the supply of resources. This makes our goal of raising national research and development expenditure to 2 per cent of gross domestic product a bare minimum”.<sup>15</sup>

Government funding that supports health research activities however does not appear to have increased by anything like 75% since 2010. Dedicated health research investment (eg through the Health Research Council and the health related National Science Challenges) has increased by 52% since 2010, and NZHR is not aware of any evidence to suggest that there has been sufficient investment increases from other non-dedicated contestable sources (eg MBIE Endeavour, Catalyst and Marsden funds and/or the Tertiary Education Commission (TEC)) to have had a significant impact on this figure.

Indeed, the precarity which the FPGP notes is associated with organisational revenue for CRIs is even more acute for health and other research priorities which rely solely on NSC and/or CoRE revenue.

<sup>14</sup> FPGP p.38

<sup>15</sup> FPGP p.2

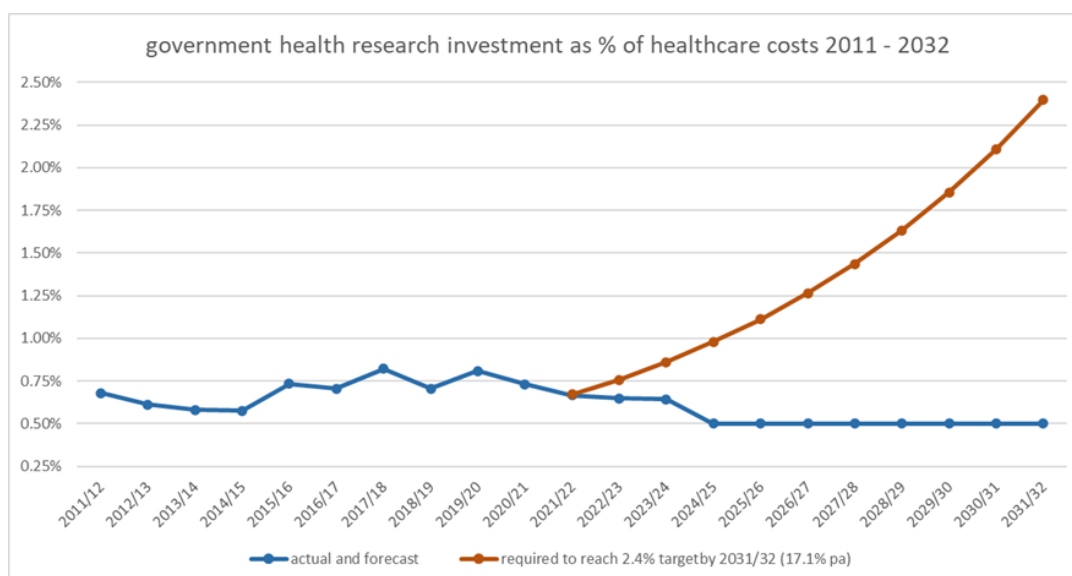
On the face of things it appears that health and medical research has been receiving neither a fair share of the total pool of government research investment funds, nor the degree of revenue certainty associated with research priorities supported by CRIs (the FPGP's comments on CRI revenue precarity notwithstanding)

To address this NZHR recommends that the RSI system dispenses with current requirements for different research disciplines to compete with each other for scarce generic resources (eg health and medical research vs climate change research vs plant and food research etc) in favour of larger allocations associated with each research priority, with the actual amount and growth trajectory determined by the sector's share of GDP, and potential for environmental impact, impact on health and wellbeing, and economic impact.

For the health research sector - and noting that TEC investment is out of the FPGP's scope - this could involve pooling current HRC, Endeavour, Catalyst, Marsden and similar health research funding allocations into a single investment resource, with an appropriate growth trajectory, comprising two contestable investment streams - one for mission led health research where there are identifiable pathways to impact and one for investigator led research where such pathways are more difficult to identify.

Given NZHR's recommendations that there should be explicit acknowledgement that the government funded components of New Zealand's RSI system exist to drive significant improvements in New Zealand's and all New Zealanders' well-being and future prosperity, and that one of the principles for determining the scope and focus of research priorities should include identification of imminent and serious risks to New Zealanders' health and well-being, we specifically recommend that government investment in health research should be increased significantly.

Direct government investment in health research as a percentage of government health care costs has been falling over the last five years from 0.82% in 2017/18 to 0.67% in the current year 2021/22, and continuing to leave this issue unaddressed is projected to result in investment of 0.5% of health care costs by 2024/25, as illustrated in the chart below.





In response NZHR recommends that direct government investment in health research be increased to 2.4% of direct government health care costs over the course of the next decade, requiring an investment growth trajectory of 17.1% per annum<sup>16</sup>. The 2.4% figure is supported by NZMSRT, and we understand will be supported in at least one other FPGP submission.

In the context of the government’s overall aspirational R&D target of 2.0% of GDP by 2027, we note that NZHR’s proposed ten year 17.1% p.a. trajectory would result in direct government investment in health R&D being a comparatively modest 1.4% of government health care costs by 2027.

Whether or not NZHR has selected an appropriate aspirational target, or appropriate numerators and denominators are moot points, and other options (based on NZHR’s analysis of 2018 figures) are presented in the table below<sup>17</sup>.

	Descriptor	2018 Investment ratio
1.	Direct govt health research investment vs direct govt health care costs	0.72%
2.	Direct govt health research investment vs total govt costs of addressing ill health	0.59%
3.	Direct govt health research investment vs total govt and society costs of addressing ill health	0.31%
4.	Total govt health research investment vs total govt costs of addressing ill health	1.2%
5.	Total govt health research investment vs total govt and society costs of addressing ill health	0.65%
6.	Total health research investment (govt+industry+philanthropy) vs total govt and society costs of addressing ill health	1.2% <sup>18</sup>

It will be noted that all of the investment ratios presented above fall well short of the goal of raising national research and development expenditure to 2 per cent of gross domestic product, which the FPGP describes as a “bare minimum”. Indeed, the Productivity Commission’s “Frontier Firms” report<sup>19</sup> unfavourably compared New Zealand’s then current R&D investment rate of 1.3% of GDP with other small advanced economies which were typically recording rates nearer to 3%.

NZHR concurs with Universities New Zealand’s view that “we need to abandon our unrealised aspiration of being below average and develop an achievable pathway

<sup>16</sup> NZHR. January 2022. NZHR 2022 Budget Policy Statement submission. <https://nz4healthresearch.org.nz/wp-content/uploads/2022/01/NZHR-Budget-Policy-Statement-submission-280122.pdf>

<sup>17</sup> NZHR. November 2020. Briefing Paper for the incoming Ministers of Health and Science, Research and Innovation. <https://nz4healthresearch.org.nz/wp-content/uploads/2020/11/NZHR-briefing-paper-for-incoming-Ministers-241120.pdf>

<sup>18</sup> New Zealand’s total R&D as a percentage of GDP was 1.3%, again pointing to relative underinvestment in health R&D

<sup>19</sup> New Zealand Productivity Commission (2021). New Zealand firms: Reaching for the Frontier. <https://www.productivity.govt.nz/assets/Documents/Final-report-Frontier-firms.pdf>

that will raise total research funding through greater public investment and stronger incentives for the private sector to build its commitment to research investment...”<sup>20</sup>

We also note that MBIE, the Ministry of Health and the Health Research Council have collectively acknowledged that New Zealand underinvests in health research<sup>21</sup>.

As a corollary we draw attention to philanthropy’s annual contribution to health research funding, estimated by NZHR and Cure Kids to be about \$65m<sup>22</sup> and \$60m<sup>23</sup> respectively (using different methodologies). This in stark contrast to MBIE’s previous estimates of \$10m<sup>24</sup>, and underscores the importance of the government funded components of RSI system recognising the value of and collaborating with the philanthropic sector.

## Pathways to impact

The FPGP has tucked this topic away in section 4.6 as part of the discussion on institutions. While NZHR acknowledges that institutions do and should have a role in knowledge exchange and research impact, there are many other vehicles for translating research into impact including the media, networking, advocacy and lobbying entities, professional collaboration etc.

Even though not all research will necessarily have a line of sight to impact, pathways to impact are nevertheless a critical component of the RSI ecosystem, and NZHR recommends that this topic be afforded exclusive attention as a chapter in its own right in the forthcoming RSI White Paper.

For health in particular NZHR believes that health research and innovation is the single most important way in which we improve our health and healthcare - by identifying and implementing the best means to prevent, diagnose and treat conditions. Like the FPGP we want the health research system to achieve greater impact<sup>25</sup>. By impact, we particularly mean a change to society (ie better health outcomes) beyond a contribution to knowledge and skills in research organisations.

Yet we have fallen short for Māori and non-Māori alike when it comes to realisation of that most fundamental of wellbeing outcomes - the right of all New Zealanders to live well to a “ripe old age”. This “falling short” is illustrated in the non-amenable and amenable<sup>26</sup> premature mortality charts<sup>27</sup> <sup>28</sup> presented on the following page which indicate that approximately 13,000+ New Zealanders are dying prematurely.

<sup>20</sup> Universities New Zealand - Te Pūkai Tara. 2022. Te Ara Paerangi - Future Pathways Green Paper Submission <https://www.universitiesnz.ac.nz/sites/default/files/uni-nz/documents/UNZ%20submission%20on%20Te%20Ara%20Paerangi%20-%20Future%20Pathways%20Green%20Paper.pdf>

<sup>21</sup> The New Zealand Health Research Prioritisation Framework. Dec 2019. p 19.

[https://www.hrc.govt.nz/sites/default/files/2020-01/NZ%20Prioritisation-Framework-FA-web\\_0.pdf](https://www.hrc.govt.nz/sites/default/files/2020-01/NZ%20Prioritisation-Framework-FA-web_0.pdf)

<sup>22</sup> NZHR. November 2020. Briefing Paper for the incoming Ministers of Health and Science, Research and Innovation.

<https://nz4healthresearch.org.nz/wp-content/uploads/2020/11/NZHR-briefing-paper-for-incoming-Ministers-241120.pdf>

<sup>23</sup> Cure Kids 2022. Future Pathways Green Paper Submission.

<sup>24</sup> MBIE. 2016. New Zealand Health Research Strategy Public Discussion Document.

<https://www.health.govt.nz/publication/new-zealand-health-research-strategy-public-discussion-document>

<sup>25</sup> FPGP p.60

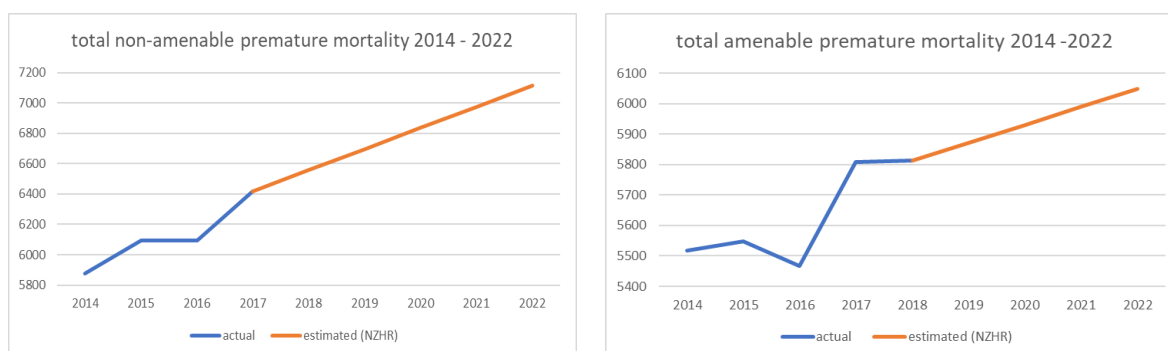
<sup>26</sup> Amenable mortality is defined as premature deaths (deaths under age 75) that could potentially be avoided, given effective and timely health care. That is, early deaths from causes (diseases or injuries) for which effective health care interventions exist and are accessible to New Zealanders in need. Non-amenable premature mortality is total deaths under age 75 minus amenable premature deaths.

<sup>27</sup> [amenablemortality\\_2016\\_dhb\\_ethnicity\\_years\\_rates\\_summary\\_202106.xlsx \(live.com\)](https://www.health.govt.nz/publication/mortality-2017-data-tables)

<sup>28</sup> <https://www.health.govt.nz/publication/mortality-2017-data-tables> and earlier tables

Of these 6000+ are dying early and unnecessarily from preventable causes (where the research has been done but not yet adequately translated into practice) and 7000+ are dying early because we haven't yet done or completed the research to know how to effectively treat them.

NZHR acknowledges that our figures represent the tail end of what up until 2016 had been a notable 26 year downward trend in age-standardised rate of years of life lost per 100,000 population<sup>29</sup>, and that our estimated up-ticking trend line post-2017 is based on only a few years' data. Nevertheless, there should be no complacency as the figures presented are still high in absolute terms, and New Zealand's rate of years lost is higher than nine out of thirteen selected socio-demographically comparable countries cited in the MoH (2020) "Longer, Healthier Lives" report referenced above.



Furthermore, NZHR's premature mortality figures represent the tip of a much bigger iceberg of morbidity. It is difficult to quantify the extent of this from the MoH (2020) report for the under 75-year-olds specifically, but for all ages the report notes that the number of years people are living with poor health has shown little change since 1990.

These health outcomes indicate that New Zealand's health research system is not impacting as positively as it should be, and NZHR hopes that the FPGP will be one of the catalysts for improvement.

We note the Health Research Council's comment that "New Zealand is the only country that can configure effective evidence-based prevention and intervention strategies for our diverse population. Given that over 1/3 of health loss is preventable, this is an essential area of research that needs to be undertaken in our context."<sup>30</sup>

NZHR believes that the current pathways for translating health research findings into better health outcomes are loose, ad hoc and overly dependent on local health service delivery leadership. We have supported both the HRC's introduction of 2-year and 5-year post-contract surveys to help capture research impacts, and the

<sup>29</sup> Ministry of Health. 2020. Longer, Healthier Lives: New Zealand's Health 1990-2017. A report on the health loss estimates of the 2017 Global Burden of Disease Study <https://www.health.govt.nz/system/files/documents/publications/longer-healthier-lives-new-zealands-health-1990-2017.pdf>

<sup>30</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10480-health-research-council-of-new-zealand-draft-research-science-and-innovation-strategy-submission-pdf>

application of MBIE’s generic position paper on the impact of research<sup>31</sup>, including the importance of a line of sight to impact.

Furthermore we share the concerns expressed in the FPGP “about a knowledge gap that exists between the new and good ideas generated within the [health] research sectors and the rate these ideas are used or implemented - either turned into new products, services or even business models, used to inform public sector approaches or services, or otherwise translated into impacts by their use”<sup>32</sup>. In the health sector it has been suggested that the translation process can be as long as seventeen years<sup>33</sup>.

However, despite best intentions health researchers themselves sometimes appear to struggle to articulate how the results of their research save and improve lives. For example of the eight excellent case studies presented in a University of Otago “Impacts of Research” publication<sup>34</sup> only one<sup>35</sup> was able to articulate impact in terms of improvements in health outcomes.

Another illustrative example is provided by the University of Otago led development of new testing criteria for stomach cancer, which has considerable life saving potential, particularly for Māori.<sup>36</sup> In a personal communication<sup>37</sup> to NZHR, principal investigator Professor Parry Guildford said:

*“the guidelines were produced on behalf of the International Gastric Cancer Linkage Consortium (IGCLC) [with] our....version [being] the latest in this sequence. These guidelines are considered the official word in the management of this form of cancer internationally - although we are really just a self-appointed expert group. As far as I know, hospitals are not required to follow these guidelines, but given their utility and highly reputable etiology, our recommendations do make it into clinical practice as the gold standard worldwide. This time, we have had input from several senior NZ genetic counsellors and clinicians, hence our ability to include a genetic testing recommendation for Maori. So, I guess the DHBs here would consider these guidelines to be ‘informal’, but they fill a need and will be largely adopted”.*

NZHR believes that current arrangements for translating health research into practice need to be tightened so that there is an obligation on health service providers to implement evidence based best practice and to quantify the subsequent impact on health outcomes.

Moreover reliance on having the results of research published as one of the steps for translating research into policy and practice can be problematic, as pointed out by the Healthier Lives National Science Challenge: “a measure such as the number of citations in the top 1% worldwide is not a predictor of excellence for Māori and

<sup>31</sup> MBIE. October 2019. The Impact of Research. <https://www.mbie.govt.nz/dmsdocument/6983-the-impact-of-research-position-paper-october-2019-pdf>

<sup>32</sup> FPGP p.62

<sup>33</sup> Institute of Medicine. 2001. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: The National Academies Press <https://doi.org/10.17226>

<sup>34</sup> University of Otago Division of Health Sciences. Undated but understood to be mid-2020. Impacts of Research

<sup>35</sup> Case study 6. Cardiac Biomarkers used in Heart Failure Diagnosis, Prognosis and Treatment. University of Otago Division of Health Sciences. Impacts of Research

<sup>36</sup> University of Otago. August 2020. Research team hopes Māori lives will be saved with new testing criteria for stomach cancer. <https://www.otago.ac.nz/news/news/otago741855.html>

<sup>37</sup> Prof. Parry Guilford PhD FRSNZ. Director, Centre for Translational Cancer Research. Cancer Genetics Laboratory Department of Biochemistry. University of Otago. 24<sup>th</sup> August 2020. Personal email.

Pacific research because the rest of the world does not have the same level of interest in it as New Zealand does.”<sup>38</sup> The Whakauae Research for Māori Health and Development submission on MBIE’s draft RSI strategy also notes that “translation and uptake of research in Māori settings tends to occur in spite of academic publications, not as a consequence of them”.<sup>39</sup>

NZHR has previously recommended<sup>40</sup> that an agency be created to identify and promulgate up to date evidence based best practice standards and guidelines for clinical care and service delivery (similar in concept to the now disestablished Clinical Guidelines Group). In the light of the FPGP, and in anticipation of the CRI’s and NSCs being replaced by a new set of institutional arrangements which will specifically include health research, we reiterate this recommendation as a necessary precursor to the following NZHR identified<sup>41</sup> health system imperatives:

- Publicly funded health service providers should be contractually required through health commissioning arrangements to deliver services in accordance with best practice standards and guidelines, to be involved in undertaking health research, and to have demonstrable processes for translating the results of health research into policy and practice
- Workforce development strategies should be implemented which would see research fellows, clinical research specialists etc being routinely deployed as key members of clinical and health care teams, responsible for ensuring that clinical decisions are supported by the best evidence
- Clinical training and continuing clinical education and registration agencies should be reviewed to ensure that their processes ensure that emerging and current clinicians are required to practice according to best evidence based standards of care
- Health commissioning agencies should be required to meet premature amenable mortality targets and be given the ability to purchase evidence based best practice services from whoever is best placed to help meet those targets, including individuals and whanau/family.

In the current environment where government health research investment is significantly constrained it possibly makes sense for funding applications to be required to demonstrate how the proposed research is expected or surmised to lead to positive impacts on health outcomes, for New Zealanders in particular.

However it should also be acknowledged that not all health and medical research will necessarily be able to meet these criteria. For example, it is unlikely that any of the scientists in the 1960s who discovered mRNA, produced the first liposomes

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<sup>38</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10481-healthier-lives-national-science-challenge-draft-research-science-and-innovation-strategy-submission-pdf>

<sup>39</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10556-whakauae-research-for-maori-health-and-development-draft-research-science-and-innovation-strategy-submission-pdf>

<sup>40</sup> September 2021. The case for embedding health research as an essential component of the reformed health and disability system. Submission to the Health Transition Unit. <https://nz4healthresearch.org.nz/the-case-for-embedding-health-research-as-an-essential-component-of-the-reformed-health-and-disability-system/>

<sup>41</sup> Ibid.

and produced the first proteins from isolated mRNA in the laboratory<sup>42</sup>, would have been able to even conjecture the possibility of their discoveries being the foundations of today's mRNA based vaccines.

It should also be recognised that health and medical research in New Zealand operates in an international context and that our health and health research systems - and the New Zealanders which they serve - should be expected to both benefit from and contribute to the wider global effort. The extent to which New Zealand is, should be, and is seen to be, pulling its weight internationally, generally and for health research in particular, is an issue which should be addressed in the FPGP, noting that New Zealand's performance internationally is comparatively poor in respect of health research<sup>43</sup>.

## Design and structure of funding system and research institutions

NZHR notes the FPGP's section 4 discussion on the shape of research institutions, and the suggestion that they be enabled to give effect to whole of system priorities, and be adaptable in a fast changing world. We also note that there has never been a Crown Research Institute (or similar) for health, and that the social research CRI has long since been disestablished.

Instead, the health research sector currently comprises a collection of university based Centres of Research Excellence (CoREs) (all of which experience potential precarity of funding, as illustrated by the recent discontinuation of the Centre for Brain Research and MedTech CoREs), independent medical research institutes, university based medical research institutes and other entities, health related National Science Challenges, and a number of clinical research organisations which primarily focus on undertaking clinical trials in response to both local and international demand. These entities are funded from various government (and other) sources, including Health Research Council funding which comprises about half of the government's total investment in health research, excluding R&D incentives<sup>44</sup>.

In light of our earlier comments on why the RSI system exists and that research priorities should focus in part on New Zealanders' health and wellbeing, NZHR recommends the establishment of a health (or health and social science) CRI, or similar, to undertake and fund health and medical research, provide for health research workforce development and retention, and facilitate processes for translating research results into policy and practice.

## Workforce development

NZHR agrees that there needs to be a serious approach to talent development<sup>45</sup> - and retention.

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<sup>42</sup> Dolgin, E. The tangled history of mRNA vaccines. *Nature* 597, 318-324 (2021). <https://www.nature.com/articles/d41586-021-02483-w>

<sup>43</sup> Higgins C. Health Research Saves Lives. *European Journal of Public Health*, Volume 30, Issue Supplement\_5, September 2020, kaa166.1262, <https://doi.org/10.1093/eurpub/ckaa166.1262>.

<sup>44</sup> NZHR. November 2020. Briefing Paper for the incoming Ministers of Health and Science, Research and Innovation. <https://nz4healthresearch.org.nz/wp-content/uploads/2020/11/NZHR-briefing-paper-for-incoming-Ministers-241120.pdf>

<sup>45</sup> FPGP p.21

Reid et al (2014)<sup>46</sup> describe “a decade of diminishing investment in health research in New Zealand. During this time, investment in our hospitals has substantially increased, as have the number of academic staff working in medicine and public health. As a result, an increasing number of would-be researchers have been pursuing a progressively diminishing pool of resource to support research, resulting in funding rates in HRC grant rounds which are among the lowest in the world, and one-third of those in Australia.”

“Such low rates of grant success discourage individuals from submitting grants, but also discourage academics from working in New Zealand. The medical faculties in both Otago and Auckland suffer a steady loss of academics disgruntled by the research funding environment, who move overseas, most commonly to Australia”.

“We also face a continual battle to recruit academics, including expatriate New Zealanders, because there is the perception that moving to New Zealand necessitates abandonment of serious medical research activity”.

“The current crisis has arisen because there has been no indexing of research funding to the cost of research, nor to the size of the workforce that should be research-active. Structural changes need to be put in place to ensure that these parameters guide future levels of funding”.

In 2014 investment in health research was at a particularly low level. Although there have been some gains since then NZHR maintains that the issues identified by Reid et al continue to be pertinent in 2020, and we continue to hear anecdotally from clinicians about their surprise and dismay about how clinical practice in New Zealand is disconnected from and unsupported by health research. Indeed, Otago University’s Division of Health Sciences has noted that “we have great difficulty getting clinicians in some of the DHBs we work with to engage at all as they are 100% focussed on meeting the KPIs of the DHB in terms of patients seen, etc. Research has very low status in these DHBS’.<sup>47</sup>

This point is amplified by NZMSRT (Appendix B) who state that “we want to emphasize the importance of health research funding to the hiring and retention of key clinical staff to our health services. The 1990’s Health reforms unbundled health research funding from our hospitals and the position has never been properly corrected.

This has significantly reduced opportunities for clinical research as part of a doctor or nurse’s job description. As a result, New Zealand has one third the number of neurologists as Australia. This when the Global Burden of Disease Conference in Auckland in 2018 noted that neurological disease would be the largest cause of death in New Zealand by 2040.

From a Multiple Sclerosis point of view this has led to an exodus of highly qualified neurologists to work overseas where in addition to working clinically they can undertake key research.”

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<sup>46</sup> Reid I et al. Government funding of health research in New Zealand. NZMJ. Vol 127 No 1389: 14 Feb 2014.

<https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2014/vol-127-no.-1389/5992>

<sup>47</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10548-university-of-otago-division-of-health-sciences-draft-research-science-and-innovation-strategy-submission-pdf>

We also refer to the University of Auckland Faculty of Medical and Health Sciences Postdoctoral Society submission<sup>48</sup> on MBIE's earlier draft RSI Strategy which highlights the many barriers to recruiting and retaining early stage health and medical researchers, and agree that there would be much benefit in career pathways which are unshackled from short term contracts based on short term research project funding. Moreover, health research workforce development should include commitments to both diversity and adequate remuneration as mentioned in the Maurice Wilkins Centre submission on MBIE's draft RSI strategy<sup>49</sup>. The Healthier Lives National Science Challenge adds that there appears to be a steady drain of Māori PhDs from the science system, especially in the field of health, and as a result there is considerable strain placed on Māori researchers who remain in the system from the many demands on them<sup>50</sup>.

NZHR recommends that if New Zealand is to sustain a world class health research workforce the government's health research investment has to be both significantly lifted and allocated so that health research and health researchers become embedded as essential components of the health system itself.

## Research infrastructure

In principle NZHR leans in favour of uncoupling funding for health research infrastructure from health research investment, particularly where both the source of the investment and the host research institution are government agencies. We think that the current system which requires, for example, the Health Research Council to contribute up to, say 40%, of the total value of a grant as a contribution to the host's general overheads and infrastructure costs lacks transparency and distorts any assessment of what the cost benefit of any research might be. We therefore recommend that government host institutions be fully funded directly by their primary funders for all of their generic overhead and infrastructure requirements, and that health research funders would only cover new infrastructure costs directly associated with and required for the research to be undertaken.

This approach would be consistent with what is typically preferred by philanthropic funders of health research where there is a general resistance to contributing to overheads and infrastructure, preferring instead that their grants be allocated to the costs of undertaking the research per se.

Non-government research institutions such as independently operated private or philanthropic research institutes, with no separate source of government infrastructure support, should be able to access a generic pool of government infrastructure funds, with the amount received commensurate with the size and nature of their non-commercial research activity, subject to renewable long term contracts of at least ten years, re-negotiable midway through the term.

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<sup>48</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10544-university-of-auckland-faculty-of-medical-and-health-sciences-postdoctoral-society-draft-research-science-and-innovation-strategy-submission-pdf>

<sup>49</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10496-maurice-wilkins-centre-draft-research-science-and-innovation-strategy-submission-pdf>

<sup>50</sup> November 2019. <https://www.mbie.govt.nz/dmsdocument/10481-healthier-lives-national-science-challenge-draft-research-science-and-innovation-strategy-submission-pdf>



## The place of existing frameworks and strategies

New Zealand has a pre-existing Health Research Strategy<sup>51</sup>, the parties to which are MBIE, the HRC and the Ministry of Health. Although implementation appears to be ad hoc and slow, with no clear overall leadership, it is important, and NZHR recommends, that momentum is both maintained and lifted, and that this strategy is not left to drift into obscurity as a result of focuses shifting to the FPGP and its outcomes, and indeed has its principles incorporated into the forthcoming RSI White Paper.

**Chris Higgins**

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16<sup>th</sup> March 2022

### Appendix A: NZHR members and partners



<sup>51</sup> New Zealand Health Research Strategy 2017 - 2027. Ministry of Health and Ministry of Business Innovation and Employment. 2017 <https://www.health.govt.nz/system/files/documents/publications/nz-health-research-strategy-jun17.pdf>

**Appendix B: New Zealand Multiple Sclerosis Research Trust letter of endorsement**

15 March 2022

The Chief Executive  
New Zealanders for Health Research  
Auckland

By email: Chris Higgins [ceo@nz4healthresearch.org.nz](mailto:ceo@nz4healthresearch.org.nz)

Dear Sir,

We are writing to support your submission to the consultation on the Te Ara Paerangi Future Pathways Green Paper.

We want to emphasize the importance of health research funding to the hiring and retention of key clinical staff to our health services. The 1990's Health reforms unbundled health research funding from our hospitals and the position has never been properly corrected.

This has significantly reduced opportunities for clinical research as part of a doctor or nurse's job description. As a result, New Zealand has one third the number of neurologists as Australia. This when the Global Burden of Disease Conference in Auckland in 2018 noted that neurological disease would be the largest cause of death in New Zealand by 2040.

From a Multiple Sclerosis point of view this has led to an exodus of highly qualified neurologists to work overseas where in addition to working clinically they can undertake key research.

New Zealand has a number of important features which make it a good place to undertake MS research including a strong incidence gradient where people with MS[PwMS] are twice as likely to live in Dunedin south compared with the North of the North Island and a large number of drug naïve people because of access issues to disease modifying therapies.

We strongly support an increase in Health Research funding to over 2% of the Health Budget. Having said that we note that the New Zealand Multiple Research Trust is clear evidence that PwMS and their families are also prepared to support MS research in New Zealand. There is therefore the opportunity for government provided funding to leverage off funds such as ours to increase overall health research funding.

Thank you for your efforts in making your submission which we strongly support.

Sincerely



Neil Woodhams  
Trustee  
New Zealand Multiple Research Trust

## Appendix C: Government Funded Research priorities

- enhancing the value, productivity and profitability of New Zealand's pastoral, agri-food and agri-technology sector value chains (AgResearch)
- safeguarding people's health, protecting New Zealand's food-based economy, improving the safety of our freshwater and groundwater resources and providing the justice sector with expert forensic science (ESR)
- growing New Zealand's geologically-based energy and minerals industries, developing industrial and environmental applications of nuclear science, increasing New Zealand's resilience to natural hazards and understanding geological and earth-system processes (GNS Science)
- managing terrestrial biodiversity and land resources (Landcare Research)
- managing New Zealand's aquatic resources and environments, understanding climate and the atmosphere, and increasing resilience to weather and climate hazards (NIWA)
- enhancing the value and productivity of New Zealand's horticultural, arable, seafood and food and beverage industries (Plant and Food Research)
- driving innovation and growth from New Zealand's forestry, wood product and wood-derived materials and other biomaterial sectors (Scion)
- improving the potential for young New Zealanders to have healthy and successful lives (A Better Start NSC)
- sustaining health and well-being as people age so that New Zealanders to reach their full potential into the later years of life (Aging Well NSC)
- improving the quality and supply of housing and creating smart and attractive urban environments (Building Better Homes, Towns and Cities NSC)
- significantly reducing the death and disease burden of some of New Zealand's leading health problems (Healthier Lives NSC)
- transforming New Zealand's food and beverage industry to become an exporter of high-value foods with scientifically proven health benefits (High-value Nutrition NSC)
- protecting and managing New Zealand's biodiversity, improve biosecurity, and enhancing resilience to harmful organisms (Biological Heritage NSC)
- enhancing the production and productivity of New Zealand's primary sector; maintaining and improving the quality of the country's land and water for future generations (Our Land and Water NSC)
- enhancing New Zealand's ability to anticipate, adapt and thrive in the face of ever-changing natural hazards (Resilience to Nature's Challenges NSC)
- tackling New Zealand's big high-tech challenges to grow the economy (Science for Technological Innovation NSC)
- enhancing the use of New Zealand marine resources within environmental and biological constraints (Sustainable Seas NSC)
- understanding the role of the Antarctic and Southern Ocean in determining New Zealand's future climate including impact on key economic sectors, infrastructure and natural resources; enabling New Zealanders to adapt, manage risk and thrive in a changing climate (The Deep South NSC)

- addressing the unique environmental challenges Aotearoa New Zealand faces, and supporting the mauri of our productive and natural landscapes (Bio-protection Aotearoa CoRE)
- producing the next generation of light sources for scientific and industrial applications and harnessing the quantum world of atomic physics for the new wave of quantum technology (Dodd Walls Centre for photonic and quantum technologies CoRE)
- creating and exploring innovative, sustainable materials that will improve the lives of people in Aotearoa and around the world...addressing global challenges such as clean water, renewable energy and climate change (MacDiarmid Institute for Advanced Materials and Nanotechnology CoRE)
- research targeting serious human disease (The Maurice Wilkins Centre for Molecular Biodiscovery CoRE)
- research focused on realising the creative potential of Māori communities and bringing positive change and transformation to the nation, and the wider world. (Ngā Pae o te Māramatanga CoRE)
- transforming the earthquake resilience of communities and societies (QuakeCoRE New Zealand Centre for Earthquake Resilience)
- generating the future knowledge and skills that are required to help address the unprecedented challenges and disruptions facing the food sector in a rapidly changing world. (The Riddet Institute for Advancing Frontiers in Food Science CoRE)
- pioneering transdisciplinary approaches to the application of complexity science to tackling large environmental and social challenges such as biodiversity loss, reducing poverty, and rebuilding civil society. (Te Pūnaha Matatini CoRE)
- research into improve outcomes from heart and respiratory diseases (Healthy Hearts for Aotearoa New Zealand - Manaaki Mānawa CoRE)
- responding to climate change through research to support transformative change to rebuild coastal ecosystems, focussing on the changes resulting from ocean warming and acidification, and sea-level rise (Coastal People: Southern Skies CoRE)