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Health Research Council of New Zealand
Te Kaunihera Rangahau Hauora o Aotearoa

Investment Impact Report 2025

Te Kāwanatanga o Aotearoa
New Zealand Government

From our Chief Executive

This Impact Investment Report (IIR) demonstrates the talent and sustained commitment of the health research community ensuring all New Zealanders benefit from the world-leading high-impact, high-value health research funded by the Health Research Council (HRC) on behalf of the Government. The IIR highlights the positive impact of HRC investment on the health system, health outcomes and innovation.

In the period this report covers from 2022 to 2024, researchers reported engaging in 700 health sector collaborations, there were 844 currently practicing healthcare professionals named on research contracts, and 573 HRC-funded workforce positions located in the health sector (both clinical and non-clinical). We know that research connected to and embedded in the health system can directly respond to known issues and improve health system outcomes, such as improving timely access to high-quality health services.

The report demonstrates how HRC-funded research has contributed to improving the efficiency and efficacy of health services for all New Zealanders. More than 100 innovations to service delivery, over 120 influences on health policy and over 30 changes to clinical guidelines or practice have resulted in the last three-year period alone. You will find in this report case studies illustrating research findings that led to changes to national programmes and clinical guidelines for prevention, screening, diagnosing, and treating major health issues that affect New Zealanders.

HRC-funded research has made a meaningful contribution to the innovation pipeline ensuring that commercial benefits are realised and new technologies harnessed by the health system. At a high level, researchers engaged in 159 commercial collaborations, nine new drug patents and six new technology patents were awarded and almost 200 health or research-related technologies were tested or implemented. There are several case studies in this report that showcase the development of cutting-edge technologies and innovations that have been successfully commercialised and generated revenue for New Zealand and cost savings for the health sector.

We thank the research community for their commitment to improving health outcomes and the health system for New Zealanders, through the conduct and communication of their excellent research.

Professor Sunny Collings
Tāhuhu Rangapū | Chief Executive

Contents

Introduction

The Health Research Council of New Zealand (HRC) is the principal funder of health research in New Zealand. Our investment improves health outcomes, strengthens the health system and progress towards health targets, and adds value to the nation's science, innovation and technology system and the wider economy.

Our aspiration is that all New Zealanders benefit from our world-leading, high-impact, high-value health research. To realise this aspiration, all research funded by HRC must have a line of sight to improved health outcomes, and applications are assessed on their pathway to impact[1]. This includes the extent to which their research is orientated to add value and maximise the potential benefits to New Zealand and the actions they have planned to achieve these benefits.

We fund research in three key investment areas:

- Research, evidence and solutions
- Research skills and expertise
- Research needs and opportunities

HRC's performance framework (*overleaf*) sets out five strategic intentions that guide our investment and describes how our investment improves health outcomes and adds value to New Zealand's health and science, innovation and technology systems. This Investment Impact Report will provide data and examples on how the desired outcomes for each strategic intention have been met.

To enable our reporting, HRC collects information on the benefits generated from investment in research throughout the duration of the contract and invites researchers to complete post-contract surveys (at two- and five- years post-contract) to capture additional benefits and impacts that have accrued.

The first part of this Investment Impact Report provides a snapshot of research outputs that were reported between 2022-2024 and illustrates some of the wide range of benefits generated from HRC-funded health research.

Part two of the Investment Impact Report provides case studies of impact that illustrate how HRC-funded research is achieving the outcomes set out in our performance framework: for the health system, for the science, innovation and technology system, for the wider economy, and ultimately for the benefit of all New Zealanders.

In the final section, we pay tribute to some of the many HRC-funded researchers who have received major national awards for their contributions to science for New Zealand.

This report responds to section B3 of the Crown Funding Agreement 2024-2029 between the HRC and the Ministry of Business, Innovation and Employment.

[1] https://www.hrc.govt.nz/resources/hrc-impact-assessment

The HRC's performance framework for 2024-2028[2]

OUR CONTRIBUTION

HRC investment improves health outcomes and adds value to New Zealand's health and science, innovation and technology systems.

OUR ASPIRATION

All New Zealanders benefit from our world-leading, high-impact, high-value health research.

OUR INVESTMENT AREAS

Research skills and expertise

Research, evidence and solutions

Research needs and opportunities

OUR STRATEGIC INTENTIONS

- Drive research excellence, innovation and impact
- Focus on health need and improving health outcomes
- Invest in the people and capability New Zealand needs now and for the future
- Add value through connection and collaboration
- Support the safe and ethical conduct of research

OUR DESIRED OUTCOMES

	For the Science, Innovation and Technology System	For the Health System
Drive research excellence, innovation and impact	High-quality, high-impact and innovative health research produces transformational change, generating information and technological advances that bring health, social and economic benefits for New Zealand.	Quality evidence underpins quality healthcare, while innovative solutions improve the effectiveness and efficiency of the health system.
Focus on health need and improving health outcomes	High-quality, high-impact and innovative health research effectively addresses our highest health needs, improving health and wellbeing outcomes, especially for those with highest health needs.	Research effectively engages with and responds to the needs, strengths and aspirations of our communities to address access barriers and develop clinically and culturally safe and appropriate health services.
Invest in the people and capability New Zealand needs now and for the future	New Zealand has a highly skilled, innovative, culturally capable and sustainable health research workforce, who are well supported to meet local, global and future health needs.	Alongside health researchers, health professionals are a core part of the research workforce, equipped with the knowledge, skills, and expertise to embed research into healthcare.
Add value through connection and collaboration	Research is coordinated, cross-sectoral, transdisciplinary and well connected internationally, increasing the potential for health gains, preparedness for future health challenges and our ability to capture health and economic returns for New Zealand.	Through collaboration, partnership and targeted investment, research is responsive to health needs and priorities and research evidence and solutions are effectively translated and implemented by the next and end-users of the health system.
Support the safe and ethical conduct of research	Research harnessing new technologies and innovations is undertaken safely and ethically in New Zealand.	Through the work of our monitoring and regulation committees, health research underpinning new medicines, interventions, and health services in New Zealand is ethical and safe.

[2] HRC's Statement of Intent 2024-2028. Access: https://www.hrc.govt.nz/resources/statement-intent

HRC by numbers – a snapshot of benefits

Between 2022-2024, 598 HRC-funded contracts were completed, with a total value of $284.4 million.

This research resulted in the following reported benefits[3]:

Advances for delivery of healthcare

106	54	121	33	79
innovations in delivery of healthcare	improvements to public health interventions	influences on health policy	influences on clinical guidelines	refinements to use of drugs or biologics

Economic and technology benefits

159
commercial collaborations developed

26
technology patents sought (6 awarded)

30
drug patents sought (9 awarded)

193
innovative health- or research-related technologies tested or implemented
(including diagnostic, screening and prognostic tools, therapeutic and preventative interventions and other technological innovations for health service delivery)

Dissemination of knowledge and findings

4,807	633	4,186	640
peer-reviewed publications	non-peer reviewed publications	conference presentations	keynote addresses

[3] These benefits represent selected research outputs reported between 1 January 2022 and 31 December 2024 by HRC contract holders.

Research opportunities for clinicians[4]

844
named investigators are currently practising clinicians

1,045
unique named investigators on HRC contracts with clinical training

46
clinical trials and **19** clinical studies completed

518
researchers trained in medicine, **174** in nursing and **15** in dentistry

28
Clinical Training Research Fellowships and **one** Clinical Practitioner Research Fellowship completed

173
researchers trained in allied healthcare, including midwifery, medical imaging and mental health

Health sector engagement in research[5]

700
health sector collaborations

573
positions on HRC-funded contracts held by individuals working in the New Zealand health sector (including non-clinicians working in the health sector)

4
Health New Zealand Regions represented by named investigators on HRC contracts including 15 districts

199
health delivery research contracts completed (worth a total of $26 million)

Research finding shared

235
training or educational materials developed

417
advisory or consultation services provided across 15 countries

872
collaborative community relationships developed

1,426
media releases sharing findings from research

[4, 5] Workforce data are taken from contracts that finished between 1 January 2022 and 31 December 2024.

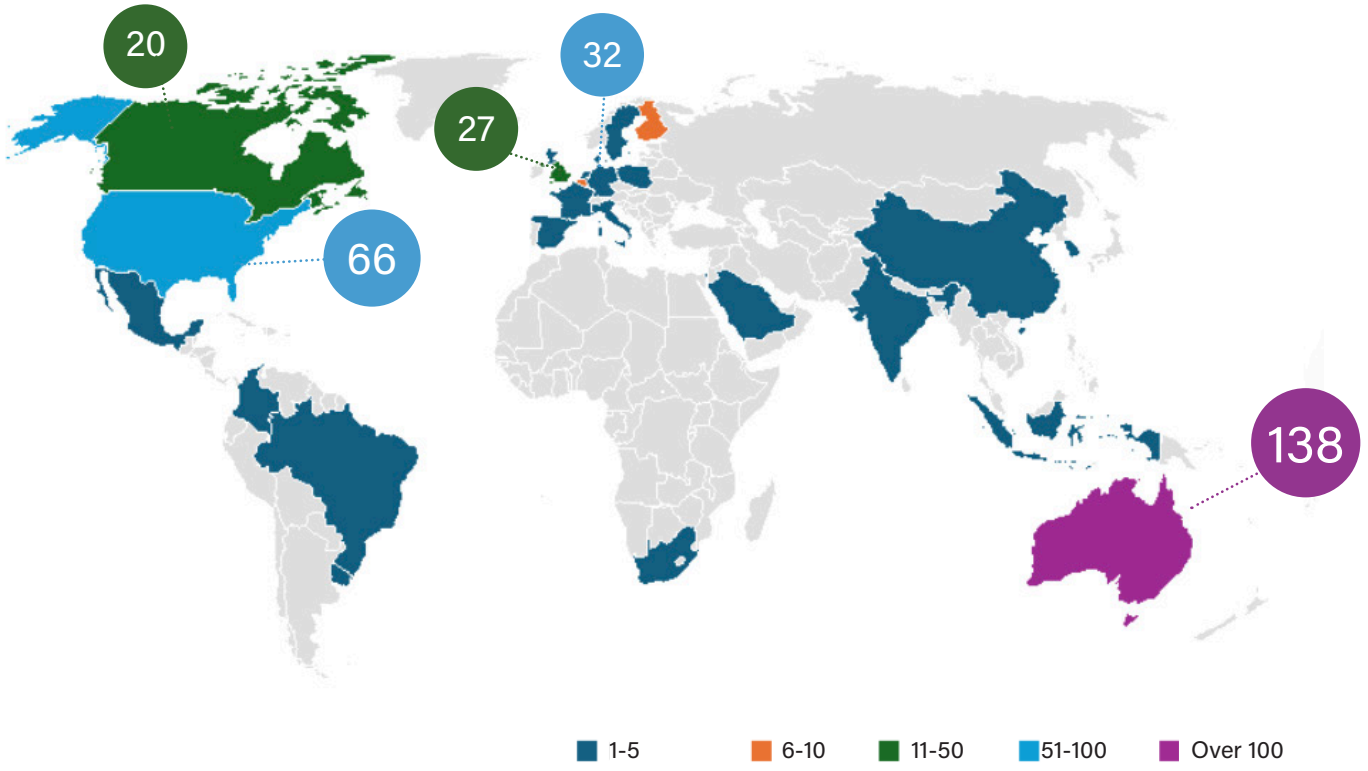
International connections

HRC funds Project and Programme grants to support research that is excellent, innovative, impactful and addresses the most pressing evidence needs. International partnerships strengthen the quality, impact and reach of our investment, help develop New Zealand's health research workforce, address transboundary health issues, and are core to fostering innovation in health technology and delivery.

The 165 Projects and Programmes that were funded from 2022 - 2024 were highly collaborative, with over 1065 national collaborations and 308 international collaborations spanning 29 countries. The regions with the most international collaboration in this time period were Australia (138 collaborations), the United States (66), the European Union (32), the United Kingdom (27), and Canada (20).

Figure 1 below shows the distribution of international collaborations supported by HRC-funded Projects and Programmes from 2022-2024.

Figure 1: International collaborations



HRC success stories

Our strategic intention: **Drive excellence, innovation and impact**

Drive research excellence, innovation and impact

High-quality, high-impact and innovative health research produces transformational change, generating information and technological advances that bring health, social and economic benefits for New Zealand.

Case study 1: Implantable device for hydrocephalus management

This case study is an example of high-quality, high-impact and innovative research that is expected to bring timely, cost-effective care and economic benefits to New Zealand. The HRC's investment in research to improve monitoring of patients with hydrocephalus ('water on the brain') led to New Zealand's first implantable medical technology, a microcomputer the size of a few grains of rice. This "gamechanger" technology is expected to improve global management of hydrocephalus and reduce the need for expensive diagnostic processes such as MRI and CT scans.

The problem

Hydrocephalus, or 'water on the brain', is a neurological condition that is fatal unless a tube (shunt) is surgically implanted to drain excess cerebrospinal fluid from the brain. Patients and their caregivers live in constant fear that the shunt will block. Symptoms of shunt malfunction are non-specific (vomiting, headaches, irritability, and drowsiness) resulting in frequent unnecessary visits to the emergency department, particularly in children with the condition. Seventy percent of presentations are false alarms, leading to undue hospital admissions, expensive MRI or radioactive CT scans, personal costs, and stress. Due to this, hydrocephalus patients account for less than 1% of neurosurgical patients but require up to 10% of the neurosurgical budget.

The projects

Professor Simon Malpas of the Auckland Bioengineering Institute and Faculty of Medical and Health Science at the University of Auckland and a team of engineers, physiologists, and clinicians have previously received HRC funding for early prototyping, performance testing, and animal testing for an implantable sensor to enable remote measurement of brain pressure. Long term biocompatibility, safety and performance has successfully been demonstrated in sheep. The HRC recently funded the **first-in-human clinical trial** which commenced in New Zealand in 2024 with 20 patients with hydrocephalus.

The outcomes

- The team have developed a world-first micro-computer to measure pressure within the brain. The device is the size of a few grains of rice, weighing 0.3 grams, and is injected deep into the brain at the time of the shunt surgery utilising the same drilled hole. To power the implant and receive the measured pressure data, a wand is held over the head near the sensor. The readings are then easily viewed in an app and can be securely sent to hospitals to allow **remote and non-invasive monitoring of patients**, whether required regularly or when symptomatic.

- The technology has led to a new company, **Kitea Health**, created in 2022 to develop remote physiological monitoring through implantable devices.

- The technology is set to be further tested through a larger scale FDA trial involving 150 patients in NZ and the US commencing in 2025, which will have an accelerated development and regulatory review process as Kitea Health was **awarded Breakthrough Device Designation** by the FDA in late 2024.

- The device is **NZ's first implantable medical technology** and has been hailed by neurosurgeons as a "gamechanger". It has potential to revolutionise hydrocephalus treatment by allowing patients to monitor their brain pressure at home, thus reducing hospital costs (by an estimated 40%) and providing much needed reassurance for hydrocephalus patients and their whānau. It is expected to improve global management of hydrocephalus and bring timely, cost-effective care and economic benefits to NZ.

- The Kitea system is also being trialled in the United States for patients suffering from heart conditions, allowing them to monitor their conditions from home. It is estimated that it will reduce hospital admissions in the year following implantation by 62% and reduce healthcare costs by 32%.

- Kitea Health has received **numerous awards** for this innovative technology, including 2024 finalist positions for the Best Design Awards, Most Innovative Deep Tech Solution, Most Innovative Hi-Tech Hardware Product at NZ Hi-Tech Awards, and Price Waterhouse Coopers Breakthrough Project. Kitea Health also won the 2023 Callaghan Innovation Ārohia Innovation Trailblazer Grant and Gold in Aotearoa's first Startup World Cup, marking the first time New Zealand is competing in the Startup World Cup Grand Finale competition in Silicon Valley, USA.

- Professor Malpas is widely regarded as a **pioneer in medical innovation** and was named semi-finalist in the 2025 New Zealand Innovator of the Year Award. He and Associate Professor David Budgett jointly won the 2019 Vice-Chancellor Commercialisation Medal from the University of Auckland.

HRC's contribution

The HRC has funded $4.4 million of Professor Malpas' research into implantable medical technology since 2002, including three projects investigating implantable blood pressure sensors and an implantable heart device. Most recently, his team have awarded $1.4 million in HRC funding to conduct the first human clinical trials of the novel implantable blood pressure device. The research team has also been supported by funding from MBIE, the Neurological Foundation, Auckland Medical Research Foundation, Pacific Channel, Icehouse Ventures of Cure Kids, Uniservices and other angel investors and philanthropists, with all funding totalling approximately $20 million.

Drive research excellence, innovation and impact

Quality evidence underpins quality healthcare, while innovative solutions improve the effectiveness and efficiency of the health system.

Case study 2:
Transforming gastrointestinal care with Alimetry

The research in this case study applies the transformative power of wearable medical devices, digital health, and machine-learning assisted diagnostics to gastric disorders and diseases. This high-quality research resulted in a new Gastric Alimetry system (a non-invasive device worn over the stomach) manufactured in New Zealand, exported to 10 countries, and used in more than 40 large hospitals. It attracted significant private investment and clinical uptake is expected to continue to accelerate, benefiting patients around the world and providing health and economic benefits for New Zealand.

The problem

Gut disorders and diseases cause a vast burden of ill health and suffering both nationally and globally. Over 40% of the New Zealand population are impacted by gut disorders and conditions such as obesity, faecal incontinence, constipation, gastroparesis, and recovery from gastrointestinal surgery. Previously, traditional diagnoses for gastric problems have required endoscopy or exposure to radiation through medical imaging, with uncertain results as it is very difficult to measure gut function in clinical practice. An accurate, non-invasive diagnostic approach to improve management of patients with gastric problems would significantly reduce the burden of ill health on patients and strain on the healthcare system by reducing the need for specialist consultations and hospital admissions.

The projects

Since 2008, HRC has provided funding into the development of a novel, non-invasive diagnostic aid for gastric problems and to study many other gastrointestinal disorders and post-operative recovery. This work has been led by Professor Greg O'Grady, a gastrointestinal surgeon and the CEO and co-founder of the start-up medical device company Alimetry, along with bioengineer Dr. Armen Gharibans.

The new technology that has been developed and commercialised to transform gastrointestinal care is at the intersection of multiple exponentially growing fields such as wearable medical devices, digital health, and machine-learning assisted diagnostics.

The outcomes

- The team has developed a **novel Gastric Alimetry system** - a device worn over the stomach to measure the weak electrical signals produced by the gut, sending the data to an app. The electrophysiological results and the patient-reported symptoms in the app are analysed with artificial intelligence to help quickly and accurately diagnose various gastric disorders, and plan personalised treatment. The technology can also be applied to aid recovery of gut function after surgical procedures on the gut, including for obesity and cancer. This research has built **innovative and effective solutions** for patients to receive efficient, effective, and quality healthcare, and represents a step change in the quality of life for millions of patients with gastric disorders.

- Gastric Alimetry is manufactured in New Zealand, **creating over 50 NZ jobs** and is exported to 10 countries, with devices now in use in more than 40 large hospitals worldwide. **Clinical uptake** is expected to continue to accelerate and expand globally, including increasing impact in the field of paediatrics, as the FDA has recently expanded clearance for use in children over 12 years old and the system is now used in several leading US paediatric centres.

- Increased clinical uptake of Gastric Alimetry will lead to large clinical impact, and significant economic return for New Zealand from both **economic benefits from the commercialisation and export of the technology and cost-savings for the health system**. Since spinning-out in 2019, it has brought in over $50 million in private investment capital from US, Australian and New Zealand investors. It is estimated that in New Zealand over $1 million may be saved per year in reduced expenditures on bed-stays after colonic surgery alone.

- The number of innovative non-invasive techniques and inventions that have been protected has now grown to **46 patents internationally** for Alimetry technologies.

- HRC investment in this research has also contributed to the creation of a **second spinout company** to market the Insides System for adult intestinal failure and rehabilitation. The Insides Company has exported to 23 countries and treated over 1,000 patients with severe intestinal disorders, further contributing to capital investment, economic growth and employment.

- HRC is currently funding clinical feasibility research for a further **post-operative care monitoring device** that is being developed and patented and is anticipated to become a future product.

- **Fundamental advances in the pathophysiological understanding** of multiple gastrointestinal disorders, including gastroparesis, chronic nausea and vomiting, functional dyspepsia, low anterior resection syndrome, post-operative ileus, and faecal incontinence have come from developing and applying these new technologies. These advancements are expected to have far-reaching benefits in treating gastrointestinal disorders worldwide.

- The team have received **multiple prestigious awards** for the device and its underpinning research, both in New Zealand and overseas. These include the Royal Society Te Apārangi Cooper Award, the Prime Minister's MacDiarmid Emerging Scientist Prize, Gold in the International Medical Design Excellence Awards, a Purple Pin and two Gold Pins at the NZ Best Design Awards, The University of Auckland Research Impact Award, a record three NZ Hi-Tech Awards (Deep Tech, Creative Tech Solution, Innovative Hardware), Gold in the Australian Good Design Awards, and a John Mitchell Crouch Fellowship.

HRC's contribution

The HRC has funded Professor O'Grady's gastrointestinal research since 2008, starting with a Career Development Award to investigate a computer model of gastric electrical activity. Since then, Professor O'Grady has been the recipient of more than $11.5 million in HRC grant funding as first named investigator, including two consecutive Programme grants in 2018 and 2023.

Our strategic intention: **Focus on health need and improving health outcomes**

Focus on health need and improving health outcomes

High-quality, high-impact and innovative health research effectively addresses our highest health needs, improving health and wellbeing outcomes, especially for those with highest health needs.

Case study 3: Rheumatic fever research

This case study demonstrates the impact of research focused on one of New Zealand's specific health needs, our high rates of rheumatic fever which can lead to permanent heart damage. Several projects have been funded through the HRC-established Rheumatic Fever Research Partnership to identify risk factors, develop screening protocols, and establish effective treatments for our local context. This high-quality research targets a serious and preventable health issue which has an estimated economic cost of $40 million annually.

The problem

Acute rheumatic fever is a serious but preventable illness following infection from Group A streptococcus (GAS) bacteria that can lead to rheumatic heart disease requiring heart operations and decreasing life expectancy and quality of life. While some cases present with typical symptoms of sore joints, fever, and rash, many children have episodes of 'silent' or undetected heart inflammation, leading to rheumatic heart disease and permanent heart damage, without being unwell in childhood. New Zealand has one of the highest rates of rheumatic fever seen in a high-income country, and rates are around 20 times higher for Māori and 44 times higher for Pacific peoples than for non-Māori and non-Pacific peoples. GAS infections including rheumatic fever, cellulitis, and skin infections remain a major cause of preventable and costly illness in Aotearoa New Zealand. They are estimated to result in economic costs of $40 million annually (in 2024 dollars).

The projects

In 2013, the HRC established a Rheumatic Fever Research Partnership - a joint initiative between the Heart Foundation, Cure Kids, Te Puni Kōkiri, the Ministry of Health and the HRC, to provide evidence to inform the health sector and other relevant sectors on how to reduce the incidence and impact of rheumatic fever. Key projects funded through this partnership included:

- Research to characterise the benefits and acceptability of a rheumatic heart disease screening programme in schools, with a 5-minute heart scan using portable ultrasound (echo). The project team, led by Paediatric Cardiologist Associate Professor Nigel Wilson, had previously shown that echo was better able to detect damage to heart valves compared with traditional stethoscope.

- Research to identify important risk factors for rheumatic fever in New Zealand, led by Professor Michael Baker MNZM.

HRC also invests in Career Development Awards which support building skills and capability for our most promising early career researchers, including Māori and Pacific researchers, to work with communities with highest health need. One recipient, Professor Dianne Sika-Paotonu, is a Tongan immunologist and science communicator whose research is centred on rheumatic fever, rheumatic heart disease, infectious diseases and cancer.

The outcomes

- Associate Professor Wilson's screening studies of high-risk populations in New Zealand showed that one percent of Māori children and two percent of Pacific children have 'silent' rheumatic heart disease. The research has led to international collaborations to develop and promote **echocardiographic screening protocols and criteria** for diagnosing rheumatic heart disease. Dr Wilson was also recently part of an international study showing that penicillin treatment prevents the progression of echo-detected mild rheumatic heart disease. This finding has informed discussion with the Ministry of Health about the steps needed to develop an echo screening programme for rheumatic heart disease in high prevalence areas in New Zealand.

- In 2022 Dr Wilson was awarded the **HRC's Beaven Medal** for excellence in translational health research to fight rheumatic fever and rheumatic heart disease in children in not only NZ, but our neighbouring countries, including Fiji and Samoa, as well.

- Professor Michael Baker's research team were the first to show that **skin infections** caused by Group A streptococcus (GAS) bacteria can increase the risk of acute rheumatic fever in the same way that GAS sore throats or 'strep throat' is a risk factor for acute rheumatic fever. This conclusion was based on findings from the rheumatic fever risk factors study and data collected from nearly 2 million throat and skin swabs over eight years in Auckland.

- The risk factor study also revealed that acute rheumatic fever was strongly associated with modifiable risk factors, notably household crowding, barriers to accessing primary care, and consuming sugary drinks. **Key interventions** informed by their research include reducing household crowding, improving access to healthcare, and treating skin infections more effectively.

- In 2023, Professor Baker and team won the **HRC's Liley Medal** for this breakthrough in our understanding of the causes of acute rheumatic fever and the role of GAS infections.

- Professor Dianne Sika-Paotonu is now a leader in her research fields of rheumatic fever, rheumatic heart disease, infectious disease and cancer, and has developed extensive links and research partnerships with Pacific communities and researchers in New Zealand and across Pacific nations. Her effective, evidence-based and inclusive science communication and engagement efforts for rheumatic fever and during the COVID-19 pandemic, especially for communities with highest health need, has been recognised with two prestigious communication prizes: the **2022 Prime Minister's Science Communication Prize**, and the **2024 Callaghan Medal** awarded by the Royal Society Te Apārangi.

HRC's contribution

Researchers who have led or contributed to the University of Otago rheumatic fever research group, including Professors Baker, Wilson and Sika-Paotonu, have received over $4.2 million in HRC funding to study rheumatic fever since 2013.

Focus on health need and improving health outcomes

Research effectively engages with and responds to the needs, strengths and aspirations of our communities to address access barriers and develop clinically and culturally safe and appropriate health services.

Case study 4:
Self-sampling for HPV cervical cancer

The research in this case study led directly to improvements in the uptake of screening for the human papillomavirus (HPV), the main cause of cervical cancer. Two HRC-funded studies established the acceptability and efficacy of self-sampling tests for HPV in un- and under-screened New Zealand women. Self-testing for HPV was subsequently introduced by the National Screening Programme and quickly became the preferred option for approximately 80% of women, increasing overall uptake and effectively addressing this serious health need.

The problem

Screening for high-risk human papillomavirus (HPV) with appropriate subsequent treatment in combination with a programme of vaccination against HPV could prevent nearly all cervical cancers. In New Zealand, the National Cervical Screening Programme (NCSP) has been extremely successful at reducing cervical cancer cases and deaths; however, the health outcome improvements are not shared equally across the population, and methods to increase participation in the screening programme are needed. Self-testing to obtain a sample for HPV is as effective as sampling by a doctor or nurse (the traditional Pap smear exam) and has been shown internationally to improve cervical screening participation, but the acceptability and uptake for women in New Zealand who did not participate in the national screening programme was unknown.

The projects

Research funded by the HRC from the teams led by Professor John Potter and Professor Bev Lawton ONZM (Ngāti Porou) have been instrumental in the National Screening Unit's plans to introduce HPV testing into the National Cervical Screening Programme.

- Professor Potter and team conducted a community-based randomised controlled trial to investigate whether self-sampling increases screening participation among un- or under-screened Māori, Pacific, and Asian women in Auckland.

- In a complementary study, Professor Lawton led a community-based randomised control trial in partnership with primary care and Māori communities, that compared usual care with HPV self-testing programme for Māori women in rural or small urban environments. Women were opportunistically offering screening through community outreach at clinics, community centres, or home, by a trusted kaiāwhina, nurse, or doctor.

The outcomes

- Professor Potter's work showed that self-sampling either at home (offered via mail) or at a GP clinic was **generally accepted and increased participation** in the group of non-European women who are currently least served by the screening programme, compared to usual care (a healthcare provider-collected sample).

- Professor Lawton found nearly **three times increase of uptake of screening** in un- or under-screened Māori women who were offered HPV self-testing compared to the control group.

- The research has directly **addressed barriers to access** for communities of women with high health needs. These results informed the call for HPV self-testing for equity in cervical cancer screening by Hei Āhuru Mōwai - Maori Cancer Leadership Aotearoa.

- The **evidence directly informed the major change** to the National Cervical Screening Programme seen in July 2023 with the introduction of the new HPV test and new option of self-swabbing. The translation of evidence to policy reflects the valuable and policy-relevant research findings, and the connection of both research teams to service providers and decision-makers.

- Since September 2023, nearly 400,000 people have had their screening check, with approximately **80% using self-tests**. The introduction of HPV self-testing has seen the number of HPV tests returned increase from approximately 30,000 per month before launch of self-testing to 50,000 per month after launch. Screening numbers remained high following the launch of the self-screening programme, with over 50,000 tests reported in both February and March 2024.

- The HPV test detecting presence of cervical cancer-causing HPV strains is now the primary screening test, replacing the traditional speculum Pap smear exam that collects cells for viewing under a microscope.

- In 2023, Professor Lawton and the team she leads at Te Tātai Hauora o Hine won two HRC awards, the Beaven Medal and the Te Tohu Rapuora Medal for outstanding leadership, excellence in translational health research, and contribution to Māori health, particularly for wāhine Māori. In 2025 she was awarded **Kiwibank New Zealander of the Year Award** for her exceptional contribution to women's health in New Zealand.

HRC's contribution

HRC has funded six contracts to a total of $5.1 million in HPV self-testing and follow up treatment since 2016.

Our strategic intention: **Invest in the people and capability New Zealand needs now and for the future**

Invest in the people and capability New Zealand needs now and for the future

New Zealand has a highly skilled, innovative, culturally capable and sustainable health research workforce, who are well supported to meet local, global and future health needs.

Case study 5: Innovative therapies and technologies for improved bone health

This case study outlines HRC investment in the ongoing development of local, highly specialised workforces focused on innovative therapies and manufacturing technologies for bone health, an increasingly important health need as New Zealand's population ages. Through funding this research, the HRC supports and sustains the highly skilled and innovative workforce needed to meet current and future health needs, leading to better treatment options and improved cost-effectiveness.

The problem

As New Zealand's population ages bone health will become more important as issues associated with bone disorders and diseases (such as bone density loss, osteoporosis, osteoarthritis, fractures and joint replacement) become more prevalent. Having a highly skilled and innovative health research workforce who are supported to meet these local, global, and future health needs is vital to improving the health of New Zealanders. The HRC has supported the development of innovative therapies and technologies for bone health and the clinicians, engineers and biotechnologists who are working to improve treatment options and reduce healthcare costs.

The projects

- Associate Professor Mark Bolland and team from the University of Auckland's Bone and Joint Research Group, have received successive grants to conduct a revolutionary 10-year trial investigating the drug zoledronate as a low-cost and effective way of preventing bone fractures in early postmenopausal women. Zoledronate is an established drug that slows calcium loss from bones and can be given as an infusion. In people with osteoporosis, it has been found to increase bone density, reduce bone pain and reduce fracture rate by 35-70%.

- Since 2015, the HRC has supported the pioneering work of engineers and biotechnologists Professor Tim Woodfield, Associate Professor Khoon Lim and Dr Gabriella Lindberg of the Christchurch Regenerative Medicine and Tissue Engineering (CReaTE) Research Group to develop new bioinks (materials used to produce engineered or artificial live tissues using 3D printing) for personalised 3D bioprinting to create human tissue to support bone healing.

The outcomes

- The 10-year randomised control trial showed that zoledronate given only once every five to 10 years can **prevent bone fractures in women** who have gone through menopause.

- The findings were published in the prestigious **New England Journal of Medicine** and show that zoledronate was effective in reducing the risk of spinal fractures in early postmenopausal women by 42%, compared to when given a placebo, or no treatment.

- Since zoledronate was previously only given to people with diagnosed osteoporosis or other high-risk individuals, the results are expected to change practice. As an already available treatment, the study team said women could discuss with their doctors **accessing the treatment now** to prevent fractures, immediately improving health outcomes for women in New Zealand and globally.

- There are anticipated **cost-savings to the health sector** through the prevention of fractures and associated health and social care costs. Currently, approximately 80,000 osteoporotic fractures occur in New Zealand annually, with direct costs of $400 million, total costs of $1.5 billion and the loss of 12,000 Quality-Adjusted Life Years. The cost of a zoledronate infusion itself is about $20 per infusion and can be administered by GPs for an administration fee ranging from free to approximately $150. It is expected that for every $1,000 spent administering zoledronate, the country will recoup this money and save an additional $500 through reduced costs from preventing fractures.

- Across five HRC-supported contracts, the CReaTE Research Group has **advanced innovative regenerative medical technologies** for bone engineering developing cell-laden hydrogels, referred to as bioinks, and methods for 3D-printing scaffolds to support the regeneration process for repairing bone and cartilage tissue in human patients.

- The technology has the potential to reduce the need to harvest bone grafts from patients and the number of revision surgeries required, reducing financial pressures on the health and social care systems.

- The HRC's investment also supported the ongoing development of a l**ocal and highly specialised workforce** in 3D-bioprinting and advanced manufacturing technology with future potential to establish New Zealand as a global-leader in the high value niche area of additive biomanufacturing and medical device industry.

- Associate Professor Lim has already successfully generated one full utility patent now granted in five countries and licensed to an overseas company from HRC-funded research.

- The investment has **leveraged additional resources through international collaboration**. In February 2025, Professor Woodfield and team received funding from the prestigious European Union Horizon Europe initiative with joint support from the Ministry of Business, Innovation and Employment, for an international €8 million project called micro@MACRO (m2M) to advance bioprinting technology for cartilage tissue repair in human patients.

HRC's contribution

The recently completed 10-year trial, was solely funded by three consecutive HRC Project grants from 2012-2025 worth over $3.3 million. The lead researcher, Associate Professor Mark Bolland was also the recipient of a 2019 Clinical Practitioner Research Fellowship worth $758,000 and a 2011 Sir Charles Hercus Fellowship worth $400,000. Since 2000, the HRC has also invested over $21 million to support the associated work of the world-leading Bone and Joint Research Group at The University of Auckland, led by Distinguished Professor Ian Reid and specialising, among other things, in osteoporosis management and treatment with bisphosphonates.

Since 2015, the HRC has contributed over $1.8 million to the work of the CReaTE Research Group, primarily through a Project, Explorer Grants and Career Development Awards in recognition of the highly novel and transformative nature of its work and in order to support a highly skilled health research workforce who can use new and emerging technologies and leverage additional resources through international collaboration.

Invest in the people and capability New Zealand needs now and for the future

Alongside health researchers, health professionals are a core part of the research workforce, equipped with the knowledge, skills, and expertise to embed research into healthcare.

Case study 6:
Reducing the impact of lung cancer

This case study describes how HRC-funded research is helping to realise the benefits of new models of lung cancer screening and personalised lung cancer therapy. Both show strong potential for improving patient outcomes in New Zealand, and researchers are helping to generate the evidence needed to ensure that implementation within our health system is effective, cost-effective and sustainable.

The problem

Lung cancer is the leading cause of cancer death in New Zealand, with Māori experiencing much higher rates of both diagnosis and death from lung cancer than non-Māori. While smoking prevalence and overall lung cancer rates have decreased over time, this favourable trend does not appear to apply to lung cancer in non-smokers. New models of lung cancer screening and care have strong potential for improving patient outcomes in New Zealand, but evidence is needed to ensure that implementation of these new models in our health system is effective, equitable, cost-effective and sustainable. Critical to achieving this are health professionals who engage in research, and are equipped with the knowledge, skills and expertise to address critical health delivery evidence gaps and embed research into healthcare.

The projects

- Medical oncologist Professor Mark McKeage and his team from the University of Auckland (Department of Pharmacology) have investigated a new model of lung cancer care based on analysing the genetic makeup of the lung cancer of each patient and using that genetic information to select a personalised targeted therapy drug. This has strong potential for improving patient outcomes, but evidence is needed to inform implementation because new genetic tests and drug treatments will need to be introduced that are very expensive.

- Professor Dr Sue Crengle (Ngāi Tahu / Kāi Tahu; Kāti Māmoe; Waitaha) has a general practice and public health background and is leading Te Oranga Pūkahukahu, a research programme aiming to design a lung cancer screening programme that is equitable, effective, and acceptable for everyone affected by lung cancer. The screening approach uses a low dose CT scan that has been shown to reduce lung cancer deaths by 20-26% through earlier diagnosis and is now recommended for high-risk populations in both the USA and Europe.

The outcomes

- Professor McKeage's team **demonstrated the clinical usefulness** and reliability of novel genetic testing strategies for detecting clinically actionable lung cancer gene mutations in New Zealand patients under local testing conditions.

- The team also demonstrated the impact that implementing testing guidelines had on **improving survival** of New Zealand lung cancer patients and on **decreasing the ineffective use** of personalised lung cancer drug treatments in New Zealand.

- The research findings **changed the method** used to test lung cancer specimens by two major laboratories who provide lung cancer mutation testing services for many Health New Zealand regions.

- The team provided an influential report on epidermal growth factor receptor (EGFR) mutation testing to the Minister of Health and **contributed to the development of national guidelines** for lung cancer genetic testing for identifying patients for new personalised lung cancer treatments.

- The introduction of Ministry of Health national guidelines for EGFR gene mutation testing and PHARMAC funding for EGFR-targeted therapies has improved overall survival and the utilisation of erlotinib and gefitinib by New Zealand lung cancer patients.

- Professor Crengle's current programme of research has already led to significant findings that will **impact the design of the future national Lung Cancer Screening programme**. Results showed that a 'central hub' approach was more effective than a 'local practice' approach, at contacting eligible people, undertaking risk assessments and in inviting people to undertake a CT screening scan.

- Ongoing projects are providing **new evidence to inform and accelerate** the development and implementation of a national Lung Cancer Screening programme. Current areas of exploration include lung cancer risk prediction using a biomarker, second rounds of CT scans, the role that Māori providers can play in lung cancer screening, and the use of artificial intelligence in lung cancer screening.

HRC's contribution

Professor McKeage's research on lung cancer genetic testing, personalised treatment and targeted therapies was continuously funded by three consecutive HRC project grants from 2013 to 2023.

Professor Crengle's research on lung cancer screening for Māori has received $10.1 million in funding since 2020, including for participation in the HRC's partnership with Global Alliance for Chronic Disease.

Our strategic intention: **Add value through connection and collaboration**

Add value through connection and collaboration

Research is coordinated, cross-sectoral, transdisciplinary and well connected internationally, increasing the potential for health gains, preparedness for future health challenges and our ability to capture health and economic returns for New Zealand.

Case study 7: International impact in stroke management

This case study demonstrates how New Zealander health researchers can play leading roles in international research forums that tackle complex and widespread health challenges. Our world-leading research on stroke prevention has led to evidence-based healthcare planning in New Zealand and 203 other countries and the development of user-friendly digital tools for patients to reduce stroke risk worldwide.

The problem

Stroke is a leading cause of death and disability worldwide, with 9,000 strokes occurring in New Zealand annually. It places profound physical, psychological and financial burdens on patients, whānau, and the health system, with annual direct costs estimated at $750 million in New Zealand. Patients with stroke and transient ischemic attack (TIA) are at increased risk of recurrent (more disabling) stroke. The rate of recurrent stroke has not declined significantly over the last three decades, despite being preventable in up to 80% of cases with effective prevention measures such as lifestyle behaviours and medication adherence.

The projects

Professor Valery Feigin and his team at the National Institute for Stroke and Applied Neurosciences at Auckland University of Technology have been awarded multiple HRC

grants to uncover the epidemiology of stroke and develop highly usable digital tools for patients to reduce stroke risk worldwide.

The outcomes

- Professor Feigin and his team's epidemiological research has had profound international impact. Professor Feigin has published 130 papers in the world-leading Lancet journal; he was the lead author of 28 of those papers. These **breakthrough papers** comprehensively assessed the extent, patterns, and trends of incidence, prevalence, mortality, disability and risk factors of stroke types by age, sex, and country income group at the global, regional, and national level.

- Most recently, Professor Feigin was lead author of a commissioned paper in The Lancet Neurology where he, together with 200 commissioners and experts from the World Stroke Organization presented for the first time a **roadmap for global implementation of tangible solutions** for improving stroke surveillance, prevention, treatment and rehabilitation. These findings have radically changed the understanding of the modern epidemiology and prevention of stroke and have had a substantial impact on the awareness, **evidence-based health care planning,** resource allocation and priority settings for **combating stroke in New Zealand and 203 other countries in the world.**

- The international impact of Professor Feigin's collaborative, cross-sectoral, and transdisciplinary work is reflected in his standing in the top 1% of cited scientists across all disciplines of research in 2018, 2020, 2021, 2022, 2023, and 2024. With over 378,000 citations to date he is **New Zealand's most cited scientist of all time.** He is a member of multiple international collaborations that influence health policy, including but not limited to the Advisory Working Group on Stroke for the World Health Organization and the Global Policy Committee of the World Stroke Organization.

- Professor Feigin's team's research has also led to the development of a world-first free mobile app called **Stroke Riskometer™** for individual stroke awareness and prevention that is tailored for patients, available in 26 languages to over 5 billion people. It has been endorsed by leading global organisations, including the World Stroke Organization, World Heart Federation, World Federation of Neurology, and the European Stroke Organisation.

- Professor Feigin's team has also developed a complementary digital tool called **PreventS-MD™**, a more detailed web-app used by healthcare professionals that is being implemented in healthcare settings globally to reduce and prevent stroke and major other non-communicable diseases that share common risk factors with stroke, such as cardiovascular disease, vascular dementia, diabetes mellitus, chronic renal disease and cancer. These digital technologies received multiple awards, including the New Zealand Prime Minister's Science Prize and the World Health Organization Western Pacific Innovation Award.

- The team's discoveries have raised awareness of stroke and associated risks for New Zealanders and globally. The results of a recent phase III randomised control trial suggest that widespread use of the Stroke Riskometer™ combined with a polypill (a combination of two low dose blood pressure lowering medications with statin) could reduce stroke incidence by 40-50%, avert millions of deaths from stroke and save billions of dollars for the economy annually. In New Zealand alone this intervention could prevent about 4,000 strokes per year and save over $300 million.

HRC's contribution

Professor Feigin has been named investigator on 22 completed HRC grants over the last two decades, total value $21.3 million. This includes twelve Projects and two Programme contracts. Current funding includes a $5 million Programme over five years (2021-2026) on measuring and reducing stroke burden in New Zealand and a randomised clinical trial investigating the effectiveness of digital technologies (PreventS-MD and the Stroke Riskometer) for stroke prevention.

Add value through connection and collaboration

Through collaboration, partnership and targeted investment, research is responsive to health needs and priorities and research evidence and solutions are effectively translated and implemented by the next and end-users of the health system.

Case study 8: International advances in critical care and respiratory medicine

This case study demonstrates how evidence generated by researchers who work in the health sector can quickly translate to better health outcomes and a more efficient and cost-effective health system. Collaboration though national and international clinical trial networks is a powerful way to accelerate the recruitment of patients and benefit from collective expertise to generate the robust evidence needed most by frontline healthcare professionals.

The problem

There is great clinical need for evidence to guide practice in Intensive Care Units (ICUs), and frontline health professionals are often in the best position to conduct research to support both patients and the healthcare system. Funding the New Zealand arm of large international trials and supporting New Zealand investigators to lead such international collaborations provides access to the larger patient sample sizes needed to generate robust clinical evidence to help deliver the best possible outcomes for the critically ill. International trials also allow New Zealand researchers to be at the forefront of global research networks and agendas, gain input from international experts in the development and conduct of trial protocols, and benefit from the latest global research findings that can improve clinical practice and health outcomes for critically ill patients in New Zealand. ICU is one of the most expensive areas in a hospital, and interventions that guide safe use of valuable health resources and improve clinical outcomes will also provide economic benefits.

The projects

In the last 10 years, HRC has funded 27 major grants hosted by the Medical Research Institute of New Zealand (MRINZ), who are at the forefront of conducting large multi-site, multi-national randomised clinical trials to challenge dogma and guide clinical practice. The Institute has been involved in a range of clinical trials, including investigations to inform the management of asthma, fever, sepsis, intravenous fluids, blood transfusion, atrial fibrillation, cardiothoracic surgery, COVID-19, Māori and Pacific health, dialysis, and stroke.

The outcomes

- Over the course of their long-term funding, the MRINZ have successfully completed many clinical trials to **generate practice-changing evidence.** *(See Box A on page 27 for examples)*. Due to the collaborative nature and involvement of healthcare professionals in the MRINZ research, the research evidence and solutions have been effectively translated and implemented in New Zealand and internationally to **deliver better healthcare services.**

- The studies have been published in **high-impact medical journals** and have influenced and are expected to continue to influence **international clinical guidelines and practice**.

- The **international trial networks** formed are far-reaching and ongoing. For example, the BLING III trial of antibiotic use to treat sepsis was conducted in 104 adult ICUs in Australia, Belgium, France, Malaysia, New Zealand, Sweden, and the United Kingdom and many enduring partnerships have been formed.

- **Successfully completed trials have attracted more international research funding**: For example, upon completion of the HRC-funded TARGET study, the largest intensive care nutrition trial ever undertaken, the research team received Australian government funding to conduct the follow-up TARGET Protein trial. This funding has been used to support salary costs of research nurses in New Zealand.

- **Our clinicians are at the forefront of the global research agenda.** E.g., the ICU-ROX trial (*see Box A*) laid the foundation for the development of an international trials network in intensive care medicine that has led to the follow-up 'Mega-ROX trial', a New Zealand-led trial funded by the HRC, Australia's National Health & Medical Research Council and the Wellcome Trust. Mega-ROX is a 40,000 participant international clinical trial which uses existing electronic healthcare data sources and will be the first true 'mega trial' in the field of intensive care medicine. The MRINZ is the global coordinating centre for the Mega-ROX trial, which is being conducted in 132 sites in 15 countries and is enrolling 1,000 patients per month.

- **Trials are providing a platform for future artificial intelligence approaches.** For example, the PLUS and the SPLIT trial helped provide the evidence base for which intravenous (IV) fluid to use in the treatment of critically ill patients and changed practice in relation to IV fluid around the world. MRINZ is now conducting work to determine optimal approaches to individualisation of ICU fluid therapy using machine learning. These machine learning models are being developed using data from the PLUS trial and the SPLIT trial and have tremendous potential to pave the way for personalised approaches that further improve patient outcomes.

- **The projects have built capacity and capability for clinical research across multiple healthcare professions.** For example, the PATCH study, one of the largest pre-hospital trials ever conducted, examined treatment of severely injured patients by ambulance staff at the scene of injury and was conducted in collaboration with both of New Zealand ambulance services (Wellington Free Ambulance, and St John Ambulance) and recruited patients both in major cities and in smaller rural centres. It made a substantial contribution to the development of the paramedic research workforce and research capability.

- **New Zealand had capacity for health research at a time of critical health need:** The REMAP-CAP Programme was initiated in 2016 to investigate the effectiveness of multiple interventions for the treatment of community acquired pneumonia and continues as a large international trial in ≥10,000 patients across 15 countries. In 2020, the trial programme provided an evidence-based approach to the treatment of COVID-19 during the pandemic, ensuring that patients in New Zealand and globally benefitted from this knowledge. It received the Trial of the Year award from the Australian Clinical Trials Alliance in 2022.

- **Evidence has informed safe use of valuable health resources**, for example the optimal timing and duration of antibiotics (BLING III), blood transfusions (TRICS III), and acute kidney dialysis (STARRT-AKI).

- **Implementation of findings saves lives and generates return on investment.** For example, findings from the MRINZ fluid trials (PLUS and SPLIT) have determined the optimal intravenous therapy to reduce the risk of death in different clinical situations and have been incorporated into routine clinical practice in all ICUs in New Zealand. There are currently around 22,000 critical care admissions to New Zealand ICUs each year and implementation of findings from MRINZ fluid trials are estimated to be saving 70 lives in New Zealand each year. Over a 10-year time horizon, for New Zealand alone, the HRC investment in this project would be expected to save one life for every $787 invested.

HRC's contribution

Since 2010, HRC has funded 42 contracts at MRINZ (total value $55.9 million), including two Independent Research Organisation Fund grants, three Programmes, 32 Projects, and multiple career development awards.

BOX A

Practice-changing evidence in intensive care and respiratory medicine

The findings of HRC-funded, MRINZ-led clinical trials have been implemented to change practice and improve the delivery of healthcare services, including in the following areas:

Treatment with antibiotics: The BLING III study showed that giving antibiotics by continuous infusion to critically ill patients saves lives compared to giving antibiotics intermittently. The study is expected to contribute strongly to recommendations of international guidelines, changing practice with IV antibiotic use both in New Zealand and worldwide. For every 50 patients treated with continuous antibiotics one life is saved which makes this approach to giving antibiotics equivalent in magnitude to the effect of giving aspirin to patients having a heart attack.

Kidney dialysis: STARRT-AKI showed that early commencement of kidney dialysis for critically ill patients did not lower mortality but increased the risk of permanent dialysis dependence, compared with waiting until a clear indication for dialysis is present. As a result of implementation of these findings, 27 fewer patients each year in New Zealand end up on permanent dialysis. The direct cost savings to the New Zealand healthcare system of these patients avoiding dialysis are $3.34 million per year.

Intravenous fluids: The PLUS trial contributed to an evidence base showing that balanced intravenous crystalloid fluids reduce the risk of death in most critically ill patients compared to saline but that saline leads to a lower risk of death in patients with traumatic brain injuries. The RELIEF trial showed that a restrictive fluid regimen after major surgery is associated with a higher rate of kidney injury.

Cardiac arrest: The TAME study showed that the standard care approach of managing blood carbon dioxide levels after resuscitated cardiac arrest is as safe as an alternative approach of 'slightly higher than normal' levels, despite the theoretical benefit of increasing cerebral blood flow.

ICU physiotherapy practice: The TEAM study showed that early initiation of active exercise in adults receiving life support in the ICU does not improve patient outcomes and significantly increases the risk of adverse events.

Treatment with antibiotics: The BALANCE study showed that for critically ill patients with a bloodstream infection a seven-day antibiotic treatment course can be safely given instead of 14 days, and that the shorter course has additional benefits of less overall use of antibiotics and less time spent in hospital without any increase in complications.

Oxygen treatment: The ICU-ROX trial showed that oxygen therapy titrated to achieve normal oxygen levels results in similar outcomes to the previous practice of high concentration oxygen therapy regardless of need. This finding was crucial in allowing for the conservative use of oxygen to be implemented worldwide in the COVID-19 pandemic, promoting the efficient use of a limited resource.

COVID: Findings from the 15-country REMAP-CAP clinical trial led to the establishment of novel therapeutic approaches based on the knowledge that in critically ill patients with COVID-19, there is benefit with intravenous steroids, IL-6 inhibitors and anticoagulation in subgroups of patients, and lack of benefit or harm with numerous potential therapies including hydroxychloroquine, convalescent plasma and lopinavir/ritonavir. Establishing the effectiveness of a range of therapies for COVID-19 likely saved over a million lives worldwide during the pandemic.

Nutrition: The TARGET trial led to change in practice based on the knowledge that in critically ill patients, high energy nutrients and fluids do not improve outcomes and may result in more feeding complications.

Our strategic intention: **Support the safe and ethical conduct of research**

Support the safe and ethical conduct of research

Research harnessing new technologies and innovations is undertaken safely and ethically in New Zealand.

Through the work of our monitoring and regulation committees, health research underpinning new medicines, interventions, and health services in New Zealand is ethical and safe.

The HRC plays a pivotal role in ensuring New Zealand health research, including research harnessing new technologies and innovations, is conducted in an ethical and safe manner. We undertake safety monitoring and provide strategic advice on health research issues, primarily through the work of the following committees: the HRC Ethics Committee (HRCEC), the Gene Technology Advisory Committee (GTAC), the Standing Committee on Therapeutic Trials (SCOTT), and the Data Monitoring Core Committee (DMCC). The HRCEC approves Health and Disability Ethics Committees (HDECs) and Institutional Ethics Committees (IECs). As of 2024, there were 4 HDECs and 12 IECs approved.

Under the Medicines Act 1981, clinical trials that involve the use of a new medicine require approval. The HRC's SCOTT undertakes scientific assessment of applications to conduct clinical trials in New Zealand and makes recommendations to the Director-General of Health as to whether trials should proceed. In 2024, **172 SCOTT applications were reviewed,** and increase from 2022 (158 applications reviewed) and 2023 (152 applications reviewed).

As part of our ongoing work to ensure the safe conduct of health research in New Zealand, HRC, in consultation with the Ministry of Health's medicine regulatory arm Medsafe and SCOTT committee members, approved updated Terms of Reference for the SCOTT in August 2024. These new Terms of Reference are to be implemented in Quarter 1 of 2025 and have improved the processes, procedures and principles for consideration of applications for

clinical trials with new medicines. We have also provided extensive feedback on the Medsafe Part 11 guidelines outlining the clinical trial process in New Zealand, to be released in 2025.

The GTAC reviews clinical trials that involve the introduction of nucleic acids, genetically manipulated micro-organisms, or viruses or cells into human subjects. From 2022 to 2024 **GTAC saw a ten-fold increase in applications,** from one in 2022, to three in 2023, and 10 in 2024. This increase in GTAC applications correlated with the announcement of changes to the rules and regulations surrounding genetic research in NZ. Six of the GTAC applications received in 2024 came in from August to October after the Gene Technology Bill was announced.

The DMCC functions to provide objective, independent monitoring of clinical trials funded by the HRC to ensure adequate data and safety monitoring as needed. The DMCC is primarily involved in monitoring large scale clinical trials initiated by New Zealand researchers in the setting of life-threatening diseases or diseases which cause irreversible morbidity. DMCC monitoring ensures these studies are carried out in a safe and ethical manner and protects trial participants from experiencing undue harm due to the research. Between 2022 and 2024 the **DMCC was monitoring four trials**. They currently monitor three trials, as one has ended.

To further support the safe and ethical conduct of health research in NZ, **HRC established a community of practice** for all our accredited ethics committees in 2024. This community should be seen as a 'living curriculum' wherein members may learn from each other in a multi-disciplinary, collective learning environment. This community of practice is managed by the HRC EC Secretary, and is open to ethics secretariats, committee chairs and specific field experts when required for collaboration. To date it has more than 50 members from across the country.

The HRC also funds **Ethics Summer Studentships** to allow students to explore ethical issues facing New Zealand by working on a project under the supervision of an experienced researcher or ethicist. Thirteen students were funded 2022-2024. Their research included a review of how big data is produced and used in the context of policing, education and non-governmental organisations, equity in palliative care distribution and whether genetic testing for gastric cancer should be restricted by age, among other topics.

In July 2020 the HRC, with the endorsement of the Ministry of Health, became a signatory on the World Health Organization's **Joint Statement on Public Disclosure of Results from Clinical Trials.** The Joint Statement sets out policy and monitoring requirements for mandatory timeframes for prospective registration and public disclosure of the results of clinical trials. HRC policy requires researchers in HRC funded clinical trials to register their study in a WHO-approved clinical trial registry before recruitment of the first participant and to make summary results publicly available within 12 months of the last visit of the last participant. HRC applicants have a year from initial contracting to update us on their registration. From 2020-2022, 100% of HRC funded clinical trials were registered, most commonly through ANZCTR, with a small number registered at clinicaltrials.gov.

Celebrating Health Research Excellence

Celebrating excellence

HRC congratulates all HRC-funded researchers who have been awarded major New Zealand science prizes between 2022-2024* for their contributions to expanding the boundaries of scientific knowledge and improving health outcomes for all New Zealanders.

Prime Minister's Science Prize

The Prime Minister's Science Prize is for a transformative scientific discovery or achievement, which has had a significant economic, health, social and/or environmental impact on New Zealand or internationally. Recipients include:

2023
The **Hereditary Diffuse Gastric Cancer Team** led by Professor Parry Guilford FRSNZ, University of Otago in conjunction with Kimihauora Health & Research Clinic, Tauranga.

2022
The National Institute for Stroke and Applied Neurosciences (NISAN) from Auckland University of Technology (AUT) led by Professor Valery Feigin.

2021
The Neonatal Glucose Studies Team led by Distinguished Professor Dame Jane Harding FRSNZ.

*(*Noting that the 2021-2023 Prime Minister's Science Prizes were announced during the 2022-2024 calendar years)*

Rutherford Medal

The **Rutherford Medal** awarded by the Royal Society Te Apārangi recognises preeminent research, scholarship or innovation by a person, or team, in any field, or fields, of engineering, humanities, mathematics, sciences, social science, or technology. Recipients include:

2024
Professor Charles Richard William Beasley for revolutionising the treatment of asthma worldwide.

2023
Professor Linda Tuhiwai Te Rina Smith for world recognised scholarship in decolonising and indigenous research methodologies that has transformed many disciplines and led to innovative research methodologies.

2022
Dunedin Multidisciplinary Health and Development Research Unit (The Dunedin Study) led by Richie Poulton with team members Murray Thomson, Terrie Moffitt and Avshalom Caspi, for insights into the human condition and resulting global impact on scientific theory, research, policy, and best-practice.

Hercus Medal

The **Hercus Medal** awarded by the Royal Society Te Apārangi is a health sciences award for excellence in molecular and cellular sciences, biomedical science or clinical science and public health, awarded every two years. Recipients include:

2024
Professor Mike Dragunow for his world-leading research on the causes and treatments of disorders of the brain.

2022
Professor Stephen Robertson for research on genetic conditions impacting children and seeking to establish equitable delivery of genomic medicine for Māori.

Callaghan Medal

The Callaghan Medal is awarded annually by Royal Society Te Apārangi to a person who has, while in New Zealand, made an outstanding contribution to science and/or technology communication, in particular raising public awareness of the value of science and/or technology to human progress.

2024
Professor Dianne Sika-Paotonu for evidence-based science communication and engagement efforts for Aotearoa/New Zealand and the Pacific Region

2022
Professor Michael Baker for science-informed commentary on the Covid-19 pandemic and other major public health issues in Aotearoa New Zealand.

Te Rangi Hiroa Medal

The **Te Rangi Hiroa Medal** awarded by the Royal Society Te Apārangi is a social sciences award for work in social history, cultural diversity, socioeconomics or medical anthropology, awarded every two years.

2023
Associate Professor Clive Aspin (Ngāti Maru, Ngāti Whanaunga, Ngāti Tamaterā) for national and international contributions to social and cultural diversity, particularly in regard to the impact of HIV on Māori and other indigenous peoples.

2021
Professor Linda Nikora (Tūhoe, Te Aitanga-a-Hauiti) for her work transforming Psychology for Māori and Aotearoa by indigenising the discipline, and for enduring contributions to shaping the foundations for promising and flourishing futures for all New Zealanders.

HRC Medal Recipients

The HRC celebrates health research excellence with three prestigious medals:

Liley Medal

The **Liley Medal** recognises an individual or research team whose recent research has produced a significant breakthrough within the health and medical fields.

2023
Professor Michael Baker and his team received the Liley Medal for their two companion papers published in the Lancet that represented a breakthrough in our understanding of the causes of acute rheumatic fever and the role of Group A Streptococcal infections.

2022
Jointly awarded to **Professor Valery Feigin** for the landmark Lancet Neurology paper that showed for the first time the global, regional, and national burden of stroke and its risk factors, and to **Professor Colin Simpson** for his role as a lead author of one of the first papers in the world to confirm the safety of COVID-19 vaccines.

Beaven Medal

The **Beaven Medal** recognises excellence in translational health research, that has had a high impact on clinical practice and patient health.

2024
Professor Cynthia Farquhar and team for their clinical trials research into gynaecology and fertility treatments that has changed how women and couples with unexplained infertility are treated worldwide and led to less invasive treatments and better health outcomes for women and their families.

2023
Professor Beverley Lawton (Te Aitanga a Hauiti), for her work and advocacy in women's health that has had real-world impact through the translation of her research into clinical practice, particularly in the areas of cervical cancer prevention and maternal health outcomes for wāhine Māori.

2022
Associate Professor Nigel Wilson for his groundbreaking research to help children in New Zealand and the Pacific Islands battling rheumatic fever and its subsequent damaging heart disease.

Te Tohu Rapuora Medal

The **Te Tohu Rapuora Medal** recognises the contribution to Māori health leadership of a single researcher, research team, or community group.

2024
Cheryl Davies' work has guided how health workers work with whānau who have tamariki with asthma and contributed significantly to the national Warmer Kiwi Homes Programme. Cheryl's research has also been instrumental in establishing a marae-based pain clinic at Kōkiri Marae in Lower Hutt – the first in New Zealand.

2023
Te Tātai Hauora o Hine – The National Centre for Women's Health Research Aotearoa for their research that has made a real difference to the health of māmā, pēpi and whānau Māori over the past 20 years. With a strong focus on partnerships with iwi, their influential work includes contributing to changes in the national cervical screening programme to ensure it is safe and equitable for wāhine Māori.

2022
Dr Tess Moeke-Maxwell and the Te Ārai Palliative Care and End of Life Research Group for their outstanding research that has helped improve palliative care, end-of-life and tangihanga experiences for Māori kaumātua and whānau throughout Aotearoa.

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