GILLIES McINDOE
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Pioneering future treatment of cancer

10 March 2022

Future Pathways Policy Team
Ministry of Business, Innovation & Employment

FuturePathways@mbie.govt.nz

Dear Future Pathways Policy Team,

Attached for your consideration is the Gillies McIndoe Research Institute's submission on the Te Ara Paerangi Future Pathways Green Paper.

If the Future Pathways Policy Team wishes to discuss our submission, please contact:
Cindy Naresh, Executive Assistant: Privacy - 9(2)(a)

Yours sincerely,

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Executive Director

Dr Clint Gray
Chief Scientist

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Te Ara Paerangi Future Pathways Green Paper: Submission from the Gillies McIndoe Research Institute

The Gillies McIndoe Research Institute (GMRI) welcomes the opportunity to comment on the Te Ara Paerangi Future Pathways Green Paper. The GMRI's perspective reflects our experience as an Independent Research Organisation (IRO), with a strong philanthropic ethos.[1]

Introduction to the GMRI

The GMRI is an independent, Wellington based medical science research organisation, focusing on translational research: https://gmri.org.nz/cms/

The GMRI's objective of translation research to achieve better patient health outcomes is the subject of a recent TEDx Talk "Old Weapons for New Battles":
https://www.youtube.com/watch?v=vvo1UwOQ4oM

The GMRI's Research Focus

The GMRI's focus is stem cell research. We seek to achieve paradigm shifts in the way diseases such as cancer, fibrotic conditions, and vascular anomalies, are treated.

The GMRI's discovery of the stem cell origin, and the involvement of the renin-angiotensin system (RAS) in strawberry birthmarks (infantile haemangioma), underscores the current standard treatment of this tumour globally by:

- Repurposing low-cost existing anti-hypertensive oral medications e.g., propranolol, that block the RAS.
- Administering the treatment, orally, in the community, instead of protracted, debilitating, and high-cost hospital treatment.

The GMRI's current focus is an innovative approach to cancer treatment, by targeting cancer stem cells using a combination of repurposed off-patent, low-cost and commonly available oral medications that modulate the RAS.

[1] This ethos is reflected in the trifecta of research, science, and innovation in developing improvements in health outcomes for patients and their communities that are cost effective and enhance equity and access to treatment.

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Executive Summary

Research Priorities

- The GMRI supports defining a set of national research priorities. These should reflect a strategic perspective of the objectives and impacts sought from investment in New Zealand's science and innovation system in enhancing the contribution of the private and public sectors to our societal and economic wellbeing.

- It is important that there is widespread engagement in the priority setting processes, to:
    - Be as open as possible to all in New Zealand.
    - Generate engagement and transparency to enhance understanding, acceptance, and justification of prioritisation decisions.

- National research priorities should be those that are expected to remain durable over a significant period of time.

- A clearly delineated objective or mission will be required for each priority.

- In the context of the current transformation of New Zealand's health and disability system:
    - The experience and skills of practicing clinicians, general practitioners, community health groups and patients will be crucial contributors and stakeholders; for
    - The identification, development and implementation of health research and translation into improved outcomes for New Zealand patients from the portfolio of health research.

Funding

- A shift to a different model of supporting research overhead costs provides an opportunity to address elements of research not covered through the current "full-cost funding" approach.

- The GMRI considers that having a diversity of research providers is important. We are concerned that a 'one size fits all' model is unlikely to be optimal, particularly in the context of the potential contribution of IRO's.

Theme: Research Priorities

1. Priorities Design: What principles could be used to determine the scope and focus of national research priorities?

The GMRI supports defining a set of national research priorities. These should reflect a strategic perspective of the objectives and impacts sought from investment in New Zealand's science and innovation system. The strategic objectives should focus on, and reflect, the contribution of research, science, and innovation in enhancing the contribution of the private and public sectors to New Zealand's societal and economic wellbeing.

An interim review, and refresh as required, of the National Statement of Science Investment 2015-2025, could be a useful starting point.

Amongst the principles used to set national research priorities the GMRI suggests (in no particular order of precedence):

Widespread Engagement

It is important that there is widespread engagement. Therefore, the priority setting processes need to:

- Be as open as possible to all in New Zealand.
- Be designed to generate engagement and transparency to enhance understanding, acceptance, and justification of prioritisation decisions.
- Ensure that any advisory body that makes recommendations on a set of national research priorities reflects the interests of the New Zealand population and includes representative stakeholder presence.

Careful thought needs to be given of the role, if any, at this stage of national priority selection involving those who might be viewed as having conflicts of interest by association with research providers, as either researchers or research host representatives. There is a central place for this engagement at the next stage when the strategy for achieving priorities is defined.

Enduring National Research Priorities

National research priorities should be those that will likely still be considered priorities over a significant period of time, say, for at least ten years. While approaches and even objectives are likely to alter over such a timeframe within a priority, the enduring nature of the priority is important to avoid unwarranted focus on current issues. This will promote certainty to stakeholders (and the research community) and offers a realistic perspective regarding impact timeframes.

Impact for New Zealand

The potential impact on/for New Zealand society is a key outcome. There may be New Zealand context-specific challenges/opportunities that international research will not solve. It might be that a priority is also important in other jurisdictions; that should not detract from it being considered as a national research priority. Indeed, when setting priorities and objectives, an expectation should be whether New Zealand is placed to leverage connections in the international science community.

Potential for New Zealand's Health and Disability System

Setting research priorities should be informed by (but not be dependent on) current and upcoming significant government work programmes and policy development. In some areas, research will lead by several years the start of major programmes of work and policy development, but for many potential priorities there will be clear relationships to current work. When these links exist, it is important that the priority research area and work programme be aligned and for one to inform the other.

As an example of the latter, the structure and approach of New Zealand's health and disability system are undergoing significant transformation, much of which is predicated on the need to achieve efficient use of resources, improve health system equity, and access and translate these commitments into everyday action.

The transformation reflects, inter alia:

- The objective of ensuing fairer access for all New Zealanders to primary and community healthcare.
- An emphasis on equity for Māori and Pacific peoples.
- Government's goals for a health and disability system that is:
    - Citizen and patient focused.
    - Focused on improving health system equity and access for all and, in particular, seeks to achieve better health outcomes for Māori, Pacific peoples and other minorities through more timely, accessible, and affordable treatment.
    - Delivered through community-based health practitioners.
    - Cost-effective for patients and government.

The experience and skills of practicing clinicians, general practitioners, community health groups and patients will be crucial contributors and stakeholders to the identification, development, and implementation of health research. This approach would enhance translation into improved outcomes for New Zealand patients from the portfolio of health research activities outlined below:

- Novel drug and medical device research, development, and translation, albeit recognising the need for commercialisation by large offshore companies for sale in New Zealand.
- Public and community health interventions for better management of population health, in many cases requiring the integration of medical and social science research.
- Translation research from drug repurposing and an innovative approach to resolving the market failure of the traditional commercial model for drug repurposing and enhanced community delivery.

2. Priority-setting process: What principles should guide a national research priority-setting process? How can the process best give effect to Te Tiriti?

Each priority requires a clearly delineated objective or mission.

The mission statements of the current National Science Challenges have been largely effective in shaping goals and work programmes. There may be value in using a similar approach for the national research priorities.

The type of focus for priorities – e.g., problem solution; technology development – need not be defined. If national research priorities are to be of an enduring nature as emphasised above, it is possible that the focus will naturally shift over time, particularly in the context of engagement with the global research community.

Theme: Funding

3. Establishing a Base Grant and Base Grant Design: Do you think a base grant funding model will improve stability and resilience for research organisations, and how should we go about designing and implementing such a funding model?

A shift to a different model of supporting research overhead costs could provide an opportunity to address elements of research not covered through the current "full cost funding" approach.

In particular, there are difficulties in supporting engagement and planning with communities of interest. For researchers, significant time is taken up by these activities, which cannot be recovered through grant funding. For the communities of interest, research is not a primary activity, and they typically find it challenging to cross-subsidise engagement and research planning activities from their usual income.

Because of budget caps a significant gap with current approaches to funding is being able to include the actual time incurred by a research team (broadly defined) in preparing proposals. While the current model of calculating research overheads, based on a salary multiplier, is efficient, it clearly has some adverse effects: e.g., including post-docs or senior researchers can be prohibitively expensive.

The effects are that the true costs are hidden by researchers appearing in proposals as "time-only" or recorded at a patently inadequate time commitment, and for post-docs to not be included in proposals.

Funding for IRO's

The GMRI considers that having a diversity of research providers is of fundamental importance. It is clear that a 'one size fits all' approach in terms of the nature of research organisations is not optimal. Arguably there may be a distinct advantage in facilitating small IROs as they may have characteristics that larger institutions find difficult to replicate, e.g.:

- Focus on a narrowly defined, but highly focused, mission or niche.
- Close connections with engaged key stakeholders.
- Flexibility - the ability and the willingness to rapidly shift activities in response to challenges and opportunities as they evolve.

A concern for a small independent research provider is the scalability of any model of determining base grants. Will the model work as well for small research organisations as large entities, such as CRIs and universities? As stated above, the GMRI is concerned that a 'one size fits all' model is unlikely to be optimal.

Flexible, alternative models for funding are required. There are already concerns that the current system of competitive publicly funded research grants is structured in ways that may make it difficult for small IROs to be competitive. So, basing the size of a base grant on, say, grant income from these funding schemes over a preceding time period could perpetuate the current system biases. While this approach may be efficient for the large research providers such as CRIs and universities, it constrains the contestable environment for small IROs. Arguably, a single model for deciding base funding is not the way to go.

Funding Implementation for IRO's

Given that there may be value in promoting and encouraging the potential role and contribution of small IROs, how might the quantum of base funding be decided?

The GMRI suggests that, for small IROs, a sound approach to deciding base funding could be to:

- Determine eligibility according to a set of clear criteria; for example, a track record of research that benefits New Zealand; a certain standard of prior research outputs; clear and auditable prior funding streams for their research.
- Identify IROs past actual costs consistent with the general model of what base funding is to cover, based on a preceding time period (say five years).

Income stability for small IROs is critical, perhaps more so than for the larger institutions, that may have a greater capacity to respond to highs and lows in research income. Base funding could be allocated for reasonable time periods, say five years. This model might be used only for small IROs; a different approach might be more suitable for large research institutions.