

**The Walter and Eliza Hall Institute of Medical Research Postdoctoral Association
submission to the McKeon Strategic Review of Health and Medical Research**

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Submission summary:

The Walter and Eliza Institute of Medical Research (WEHI) is Australia's oldest medical research institute, with a research program that covers a wide range of human disease, including cancers, chronic inflammatory diseases and infectious diseases. The WEHI Postdoctoral Association (WPDA) represents approximately 150 PhD qualified scientists (postdocs) who have yet to become independent laboratory heads.

Postdocs make up the largest proportion of research staff at the WEHI, and contribute scientifically to the broad range of research activities at the institute. They are responsible for publishing cutting edge research, securing grant funding for the lab, and in mentoring and supervising students and research assistants. Hence a great deal of Australia's success in medical research can be attributed to the highly talented and motivated pool of postdocs that currently work in this country. It is important to nurture and support the careers of postdocs, as these individuals will be the future thought leaders in Australian medical research. In this submission, we address issues of importance to WEHI postdocs.

Summary of recommendations:

- *Increased investment in medical research from both government and non-government sources is required to maintain our research competitiveness*
- *A streamlined grant review system is necessary to reduce the administrative burden on researchers and ensure maximum time is available for research*
- *New schemes that assist with the transition from postdoc to independent researcher and support staff scientists should be introduced.*
- *Funding that encourages and supports collaboration and cross disciplinary research, in particular scientists from non-traditional medical research backgrounds is needed*
- *NHMRC Research grants should cover travel costs to conferences and open access publication should be encouraged so that Australian research is freely disseminated*
- *Policies that ensure gender equity is improved across the research sector so that more of our research talent is retained are needed*
- *Specific funding for translational research is required to improve patient outcomes and clinical practice*

1. Why is it in Australia's interest to have a viable, internationally competitive health and medical research sector?

Medical research confers direct benefits to the health and well-being of the population in terms of improved knowledge and means of managing people's health and medical conditions. People are the assets of a country, and a population where health issues are better managed tends to be happier and more economically productive, for example through a reduced absence from work and lower overall financial burden of treating diseases.

Australia is currently riding on the wealth of an unprecedented mining boom, but investment in other sectors is important to ensure the long-term prosperity of our nation. Medical research is a clear strength in Australia, as highlighted by the many landmark discoveries by Australian researchers to date. This advantage is best harnessed by turning the fruits of Australian medical research into new products and services. A vibrant health and medical research sector will feed into related or downstream sectors of the economy, and in so doing generate further employment opportunities. These jobs with their high skill content and internationally competitive salaries will cater for highly talented and trained researchers from Australia and abroad.

2. How might health and medical research be best managed and funded in Australia?

Health and medical research is a long-term endeavour and demands sustained funding for infrastructure and personnel at an adequate level in order to maintain its productivity and competitiveness.

The Government, through the NHMRC, will continue to be important in Australia as a main source of funding. It is important to ensure that our public investment is at a comparable level to the funding committed for research in other developed countries (such as the USA, UK and Europe) in terms of GDP. Increased investment from business and private funding sources should also be sought and encouraged. Non-government funding is already present in Australia on a smaller scale (e.g. charitable foundations and trust funds) but this needs to grow. The USA is a notable example where private foundations large and small provide an important alternative source of funding outside the government, and Australian research groups have also benefited thanks to the international nature of some schemes such as the Gates Foundation or the Howard Hughes Medical Institute extramural funding. It is important for government to ensure that the right tax settings are in place to encourage investment in medical research from both the business sector and private sources.

We believe the current NHMRC grant system is in need of reform. For example, many projects take longer than 3 or 5 years for completion, beyond the duration of NHMRC project and program grants respectively. The current funding cycles encourage short-term results at the expense of longer and more ambitious research plans. Current funding evaluations often place too much emphasis on preliminary data or results, to the extent that those data or results often almost constitute a fully-fledged project themselves. This is an unhealthy situation and often discourages researchers from tackling riskier but more rewarding projects. There should be funding set aside specifically for such 'blue sky', high risk projects worthy of further pursuit, perhaps for a shorter term sufficient for researchers to amass necessary preliminary results for a full grant application.

The grant submission and review system needs to be streamlined to ensure researchers have maximum time available for research, rather than administration. Many postdocs are discouraged from pursuing an independent research career as they see the burden of time and stress that their senior colleagues are under with the current system. Several efforts are underway to cost the time spent on this process (e.g. 'Building an evidence base for funding evidence-based medicine' project from QUT, <http://www.hlth.qut.edu.au/ph/about/staff/barnett/ParticipantInformationSheet.pdf>). A less onerous system may facilitate multiple grant submission rounds per year which may help balance the workload and avoid the current spikes in activity and stress caused by having a single round per year. Limiting the number of grants each chief investigator can apply for may also help reduce the load on the system.

To assist with the transition from postdoc to laboratory head, we believe new funding schemes similar to the INSERM-CNRS ATIP-Avenir program

(http://www.frenchsciencetoday.org/index.php?option=com_content&view=article&id=389%3Aatip-avenir&Itemid=204) or the NIH Pathway to Independence (K99/R00) awards

(<http://www.nhlbi.nih.gov/funding/training/redbook/phdk99r00.htm>) should be introduced. Programs like ATIP-Avenir include salary support, annual funding for research (direct costs) and encourage researchers to start their lab in a new institution to enhance collaboration.

Health and medical research is critically dependent on the accumulation of experience which takes many years to acquire, but can be lost in a second when a contract expires and funding is discontinued. There is currently little job security for many researchers as there is an overdependence on 5-year fellowships and 3-year grants for funding the salaries of laboratory heads/group leaders and post-docs respectively. The existing promotion system forces researchers either to go up the ranks (for a fortunate few with fellowship funding), forgo promotion so as not to be too big of a financial burden to keep their jobs (for those funded from project and program grants) or to get out of the system altogether (for those unable to secure a fellowship to allow them to move up) due to a scarcity of permanent positions. There are few other means to retain talent that would otherwise be lost. A fellowship scheme for highly productive 'staff scientists' (postdocs with > 5 years experience) would create a clearer career path for researchers who do not wish to run their own independent research group. One way to do this would be to offer a competitive 'top-up' scheme that researchers can apply for to cover the difference in salary between a research assistant/junior postdoc covered on their grant and a senior postdoc salary to bring additional skills to their project (refer to separate submission by Dr Sheila Dias and Dr Erika Cretney for specifics).

Biomedical research is becoming interdisciplinary in nature and increasingly draws on skills and knowledge from different fields, allowing research questions to be studied in a more comprehensive manner. Applicants across diverse backgrounds (especially medics, mathematicians, statisticians, computer scientists, physicists and chemists) ought to have an equal opportunity to receive fellowships. The review panels for fellowships ought to include researchers from diverse backgrounds, to allow a better assessment of candidates trained outside of traditional biological fields.

Dissemination of results is an integral part of research to allow researchers to contribute to the body of knowledge and receive feedback on their work. Travelling to conferences is currently not supported on NHMRC research grants, but is an important means of communicating research results especially in the earlier stages of research. As such, a certain proportion of grant funding should be allowed for presentation at conferences, or a separate travel support scheme should be considered.

Many funding agencies abroad such as the US National Institutes of Health mandate the publishing of research articles in Open Access mode whereby other researchers would be able to read and download research publications without paying for a subscription. While the NHMRC may not need to make this a requirement, it should encourage all researchers to publish open access, preferably with some financial support as the open access publication fees are generally higher.

3. What are the health and medical research strategic directions and priorities and how might we meet them?

Medical expenditure is rising with our ageing population and the incidence of chronic conditions such as obesity. There is an inevitable drive to develop new and more cost effective health control measures and treatment strategies. Future funding should ideally place an equal emphasis on the full spectrum from basic research through to translational research. Australian research groups have traditionally performed well in basic research but find difficulties in translating those discoveries to new drug therapies for example, either due to the high cost or a lack of suitable pharmaceutical partners required for downstream drug development. Mechanisms which help match businesses or medical practitioners with basic research groups will provide an important stepping stone, as would dedicated translational research funding. Important health and medical research discoveries will increasingly draw on a larger variety of techniques and expertise, particularly in the non-traditional medical research disciplines such as structural biology, bioinformatics, imaging and medicinal chemistry. There should be schemes to support people with such backgrounds and encourage collaboration between researchers.

Policies that promote gender equity and family friendly workplaces for medical researchers should be encouraged to ensure we make use of our entire talent pool. The WEHI is a good model in this regard, with a number of initiatives to improve the balance of women in research leadership positions at the institute (for further details, see http://www.wehi.edu.au/about_us/gender_equity/). Examples include providing financial support for additional research assistant salaries whilst postdocs are away on maternity leave, childcare support and a 'Women in Science' lecture series to provide mentoring and networking opportunities.

4. How can we optimise translation of health and medical research into better health and wellbeing?

At WEHI, a focus on improved patient outcomes for those suffering various conditions such as cancer, infectious disease, and autoimmunity is maintained by both clinicians and consumer representatives. Projects involving clinical translation are usually long-term, expensive and risky, and are conducted over a long period of time. A successful translation from 'bench to bedside' or from 'bedside to bench' is a challenging goal, involving innovative and expensive techniques applied to large numbers of patients. The funding allocated to these projects should be more generous to account for these specific challenges. A better understanding of areas of need in clinical practice amongst laboratory scientists would help focus research priorities for improved health outcomes. Communication between clinicians and laboratory scientists needs to be bi-directional to attain full benefit from their respective expertise.