Research Australia

An alliance for discoveries in health

Submission to the Strategic Review of Health and Medical Research in Australia

About Research Australia

Research Australia is the peak body representing the health and medical research sector in Australia. Independent of government, Research Australia's activities are funded by its members, donors and supporters from leading research organisations, academic institutions, philanthropy, community special interest groups, peak industry bodies, biotechnology and pharmaceutical companies, small businesses and corporate Australia.

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Table of Contents

Introduction

Research Australia's mission is to make health and medical research a higher priority for Australia. To this end, our goals are:

- a society that is well informed and values the benefits of health and medical research
- greater investment in health and medical research from all sources
- ensure Australia captures the benefits of health and medical research
- promote Australia's global position in health and medical research.

These goals are closely related to the terms of reference of the Review, and the four questions that have been posed by the Review's Chairman.

Research Australia is strongly of the view that Australian health and medical research is a sound investment in Australia's future, and that more research can, and should be, undertaken in Australia. Viewed as an investment rather than simply an expense, there is a strong argument for additional funding for health and medical research now, which will yield significant benefits for the Australian community in the future.

While the main elements of an effective health and medical research sector are in place, the current investments in health and medical research made by all sectors- public, private and philanthropic- could be more effective and efficient. Research Australia recognises that optimising the use of existing resources is the underlying objective of the current Review. It is an objective shared by Research Australia's members and ways of achieving this are the subject of this submission.

Research Australia's submission is made on the basis that this is the start rather than the end of the consultation process. While we believe we have some of the answers, our submission is also intended to identify areas and questions that should be the focus of the Review's consultations and considerations.

The key themes of this submission are:

- ensuring health and medical research leads to better health outcomes
- continued support for world class research
- the importance of collaboration in modern health and medical research
- a single clear, comprehensive and coordinated National Health and Medical Review Strategy
- the importance of promoting philanthropy as a partner in funding research
- better support for early and mid career researchers
- reducing red tape.

Research Australia believes that paying attention to these themes will ensure that the Review is able to establish a direction for health and medical research which will serve Australia well over the next decade and beyond.

Research Australia recognises that there are many different models and approaches used globally to fund and support health and medical research and to translate research into improvements in health. This is an area of constant change and innovation, and we urge the Review to examine international approaches and models when considering the future of health and medical research in Australia.

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

There are many reasons why it is in Australia's interest to have a viable, internationally competitive health and medical research sector. These range from national identity and prestige to national security, improved health for Australians, and economic benefits. While these reasons are generally widely understood and accepted in the broader community, we have briefly outlined them below. Together, these reasons provide a compelling case for why health and medical research is more valuable than research in any other field.

Contributing to global health

Australia is a part of the global community. Just as international health and medical research contributes to the increased wellbeing of Australians, discoveries made in Australia contribute to the overall pool of human knowledge and to improvements in morbidity and mortality globally. As a prosperous and well educated nation we have a moral obligation to contribute to this global endeavor for the benefit of all humanity.

This obligation has been given formal recognition by Australia's adoption of the United Nations Development goals which, among others, commit the signatories to work towards significant reductions in child mortality, and maternal mortality, and to reversing the spread of HIV, malaria and other major diseases that affect humanity.[1] Health and medical research has an important role to play in achieving these goals.

Improving the health of Australians

An individual's health is central to their wellbeing. Preserving and increasing the wellbeing of its members is a goal of every human community and is a fundamental responsibility of government.

The increases in life expectancy and general health that have been achieved over the last century and longer have been attributable in large part to advances in our knowledge of health sciences and the development of new technologies, medicines, therapies and changes in daily practice that have followed.

There are still numerous diseases and conditions that affect our wellbeing, and our changing lifestyles continue to create new challenges for us. Health and medical research is the starting point for overcoming these problems and further extending the health and wellbeing of our community. As a community our wellbeing depends on continuing to invest in research, and more importantly, ensuring that we continue to apply and implement the research findings in ways that benefit us all.

[1] Paragraph 19, United Nations Millennium Declaration

National security

The outcomes of the majority of health and medical research have application internationally. It could therefore be argued that Australia can simply rely on the rest of the world to develop the medicines, treatments and other technologies that we need. There are however, diseases and health problems that are specific to Australia, or are a more significant priority for Australians. Melanoma is one example, with the incidence of this disease in Australia higher than anywhere else in the world. An even more specifically Australian example is the Hendra virus, which is unknown outside Australia. Please refer to Appendix 1 for more detail.

Australia cannot rely on the global research community to give the appropriate level of attention to diseases which are particularly prevalent in Australia but not elsewhere - Australia, is after all, only a small market and the incentives for other nations to fund such research do not exist. Our ability to continue to address diseases which have the capacity to threaten Australians' lives is dependent on having an effective health and medical research sector.

Equally importantly, the effective delivery and implementation of new advances in medical research are dependent on factors that are specific to the health system, political structure and economic environment of the society in which they are utilised. Research into the Australian health system is essential to the effective delivery of medicines and technologies in Australia, and the outcomes of research in other countries cannot simply be applied to the Australian environment. Research on the Australian environment can only feasibly be undertaken from within Australia by a competent and well trained workforce.

Increasing national productivity

The Australian Government is the single most significant funder of the provision of health services in Australia (40%), and significant increases in the percentage of Gross Domestic Product (GDP) spent on the provision of health services have been projected.[2]

The twin challenges presented by this projection are to limit increases in health expenditure and increase GDP. Investments in health and medical research are investments in improving the nation's overall productivity. Improvements in health are particularly important in increasing the labour participation rates of older working Australians. The most common reason given by Australian retirees for why they retired was their health. Improving Australians' health can therefore defer the decision to retire.[3]

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[2] Australian Government, Department of Treasury, 2010, *Intergenerational Report 2010 Australia to 2050: Future challenges*, Table A.3

[3] Australian Bureau of Statistics, 2009, *Australian Social Trends* 4102.0 2009, , p.26

Governments around the world are implementing measures to increase retirement ages. In Australia, measures to extend Australians' working lives include:

- gradually increasing the age pension eligibility age from 65 to 67;
- increasing the age at which superannuation benefits can be released upon retirement form age 55 to 60;
- providing incentives for eligible individuals to defer the age at which they commence receiving the age pension; and
- providing incentives for individuals to defer receiving superannuation benefits by making them tax free after age 60, even though they can be withdrawn at an earlier age.

The success of these measures depends in part on Australians workers remaining healthy in their older age. This not only gives them the opportunity to continue working, but a perception that they will both live longer and remain healthier to a greater age gives them an incentive to remain in the workforce for two reasons:

- They need to continue working to be able to fund a long and active retirement.
- The prospect of remaining healthy and alive for longer gives them confidence that even if they defer retirement for another few years they will still be healthy enough to enjoy it when they do eventually retire.

While recognising the economic benefits of improved labour force participation by older Australians, the Intergenerational Report appears to have largely overlooked the contribution that improvements in the health of older age groups between now and 2050 can make to this cohort's labour participation rate.

Continued investment in health and medical research can extend Australians' working lives and increase national productivity.

Other economic benefits

Numerous reports have been produced in the past highlighting the benefits to the economy of undertaking research and development, (and health and medical research in particular) in Australia. While the methodologies and the estimates of the benefits have varied, the reports point to an overall positive impact on the Australian economy. A list of some relevant reports is provided at Appendix 2.

Capacity to apply innovation and implement developments

The global health and medical research field is one of enormous growth and potential, with high levels of innovation. Our ability to benefit from these developments is dependent on having the necessary expertise in Australia to apply the technology. This expertise is largely developed in the health and medical research sector and then deployed throughout other parts of the economy, enabling us to more effectively apply the outcomes of overseas research.

Continuous improvement

An active research sector that has links to and is integrated with the health services sector has the capacity to drive a culture of continuous improvement in health service delivery. A culture of research promotes an understanding that medicines, technology, and practices change constantly and prompts the question: is there a better way? An understanding of research disciplines among health practitioners provides a mechanism for testing alternatives and assessing the benefits of change.

This can be contrasted with a passive health services sector that is simply the 'receiver' of the outcomes of research without any incentive to participate in research to improve health outcomes, and without the capacity to undertake research.

Australia doesn't do this well enough - integrating research and delivery more effectively has the scope to drive this change further.

Australians value health and medical research

Australians are good at health and medical research and are recognised for it globally. Australian research papers are cited at a rate that is higher than the average. Of the twelve Australian Nobel prize-winners seven have been awarded for the 'physiology or medicine' category, four in the last decade.

The Australian community values Australian health and medical research. Polling undertaken by Research Australia has recorded strong support for the continued public funding of health and medical research in Australia. Please refer to Appendix 3 for more information.

How might health and medical research be best managed and funded in Australia? (Terms of Reference 2, 3 and 7)

There is a range of different responses to this question. Each has a role to play in improving health and medical research in Australia.

Collaboration is key to success

In many areas of medical and health research, as in scientific research more generally, collaboration is becoming increasingly important. In part this reflects the increasing complexity of the research being undertaken. It also reflects the convergence of different disciplines.

While data specifically related to health and medical research is not available, OECD research shows that scientific institutions with high levels of international collaboration produce research with the most impact.[4]

While Australian institutions do reasonably well in terms of the normalised impact of research and the percentage of international collaborations, our performance on both measures still lags behind institutions in countries such as Great Britain, Canada, Sweden, Denmark, Belgium, and the Netherlands.

The USA achieves a high level of impact with a relatively lower level of international collaborations, probably due to the significant scope for intranational collaborations within the USA because of the size of its research sector. Canada has a population half as large again as Australia. The Netherlands has a population approximately 5 million fewer than Australia, while Sweden, Denmark and Belgium are all less than half our size. This suggests that international collaborations are important for relatively small countries. (Great Britain, with a population three times the size of Australia and a larger domestic research sector, has a higher percentage of international collaborations.)

International collaboration is important to Australia because our size prevents us from undertaking research in every possible field in health and medical research. International collaboration enables local expertise in particular areas to combine with other, complementary areas of expertise that exist internationally to undertake research that cannot be undertaken solely in Australia. Furthermore, promoting collaboration between institutions both nationally and internationally is an important means of raising the quality of Australian health and medical research. We need to ensure that Australia's health and medical research industry is structured in a way that supports collaboration:

- internationally; and
- within Australia across different entity types - large universities, small universities, medical research institutes, other research institutes, private sector, hospitals and other service providers.

1. Research Australia submits that the Review should consult on the current barriers to collaboration and other actions that could be taken to facilitate research collaboration domestically and internationally.

[4] OECD, 2011, *Science Technology and Industry Scoreboard 2011*, pp.9-10

The way in which the Australian Research Council's Excellence in Research for Australia (ERA) initiative is used to allocate funding to universities provides an example of a barrier to collaboration. ERA is of great importance to universities. One of the measures which affects the overall funding provided to universities (including funding to support the indirect costs of research through the Government's Sustainable Research Excellence program) is the research income expended.

For ERA purposes, the research income is attributed to the Chief Investigator's institution. Where collaboration occurs between two or more institutions, the institutions that employ the Partnering Researchers do not receive recognition in respect of the research income expenditure, adversely affecting their overall funding.

Collaboration on research also has consequences for the individual researcher. Partly because of the positive funding impact for the institution of employing the Chief Investigator, promotion panels within institutions tend to devalue collaboration unless the individual is the Chief Investigator. This can be the case even where the Partnering Investigator has actually undertaken the majority of the research, and the primary role of the Chief Investigator has been to secure the funding and provide oversight.

Similar issues arise with the NHMRC's Independent Research Institutes Infrastructure Support Scheme (IRISS) which provides funding annually for overhead infrastructure costs for NHMRC accredited independent medical research institutes based on a proportion of competitive research funding administered by the institute.

Another example of a barrier to collaboration is the need to submit the same research project to multiple ethics committees for approval and review. This can be a time consuming process. Greater coordination between ethics committees would assist. Even more beneficial would be agreements between organisations which allowed the parties to a collaboration to cede responsibility to a single ethics committee for the whole project; or to form a single joint committee.

There are programs in place which are specifically designed to promote and support collaboration, including the NHMRC's Centres for Research Excellence program. And there are also specific programs to encourage and support international collaborations, such as FEAST (Forum for European-Australian Science and Technology) and NHMRC funding programs to support collaboration on the European Union's *Seventh Framework Programme for Research and Technological Development*. (FP7). However, the question of the effectiveness of these programs remains.

2. Research Australia submits that the Review should consider both the effectiveness of existing government programs to encourage and support domestic and international collaboration, and whether these programs are receiving an appropriate level of funding.

The House of Representatives Standing Committee on Industry, Science and Innovation tabled its report on the Inquiry into Australia's international research collaboration on 9 June 2010. The report made 18 recommendations in relation to measures to encourage and support international collaboration between Australian and overseas science researchers. These recommendations are generally applicable to the health and medical research sector and are broadly supported by Research Australia. The Government released its response to the report at the same time. It accepted some, but not all, of the recommendations.

3. Research Australia submits the Review should consider the recommendations of the House of Representatives Standing Committee on Industry, Science and Innovation report on the Inquiry into Australia's International Research Collaboration, and the Government's response. The Review should seek to determine the extent to which the Government has implemented the recommendations it accepted. The Review should also consider whether there is a case for arguing that some or all of the recommendations that were not accepted at the time should now be adopted in respect of health and medical research.

While more collaboration is needed, and barriers exist, there is evidence of effective collaborations between different institutions. This includes collaborations on specific research projects, as well as larger, more institutionalised collaborations. Orygen Youth Health Research Centre is an example of the latter. It is a collaboration between a university, a philanthropic organisation, and a major state- based public health provider. An outline of Orygen Youth Health is provided at Appendix 4.

While the governance structure is quite different, Orygen Youth Health brings together many of the elements of an academic health centre, combining teaching, research and health delivery.

Research Australia does not propose that Orygen Health be adopted as a template for other institutions looking to create or establish a permanent collaboration. There are many possible models, but it does provide an example of how the necessary elements can be brought together successfully in the existing Australian legislative and institutional environment.

The Role of Philanthropy

Philanthropy is becoming an increasingly important funding source for the health and medical research sector. The role of philanthropy is acknowledged in several of the terms of reference for the Review, and the Parliamentary Secretary for Health, Mark Butler, has publicly called for increases in donations to health and medical research[5].

One of the characteristics of philanthropy is that the funding provided is very targeted; for example, a fellowship for a specific researcher, or capital funding for the purchase of specific equipment. While the funding is clearly beneficial, it can be difficult to secure the funding for associated overheads and infrastructure. This gap can inhibit the effectiveness of the initial grant.

Similar issues have arisen in the past in respect of government funding, and have led to the creation of specific programs to fund these additional overheads. An example is the NHMRC's Independent Research Institutes Infrastructure Support Scheme (IRIIS).

Equipment Grants are made available under IRIIS on a pro rata basis, based on the proportion of competitive funding awarded to each University/institute/hospital each year.

Infrastructure funding is provided under IRIIS annually for overhead infrastructure costs specifically for NHMRC accredited independent medical research institutes based on a proportion of competitive research funding awarded to the institute by the NHMRC.[6]

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[5] The Honorable Mark Butler MP, Media Release 16 October 2009

[6] www.nhmrc.gov.au/grants/types-funding/-z-list-funding-types/infrastructure-support

In the case of universities, an allocation is made under the Sustainable Research Excellence (SRE) Scheme for overheads associated with Category 1 Australian Competitive Grant research income.[7]

The Research Block Grant (RGB) funding also treats categories of research income differently. While all four categories are given a weighting in a number of the sub- programs under the RGB, the Research Infrastructure Block Grants (RIGB) only take into account the Category 1 Australian Competitive Grants Research Income.[8]

These schemes do not provide support for overheads or infrastructure costs associated with other funding sources, such as philanthropy. Because of the indirect link to the actual research that is being undertaken, it is difficult to secure philanthropic funding for overheads and infrastructure costs. While a donor may be willing to fund a fellowship for a researcher, it is more difficult to convince them of the need to fund the cost of keeping the lights on, employing administrative staff and buying printer cartridges.

Similar issues relating to the funding of overheads and infrastructure are encountered when institutions undertaking research on a contract basis, for example for State health departments.

Research Australia acknowledges that the Joint Research Engagement (JRE) Scheme is specifically designed to encourage and support collaborative research activities and takes into account all research income sources, including philanthropy. Research Australia notes the absence of such a program for other researchers, such as MRI's, receiving philanthropic grants.

Research Australia also acknowledges the existence of Cancer Australia and the Priority-driven Collaborative Cancer Research Scheme (PCCRS) which brings together the government funding administered by Cancer Australia with funding provided by other cancer research fundraising bodies in the philanthropic sector.

4. Research Australia submits that the Review needs to examine how philanthropic funding currently interacts with funding from other sources, and what measures can be taken to increase the effectiveness of philanthropic funding within the medical health and research sector. This includes ensuring that recipients of philanthropic funding have sufficient resources for infrastructure and other indirect costs.

5. Research Australia submits that particular consideration needs to be given to the treatment of philanthropic funding by Government for the purposes of determining the funding of overheads and infrastructure costs to universities and MRIs. Other forms of research income, such as philanthropic grants and contracted research, should be included in the base amount for calculation of the SRE and IRIIS schemes, and other components of the RGB program in addition to the JRE scheme.

[7] Australian Government, Department of Industry, Innovation, Science, Research and Tertiary Education, 2012, *The Process for Determining Sustainable Research Excellence (SRE) Scheme Grant Amounts - 2012 Allocations*

[8] www.innovation.gov.au/Research/ResearchBlockGrants/Pages/CalculationMethodology.aspx

6. Research Australia submits that the Australian Government has a role in encouraging greater philanthropic funding by individuals and developing a greater culture of philanthropy in Australia. Measures the Australian Government can take include funding more research in collaboration with fundraising bodies where the Australian Government matches the funds raised from the public on a dollar by dollar basis up to a fixed total budget cap (providing an incentive for donors to contribute), and by re-examining measures that can be taken through the tax system to encourage donations, including measures to allow tax deductions prior to death for donations made in bequests.

Support for early and mid career researchers

There is strong agreement across the health and medical research sector on the need for greater support for early and mid career researchers.

The issues identified include:

- poor career structure;
- lack of employment security due to reliance on project based funding;
- failure of grants to cover all costs associated with funding research positions; and
- failure of undergraduate training to provide the grounding in research skills needed to work effectively as a researcher (particularly in translational research).

In support of the Australian Government's *Powering Ideas* strategy announced in the 2009- 2010 budget, the Department of Innovation, Industry, Science and Research undertook a review of the Australia's research workforce. The resulting Government strategy to support and improve the workforce is outlined in *Research Skills for an Innovative Future, A Research Workforce Strategy to Cover the Decade to 2020 and Beyond.*

Chapter 5 of this document provides a useful summary of the issues facing the broader research workforce and is generally applicable to the health and medical research sector. Research Australia's submission to the Department at the commencement of the review is provided at Appendix 5.

The strategy has identified a number of priorities which have the potential to redress the issues listed above, although it seems likely that while the bulk of health and medical research continues to be funded on a project grant basis, employment security will remain an issue for the research workforce.

There is a plethora of programs providing funding for research positions in health and medical research. These include allocations under the block grant funding provided to universities, and a range of fellowships and similar programs provided by Australian, State and Territory Governments and the private and philanthropic sectors.

Some of these programs are very significant. In 2011, the NHMRC approved 438 NHMRC 'People Support' grants to the value of $146 million (18.6% of the NHMRC grants budget).[9] The Australian Research Council's 2012 Australian Postgraduate Awards and International Postgraduate Research Scholarships funded 3,830 research positions at universities at a cost of nearly $258 million (15.8%

[9] www.nhmrc.gov.au/grants/outcomes-funding-rounds

of the Research Block Grants Allocation).[10]

The programs vary significantly in the selection criteria, the amount of funding they provide and the length of the period for which funding is provided. Significant rationalisation of the programs and better coordination is possible, with the twin aims of achieving a more cohesive approach to supporting researchers, and striking a balance between the needs of researchers at different stages of their careers.

There is also a need for programs to encourage students who are completing undergraduate courses to consider research careers. For example, a stipend or allowance could be paid to students to undertake research in an honors year as part of completion of their degree. Funding could also be provided to assist final year students to attend a conference which will give them exposure to research activities.

7. Research Australia submits that the Review should undertake a survey of the current funding programs in place to support research positions in health and medical research. The survey should ascertain the amount of funding provided, the size of individual grants, the career stage to which the grants are directed, and the selection criteria.

It is also important to develop a better understanding of the actual cost of funding a research position at different levels of seniority and with different employers. Such a review could also establish the real cost of meeting additional expenses associated with attending conferences, or working overseas for all or part of the period.

Establishing benchmarks for the real cost of funding different types of research positions would have a number of benefits, including giving grant makers, recipients and employers a better understanding of the extent of the support being provided, and the additional gap, if any, that will need to be funded from other sources.

8. Research Australia submits that the Review should undertake research to ascertain the actual cost of funding different types of research positions at different levels of seniority and with different employers. The survey should include research by honours students, and give specific consideration to costs associated with undertaking research in rural and regional areas.

Other countries have recently reviewed and implemented new approaches to funding of research positions. For example, Canada has implemented new awards that provided funding for researchers at a range of levels for period up to five years.[11]

9. Research Australia submits that the Review should undertake an international comparison of approaches to funding research positions.

[10] www.innovation.gov.au/Research/ResearchBlockGrants/Documents/2012RBGAllocations.pdf
[11] www.cihr-irsc.gc.ca

Cutting Red Tape

There is ample scope for reducing red tape and improving efficiencies in the health and medical research sector. The following are some examples.

Common, streamlined funding application processes

There are a number of Australian Government schemes that fund health and medical research. Each has their own individual application process and requirements.

The two largest are the grants programs operated by the Australian Research Council and the National Health and Medical Research Council. Each requires the entry of significant amounts of information in a grant application. (There is scepticism in the research community about whether all the information submitted is relevant to the assessment process.) Even where the applications are not similar, researchers who make applications to both agencies need to be familiar with both systems. Adoption by the two agencies of similar applications processes and the same grants administration system would significantly reduce the workload of researchers seeking grants. It would also reduce the cost associated with maintaining and further enhancing the system to improve performance and usability (such as greater scope for auto-filling fields with data provided in previous applications.)

Streamlining the application process could lead to an even more significant time saving. A large amount of time and effort, sometimes hundreds of hours of work, is required to make a grant application. The effort required is exacerbated by the fact that in the case of the NHMRC, only one in four grant applications succeed; in three out of four cases the application is effectively a waste of time. (NHMRC grant applications had a 25.5% overall success rate in 2011.[12]) This experience of frequent rejection is a likely underlying cause of some of the criticism directed at the NHMRC from the health and medical research community.

A reduction in the overall effort required to make a funding application could be achieved by introducing a two-stage process. Stage One would require a shorter application that contains enough information to enable an initial assessment of an application to be made. Applications would either be eliminated at this initial stage, or invited to make a second stage application. The level of information collected at this stage would need to strike a balance between being sufficient to eliminate a significant proportion of applications, and being significantly less than is currently required.

Applications that do not succeed will receive reasons for why their application was unsuccessful. Applications that proceed to the second stage will be provided with specific feedback about the information that is required at Stage Two.

If such a process results in a significant number of applications declined at Stage One, it will reduce the amount of effort required of most unsuccessful applicants. It should also help to reduce the amount of work undertaken by applicants who proceed to Stage 2, as they will be provided with specific direction about what aspects of their grant application need expanding or enhancing. It will also reduce the work for the review panels, improving decision making. There is a range of different

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[12] www.nhmrc.gov.au/grants/outcomes-funding-rounds 2011 Application Round - Funding and Success Rates Statistics (EXCEL, 56KB)

application processes used internationally, including in New Zealand, and the processes adopted by the UK's Wellcome Trust and the National Institutes of Health in the USA.

10. Research Australia submits that the Review should consult with the main grant making bodies on ways to harmonise and streamline the grant applications processes and systems. In particular, this should include a review of the types of information collected as part of the application process, and its purpose.

11. Research Australia submits that an international comparison of grant application processes and methodologies should be undertaken to identify opportunities to streamline and improve Australian grant application processes

Ethics Committees

Reference has already been made to the barrier to collaboration that is created by the need to deal with multiple ethics committees from different institutions where research is undertaken collaboratively (including animal ethics committees where relevant). Significant gains could be made by standardising the requirements and processes of ethics committees, and by rationalising the number of ethics committees in existence in Australia.

One model is the HREC (Tasmania) Network (the Network), constituted by joint agreement between the University of Tasmania (UTAS) and the Department of Health and Human Services (DHHS). The Network consists of two human research ethics committees (HRECs): one for health and medical research and another for social sciences. The HRECs that make up the Network are decision-making bodies. Their decisions on the ethical aspects of projects are not subject to institutional ratification by either institution. The Network aims to avoid duplication in the ethical review process and to provide a well-coordinated, systematic and consistent approach to the ethical assessment of human research.[13]

The New Zealand system of Ethical Review, which has seven ethics committees, provides another informative model.[14]

12. The Review develop proposals to rationalise and harmonise the system of ethics committees and approvals in Australia.

[13] www.utas.edu.au/research/integrity-and-ethics/human-ethics

[14] www.ethicscommittees.health.govt.nz

Other examples

There are many other instances of unnecessary regulations, standards and requirements imposing a significant burden on the health and medical research sector. Addressing these instances, while time consuming, has the potential to increase the productivity of the sector.

13. Research Australia submits that as part of its consultations, the Review should call for examples of unnecessary red tape to be provided to the Review. While it may not have the time or capacity to address all the examples provided, such an exercise could result in a useful database of such cases and enable them to be dealt with by the various agencies involved.

What are the health and medical research strategic directions and priorities and how might we meet them? (Terms of Reference 5, 12 and 13)

Combining a global perspective with a local focus

A strategic review of health and medical research in Australia needs to combine a global perspective with a focus on Australia's needs.

While Australia makes a significant contribution to health and medical research relative to its size, in an absolute sense our contribution is still small. For example, Australian expenditure on health and medical research is estimated to be 1.1% of the global health expenditure.[15]

Research Australia suggests that there are two (sometimes competing) priorities for Australian funding of health and medical research: funding research that meets Australia's specific needs; and funding world class research even where it is not directly related to Australia's health research priorities.

We need to fund research that addresses Australia's specific needs, but we also need to recognise that a large proportion of the research that is relevant to Australians' health is going to occur overseas. This is simply because many of the diseases and problems that afflict Australians are common to large parts of the world's population, and the vast majority of global health and medical research occurs overseas.

Determining which research to fund means being aware of what is occurring globally and identifying which health problems, at a global level, are receiving insufficient attention. One priority, therefore, is to fund research that specifically addresses a need in Australia and that is not being adequately addressed by research elsewhere in the world. Research into health delivery and some types of translational research will frequently fall into this category because it is specific to the Australian health system.

We should also continue to fund research in Australia where it is of a world leading standard even where it is not specifically aligned to an identified Australian need. This is the other, and equal, priority.

World class research

The reasons for funding research to address Australia's specific health needs are relatively obvious - they benefit the Australian community through improving quality of life, reducing health costs and increasing productivity. The arguments for investing in excellence are perhaps less obvious. The following are some of the reasons for doing so.

Research that is world leading has the potential to yield the greatest benefit. Whether this benefit is increasing the pool of human knowledge or developing a 'breakthrough' cure for a particular

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[15] Access Economics, June 2008, *Exceptional Returns, The value of investing in Heath and R&D in Australia II, Canberra, p.35*

disease, it is likely to be of greater impact than research that is being duplicated or performed better elsewhere in the world (or elsewhere in Australia for that matter). Research that is globally unique is also likely to produce the greatest economic benefits in terms of opportunities for commercialisation.

World class research attracts international funding and collaboration. This funding and collaboration in turn strengthens the expertise and capacity of the Australian research community.

The Medicines for Malaria Venture (MMV) is one such example of the benefit of supporting world class research in Australia. MMV is a Product Development Partnership (PDP), consisting of a network of more than 170 partners in over 40 countries. MMV is funded by private philanthropy, government, and industry through cash and in-kind contributions, including the UK Department for International Development (DFID), USAID, the Bill and Melinda Gates Foundation, The Wellcome Trust, and other government agencies.

MMV's mission is to reduce the burden of malaria in disease-endemic countries by discovering, developing and facilitating delivery of new, effective and affordable antimalarial drugs. MMV receives funding and support worldwide from government agencies, private foundations, international organisations, corporations, corporate foundations and private individuals.

MMV has funded significant research in Australia because relevant world leading research is being conducted here. (Refer to Appendix 6 for more information about the MMV and its investment in research in Australia.)

Similarly, the Juvenile Diabetes Research Foundation raises money worldwide to fund research in many countries. A significant proportion of its funds are invested in Australia because the expertise exists here.

World class research also attracts and retains world class researchers. This helps to raise the quality and standard of Australian research.

Targeted research

While it is a legitimate expectation that much of Australia's taxpayer funded research should address the health needs of the Australian community, making this expectation a reality is not a simple matter.

Australia currently has four national research priorities, of which one is Promoting and Maintaining Good Health.

Australia also has eight National Health Priority Areas (NHPAs), chosen for focused attention at a national level because of their significant contribution to the burden of illness and injury in the Australian community:

- Arthritis and musculoskeletal conditions
- Asthma
- Cancer control
- Cardiovascular health
- Diabetes mellitus
- Injury prevention and control

- Mental health
- Obesity

The CEO of the NHMRC is required by the *National Health and Medical Research Council Act (Cth) 1992* to prepare a strategic plan every three years, for the approval of the Minister. In preparing the strategic plan, the CEO is required to make an assessment of the major national health issues that are likely to arise during the period; and outline the manner in which the CEO proposes to deal with those issues during the period.

The major health issues identified in the NHMRC Strategic Plan for 2010-2012 are:

- Building a self-improving health system
- Indigenous health and well-being
- Ageing and health
- Chronic disease
- Mental health
- Genomic medicine and frontier technologies
- Planning for emerging infectious disease threats
- Examining alternative therapy claims
- Global health
- Health consequences of climate change. [16]

The NHMRC reports its funding against the eight NHPAs, and the funding allocation for each area for 2011 is shown in the table below. The total of $533 million is a little more than two thirds of the NHMRC's total grant expenditure of $787 million for 2011.

Table 1- 2011 NHMRC Funding allocated to National Health Priority Areas (NHPAs)

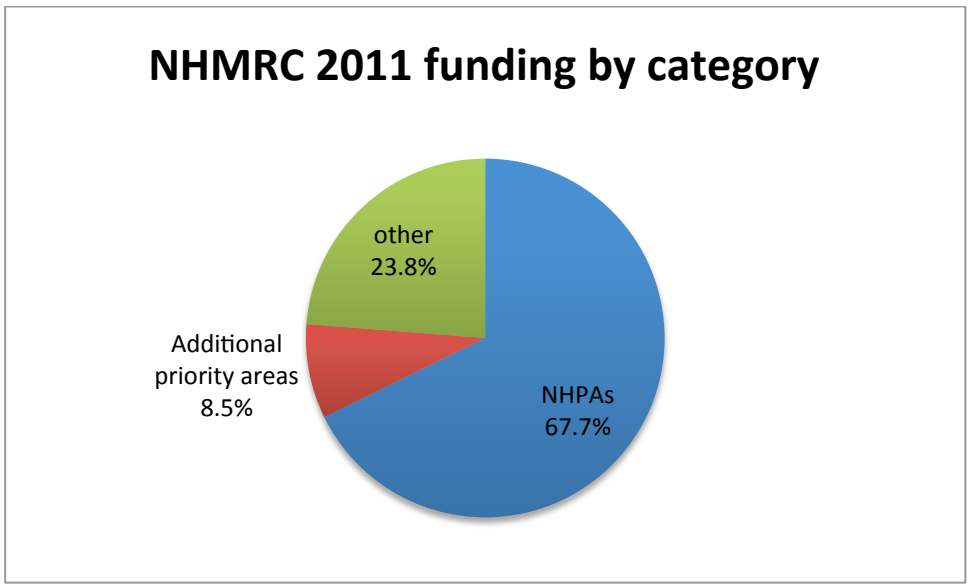
National Health Priority Area	**NHMRC 2011 Grant Expenditure**
Arthritis and osteoporosis	$30,175,400
Asthma	$16,513,547
Cancer	$175,446,931
Cardiovascular disease	$107,138,151
Diabetes	$72,096,341
Injury	$36,330,359
Mental Health	$60,141,354
Obesity	$35,796,385
Total	**$533,638,468**

The NHMRC also has two other identified priority areas: Aboriginal and Torres Strait Islander

[16] NHMRC, 2010, NHMRC Strategic Plan for 2010-2012, p.7

Peoples' health (2011 expenditure of $43,910,707); and Alzheimer's disease and other dementias (2011 expenditure of $23,361,777). These account for another 8.5% of the total NHMRC grant expenditure.

Approximately 24% of the NHMRC's funding in 2011 was allocated to research that did not fit into any of these 10 areas.[17]



The NHMRC also has legislative responsibility for fostering consideration of ethical issues relating to health, and to fostering the development of consistent national health standards and part of its grants funding is expended in these areas.

The majority of NHMRC grant programs are investigator initiated. While it seems clear from the above figures that NHPAs play a role in the NHMRC's assessment process it is not apparent what this role is, how closely the applications relate to the NHPAs, and how consideration of the NHPAs interact with the NHMRC's own strategic plan. For example, what relative weighting is given to the NHPAs and to the Strategic Plan and how do these interact with the quality of the research proposal?

This is of particular importance because although the NHMRC has the capacity to call for research proposals on specific research subjects it rarely does so and only a small fraction of the NHMRC grants are allocated on this basis. This means that in the majority of cases, the NHMRC is dependent on researchers submitting research proposals that address the NHPAs and/or its Strategic Plan and are of sufficient quality.

While the number of applications continues to outweigh the number of grants by a factor of four to one this probably does not present a significant problem, although the relatively low level of grants approved for asthma research (an average of $12.67 million per year over the period 2000 to

[17] Data extracted from *The NHMRC's summary of funding by disease burden for the period from 2000 to 2011* www.nhmrc.gov.au/grants/research-funding-statistics-and-data/summary-funding-data

2011[18]) raises the following questions:

i) whether asthma is receiving adequate attention; and
ii) whether a targeted call for research into asthma would result in a higher level of eligible grant applications and a higher level of funding of asthma research.

The NHMRC has been used in the above example not because Research Australia believes that its grant selection processes are flawed. Rather, it is to highlight the lack of a clearly articulated approach in Australia to determining the strategic health research priorities and achieving real and practical research outcomes. This is not just the responsibility of the NHMRC.

The ARC funds research for the four national research priority areas:

- An Environmentally Sustainable Australia
- Frontier Technologies for Building and Transforming Australian Industries
- Promoting and Maintaining Good Health
- Safeguarding Australia

Discovery Projects funding for the years 2009-2012 for the priority area of Promoting and Maintaining Good Health are provided below, divided into the two sub categories: *A Healthy Start to Life*; and *Ageing Well, Ageing Productively.* A significant proportion of Discovery Projects funding is committed to research in this priority area.[19]

Table 2- ARC Discovery Project funding for Promoting & Maintaining Good Health 2009- 2011

Discovery Projects funding commencing in	Total indicative funds over project life	Indicative funds over project life for Promoting & Maintaining Good Health	% of total funds allocated to Promoting & Maintaining Good Health
2009	$288,435,583	$52,778,392	18.3%
2010	$325,575,289	$57,151,078	17.6%
2011	$318,162,472	$71,506,001	22.5%
2012	$236,837,254	$41,907,382	17.7%

The ARC changed its rules with effect from funding commencing for the 2011 calendar year to exclude research into clinical medicine and dentistry. The definition of 'clinical medicine and dentistry' has changed in each subsequent funding round. Anecdotally it appears that the changes made for applications for the 2013 funding round (which closed in February 2012) will see a significant narrowing of the types of eligible applications. (The funding outcomes for 2013 are not yet available.)

[18] Ibid
[19] www.arc.gov.au *Discovery Projects Funding outcomes for 2009 to 2012*

While the exclusion of clinical medicine and dentistry provides some differentiation between the funding provided by the NMRC and the ARC for health and medical research, there is still a degree of duplication in eligibility for ARC and NHMRC funding, and no clear rationale for which agency funds which research.

Further evidence of duplication of effort and responsibility at the Commonwealth level is evident in the national coordination of cancer research funding. Cancer Australia is an Australian Government agency, within the Health and Ageing portfolio, established under the Cancer Australia Act 2006. It oversees a dedicated budget for cancer research, and is also charged with coordinating and liaising with other groups within the cancer research sector.

The *Cancer Australia Act* (Cth) 2006 specifies the following functions for Cancer Australia:

1. To provide national leadership in cancer control.
2. To guide scientific improvements to cancer prevention, treatment and care.
3. To coordinate and liaise between the wide range of groups and health care providers with an interest in cancer.
4. To make recommendations to the Commonwealth Government about cancer priorities.
5. To oversee a dedicated budget for research into cancer.
6. To assist with the implementation of Commonwealth Government policies and programs in cancer control.
7. To provide financial assistance, out of money appropriated by the Parliament, for research mentioned in paragraph (5) and for the implementation of policies and programs mentioned in paragraph (6).
8. Any functions that the Minister, by writing, directs Cancer Australia to perform.

Cancer Australia's primary research funding program is the Priority-driven Collaborative Cancer Research Scheme (PCCRS) to support research that reduces the impact of cancer on the community and improves outcomes for people affected by cancer.

The scheme brings together the government funding administered by Cancer Australia with funding provided by other cancer research fundraising bodies in the philanthropic sector. It seeks to better coordinate the funding of cancer research across the whole sector, and seeks submissions for investigator initiated research for specific research priorities in relation to cancer, covering the spectrum from primary to translational and public health research. Cancer Australia works with the NHMRC on key aspects of the Scheme.[20]

The seven leading national cancer charities have also formed the Cancer Research Leadership Forum. The Forum seeks to better co-ordinate the funding for cancer research. To this end, in February 2012, the Forum launched a White Paper, 'Towards a National Cancer Research Plan.' The Plan seeks to both streamline and boost the funding for cancer research to improve health outcomes for people affected by and at risk of cancer. [21]

Research Australia believes that a more unified, rigorous, and comprehensive approach is required

[20] www.canceraustralia.gov.au

[21] www.bowelcanceraustralia.org/bca/images/pdf/12-2-3%20CLRFcancerplan.pdf

to the identification of Australia's strategic health research priorities. Such an approach would have a number of stages.

Stage One Identify Australia's key health burdens - this needs to be a methodical, research based approach. (The Australian Institute of Health and Welfare could take the lead role in this exercise.)

Stage Two Identify Australia's health and medical research priorities:

i) areas where research can be of most benefit in reducing the health burdens;
ii) areas where Australian research can be of most benefit i.e. Australia has expertise and can make a meaningful contribution to the global research effort, or can develop it. There may be key health burdens that are receiving significant attention at a global level and where Australia has little expertise or capacity - these areas may be assigned a lower priority.

This process may result in an asymmetric relationship between Australia's health burdens and the strategic research priorities. (There are also likely to be more than the current eight priorities.)

Stage Three Determine funding mechanisms and assessment criteria. For example:

- the use of calls for funding for specific areas versus accepting more general, investigator directed proposals;
- how to give priority to research proposals in research priority areas; and
- how to balance different types of research (primary, translational) within research priority areas.

Stage Four Determine the appropriate balance between targeted research and research funded against criteria other than the health research priorities.

14. Research Australia submits that the Australian Government needs to take a more strategic and targeted approach to the funding of health research in Australia. Determination of the health research priorities needs to be evidence based and cognisant of both research occurring elsewhere in the world and the particular expertise in Australia.

This approach needs to provide for a portion of health and medical research to be funded without taking into account the health research priorities. This portion should instead be assessed against other criteria such as the potential of the research to increase the field of knowledge and its ability to address global health issues.

The ability to undertake targeted research in a new or emerging area or disease is dependent on having a research sector that has sufficient depth and breadth of expertise to be able to respond to, and undertake, targeted research when required. Developing and maintaining this breadth and depth requires an investment in a broad research capacity, which can only be achieved by continuing to fund high quality, primary research into novel areas. For this reason the ability to undertake targeted research is dependent on continued funding of non-targeted research.

15. Research Australia submits that the quality of research proposals must remain an overriding assessment criterion for all categories of funding.

A comprehensive and coordinated National Strategy for Health and Medical Research

At the Commonwealth level, responsibility for health and medical research is split between the Minister for Health and the Minister for Tertiary Education, Skills, Science and Research. Within each Minister's portfolios there are numerous programs portfolios and bodies which fund, assess, regulate or influence health and medical research. (The NHMRC, the ARC and Cancer Australia are just three of these.)

Within the State and Territory governments, responsibility for the funding of health and medical research largely sits with the science and technology portfolios. However, the State and Territory health departments are key providers of health services and are a vital component of health and medical research. Some State governments have also been active in the past in creating or funding a range of agencies engaged in fundraising, health promotion and awareness, and research.

It is perhaps naïve to expect that there could be a significant rationalisation of these agencies and responsibilities. It should however, be possible to develop a National Health and Medical Research Strategy that outlines the roles and responsibilities of each of these ministerial portfolios and agencies for the funding, support, evaluation and regulation of health and medical research in Australia. The strategy should also articulate the roles of the health providers, universities, research institutes, charitable foundations and the private sector in Australian health and medical research, with the aim of achieving better coordination across the whole sector.

This Strategy should be formally agreed and endorsed by the Australian, State and Territory Governments, and promoted to other stakeholders in the health and medical research field. The Strategy should be regularly evaluated against agreed targets and key performance indicators.

These targets and indicators need to include measures for the successful translation of research. Consideration should also be given to whether a national coordinating body is required. The National Health and Medical Research Strategy should complement the National Heath Reform Agreement.

16. Research Australia submits that the Review should develop the framework for a National Health and Medical Research Strategy that outlines the roles and responsibilities of the Australian, State and Territory Governments and their agencies for health and medical research, and the role of the health providers, universities, research institutes, charitable foundations and the private sector. The Strategy needs to include the translation of research into improved health outcomes.

The Review should recommend the formal completion and adoption of the Strategy by the Australian, State and Territory Governments.

Consideration needs to be given to the best way of funding targeted and non-targeted health and medical research. In this regard, it needs to be recognised that the first object of the NHMRC under its enabling legislation is to 'raise the standard of individual and public health throughout Australia'. The objects that follow: funding research, fostering consistent national heath standards, and funding research and consideration of ethical issues, are all means of achieving the primary object. As such the NHMRC is already charged with responsibility for the translation of research, and is ideally placed to give renewed emphasis to support for translation.

17. Research Australia submits that as part of a National Health and Medical Research Strategy, consideration needs to given to whether funding for targeted research and for other health and medical research should be administered under separate programs and/or by different bodies. In this regard, the NHMRC, which sits under the Department of Health and Ageing, would appear to be the natural home of funding for targeted research and translation into improved health outcomes, while the ARC could retain responsibility for funding less targeted health and medical research. Such an approach would better delineate the roles of the two funding bodies in respect of health and medical research.

The approach to the funding of cancer research is informative.

18. Research Australia suggests that the Review consider the role of Cancer Australia and the Cancer Research Leadership Forum in facilitating a coordinated approach to cancer research, and whether similar bodies should be developed for other health research priority areas as part of a broader National Strategy for Health and Medical Research. This could include an assessment of the value of developing national plans for research in each area, similar to the proposed Cancer Research plan. Such an approach has the potential to give greater emphasis to, and accountability for, translation of research into improved health outcomes.

Internationally, there are a range of different approaches taken to the funding of health and medical research. Many of these vary significantly from the Australian model including the British, US and Canadian approaches to creating one or more institutes of health which focus on particular heath issues and or disease groups.

19. Research Australia submits that the Review should examine international models for the funding, administration and coordination of health and medical research.

How can we optimise translation of health and medical research into better health and wellbeing? (Terms of Reference 4, 8, 9, 10 and 11)

Health and medical research is most valuable when it leads to improved health outcomes. This requires the results of medical research to be applied as new medicines, technologies or practices in the community.

There are a number of ways of measuring success in the application of discoveries.

Commercialisation

Commercialisation is a key means of delivering health and medical discoveries to the community. This process involves taking a discovery and turning it into a product that a company can manufacture and sell, thus ensuring its availability to the community. Australia does not have as strong a track record in commercialising health and medical research as it does in undertaking health and medical research.

A commonly used indicator of innovation and commercialisation is the number of Triadic Patents issued. Triadic Patents are patents are a series of corresponding patents filed at the European Patent Office, the United States Patent and Trademark Office and the Japan Patent Office.

Australia produces 0.6% of the world's Triadic Patents but 2% of scientific articles, indicating that we are less successful than the world average in translating research into the patents that are required for successful commercialisation.[22]

Focusing specifically on Australian health and medical research does not reveal a significant improvement. Australia accounts for only 1.7% of the OECD's patents for health and medical research despite contributing 3% of the OECD's medical research publications.[23] Using a broader measure of biotechnology patents, the OECD reports that for 2005, Australia had 2.2% of the world's share of biotechnology patents.[24]

The following profile of science and innovation in Australia, while not specific to health and medical research is also illustrative, highlighting higher than average scientific articles but relatively poor performance in terms of patents. It also shows lower than average performance in new to market innovations.[25]

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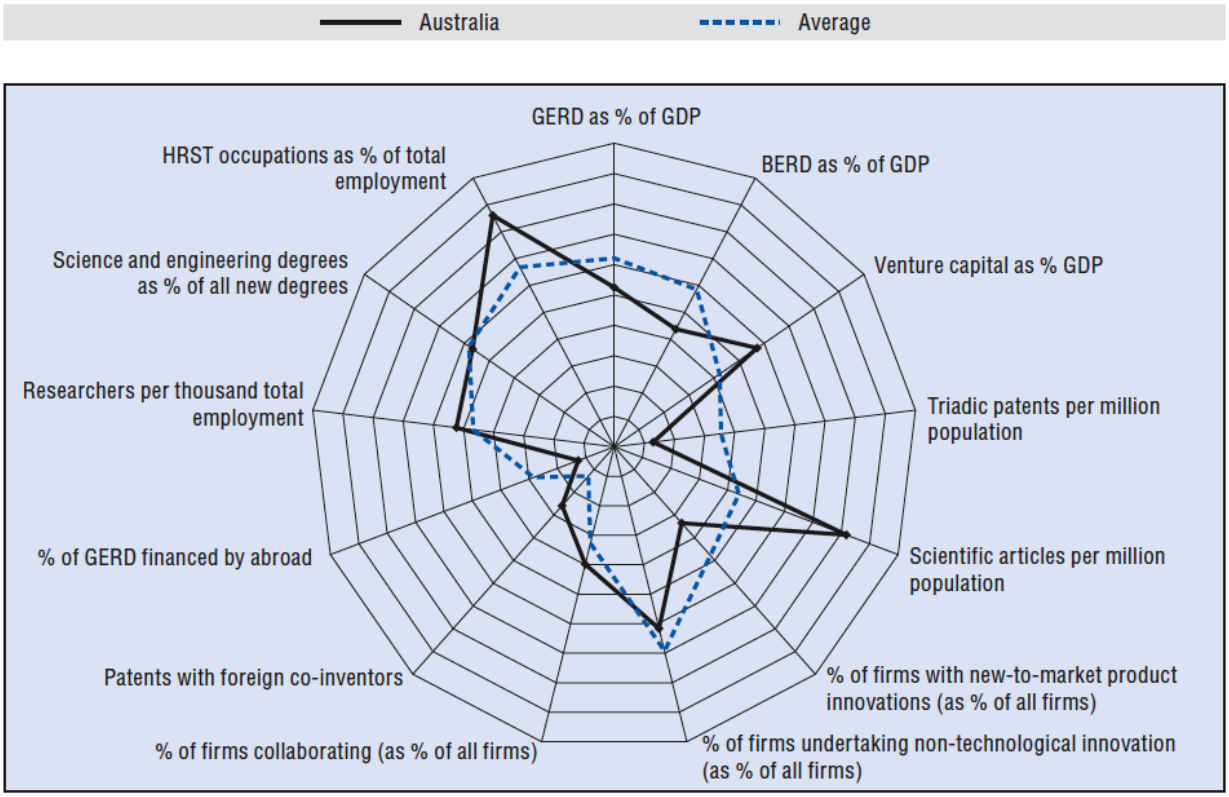
[22] OECD, 2010, *Science Technology and Innovation Outlook 2010*, p.154

[23] Grant, J. 2004, *Sustaining the Virtuous Cycle*, Australian Government, p.24, 2004; OECD 2000- 2009 data on patents by inventor, for category IPCA 61- medical or veterinary science; hygiene

[24] OECD, *2008 Compendium of Patent Statistics*, p.19

[25] OECD, 2010, *Science, Technology and Innovation Outlook 2010*, p.155.

Science and innovation profile of Australia



StatLink http://dx.doi.org/10.1787/888932333063

Legend:

BERD: Business Expenditure on R&D

GDP: Gross Domestic Product

GERD: Gross Expenditure on Research and Development

HRST: Human Resources in Science & Technology

While these statistics are not all directly comparable, they do indicate that there is room to improve the Australian rates of commercialisation of health and medical research.

Another indicator of commercialisation activity is the number of researchers employed by business. The Australian business sector employs relatively fewer researchers than the OECD average - 2.47 researchers per thousand business employees in Australia, compared to the OECD average of 4.81 per thousand. It also employs a far smaller percentage of Australian researchers (29.9%) than the OECD average (65%), with relatively more researchers employed in the public sector.[26]

[26] OECD, 2011, *Science Technology and Industry Scoreboard 2011*, pages 74-75;
OECD, 2008, *Main Science & Technology Indicators, Business Enterprise Researchers as a % of Total, Australia, 2008*

Improving the rates of commercialisation of Australian Health and Medical Research is vital to improving heath outcomes, optimising the return on the public investment in health and research, and developing a successful and significant biotechnology industry.

To achieve this we need to increase the number of researchers engaged in private sector health and medical research, and increase the interchange between public and private sector employment throughout a researcher's career. This includes creating opportunities for researchers who are employed in the public sector to work on a part time or secondment basis with private companies to commercialise research, and vice versa.

Improving the incentives for commercialisation and the support for commercialisation are essential to achieving this goal.

Publication of research findings has traditionally been the key measure for researchers, both in academia and other research institutions. For individuals, publication is key to employment, promotion, research funding and status. For institutions, publication is also key to attracting and retaining funding and to their status.

Pursuing the commercialisation of research outcomes, while valuable to the community, can actually be detrimental to an individual researcher and their institution. Commercialisation takes time and effort, and necessarily reduces the time and other resources available for further research and publication. If comericalisation activity is not valued appropriately, this diversion of resources from publication can adversely affect the careers of individual researchers and the status and success of their institutions.

While publication is a legitimate measure of research, for the health and medical research sector greater weight needs to be given to commercialisation than it currently receives. We need to ensure that commercialisation achievements play a more significant role in determining funding and career advancement. Doing so means changing the measures of success and the culture that surrounds it. It needs to occur at all levels across the health and medical research sector.

Research Australia is aware that some changes have occurred to give greater weighting to commercialisation activity, but more is needed. We also recognise that this is at least in part a cultural change and that as such it will take time. This includes educating the broader research community (including those who sit on funding committees) about the patent and commercialisation process, and its importance to the delivery of health outcomes.

20. Research Australia submits that greater value needs to be attached to commercialisation activity in determining levels of funding, career advancement and status in the health and medical research sector. A range of changes need to be made to funding programs and selection processes to achieve this.

The relatively low numbers of researchers in business in Australia means that the overall understanding of the commercialisation process and appropriate strategies is lower in the Australian research community than many other nations. This in itself can be an impediment to commercialisation of research discoveries.

As part of the Australian Government's *Research Skills for an Innovative Future: A Research Workforce Strategy to cover the Decade to 2020 and Beyond*, the Government has committed to 'work collaboratively with research employer groups, professional societies and research training providers over 2011 and 2012 to identify and map priority research skills needed within individual

disciplines and industry sectors over the short, medium, and long terms.'[27]

There is post-graduate training in the commercialisation of research offered by a number of universities, and until last year the Australian Government funded the Commercialisation Training Scheme to assist successful applicants to meet the costs of undertaking such a course. The funding for this program has been terminated.[28]

21. Research Australia submits that there needs to be an expansion of training programs, mentor programs and secondment opportunities specifically designed to enable early and mid career researchers to participate in commercialisation activity and gain an understanding of the commercialisation process.

Patents can be an important measure of commercialisation, although in itself a patent is not evidence of a product in the market, or of improved health outcomes. A draft outline for the evaluation of the value of patents is provided at Appendix 7.

22. Research Australia submits that the Review should consider the specific measures that currently influence career, funding and status at the individual and institutional levels. Attention needs to be given to how the level of significance that is attached to commercialisation in these measures can be increased to ensure that commercialisation of research outcomes is appropriately recognised and rewarded, and that time spent in the private sector does not detrimentally affect the ability to return to publicly funded research at a later stage.

While an institution may ultimately benefit financially from commercialisation of research undertaken under its programs, it is often the individual researcher or research team which is responsible for pushing the research to the commercialisation stage. Many institutions have arrangements with individual researchers for sharing the financial benefits, such as a percentage of royalties for example. There is evidence that these arrangements are not as widespread or as effective as they could be, and that bad experiences on the part of researchers with receiving expected shares of royalties can act as a disincentive to individuals pursuing commercialisation of research.[29]

In Germany, the law outlines the relationship between an employer and an inventor who is its employee in respect of entitlement to income derived from a patent. This has the benefit of providing certainty to all parties about the arrangement, and provides an incentive for employees to alert employers to potential new inventions as soon as possible and to pursue commercialisation.

23. Research Australia submits that the Review should consider the arrangements that exist in institutions to share the benefits of commercialisation with employees whose research leads to commercialisation and how greater formalisation and standardisation of such arrangements could be achieved in Australia. Possibilities include legislation, industry standards, and clauses in funding agreements addressing how the benefits of any commercialisation are to be distributed.

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[27] Department of Innovation, Industry, Science and Research, *Research Skills for an Innovative Future: A Research Workforce Strategy to cover the Decade to 2020 and Beyond*, p.19, Priority 3.1

[28] www.innovation.gov.au/Research/ResearchBlockGrants/Pages/CommercialisationTrainingScheme.aspx

[29] Yencken & Ralston, Karingal Consultants, March 2005, *Evaluation of incentives for commercialisation of research in Australian universities*, for the Department of Education, Science and Training

In recent decades universities have placed greater emphasis on protecting intellectual property generated through their research activities. Ironically, if these measures are too strong, they can act as a barrier to commercialisation, depriving the institution and the broader community of the benefits.

One solution to this problem is to give the IP away. A number of Australian universities are participating in Easy Access IP as a way of distributing some of their IP without charge. [30]

24. Research Australia submits that the Review should undertake a review of the Intellectual Property policies adopted by Australian and international universities to assess the extent to which Australian IP policies act as a barrier to commercialisation.

There is too little funding available for commercial translation of health and medical research in Australia. The ARC Linkages Program is the largest Government program supporting commercialisation but it explicitly excludes medical and dental research.

Several other programs that have been established over the years to support commercialisation, such as Commercial Ready, START and COMET have ceased. The relatively new replacement body, Commercialisation Australia, has had its funding reduced by $8.9 million over the next two years.[31]

There are some venture capital funds, and other novel approaches. For example, Medical Research Commercialisation Fund (MRCF) is the partnership of 22 Medical Research Institutes, four State governments (Victoria, New South Wales, Queensland and Western Australia) and two superannuation funds (Statewide and Westscheme). Its role is to provide 'dedicated investment funding for the commercialisation of early-stage research discoveries emanating from its member institutes and their affiliated hospitals. The collaborative nature of the MRCF provides a supportive investment process, fostering best practice commercialisation and encouraging innovation'.[32]

Similarly, the Trans Tasman Commercialisation Fund (TTCF) is a $30 million collaboration between five universities, (four from Australia and one from New Zealand), and the superannuation fund Westscheme. It provides capital for investing in early commercial research projects and spin-out companies generated by member universities across all sectors.[33]

There is, therefore, no shortage of models for commercialisation finance. Nonetheless, commercialisation of research remains difficult in Australia.

25. Research Australia submits that the Review should make an assessment of the total value of funding available in Australia for the commercialisation of health and medical research and the barriers to the use of this funding.

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[30] www.easyaccessip.org.uk

[31] Department of Treasury, 2011, *Mid-Year Economic and Fiscal Outlook, Appendix A: Policy Decisions Taken Since the 2011/12 Budget: Expense Measures,* www.budget.gov.au/2011-12

[32] www.mrcf.com.au

[33] http://ttcf.com.au

Other translation of research outcomes into practice

Commercialisation is not the only means of achieving improved health outcomes from research. In health and medical research, some discoveries lead to changes in practice rather than a new medicine or technology that can be patented and/or sold. For example, the significant reduction in the incidence of Sudden Infant Death Syndrome (SIDS) is attributable to research findings that linked the sleeping position of infants to the incidence of SIDS. Communicating the findings has led to a change in practice by parents that has reduced the incidence of SIDS. Other examples of improved health outcomes achieved through behavioral change in the practice include campaigns to reduce smoking and practice safe sex.

Health outcomes can also be improved by changing clinical practice. Translational research in this area is a two way process. In one direction it aims to ensure that health research discoveries lead to changes in clinical practice in hospitals, nursing homes and GP practices that improve health outcomes. This approach also has the potential to engage clinicians in research through support for clinical trials and other research that is aimed at identifying changes in practice and therapies.

In the other direction it can ensure that issues in clinical practice identified by health practitioners working with patients can be subjected to scientific investigation and research in a way that leads to evidence based solutions and improvements.

An active research sector that has links to and is integrated with the health services sector has the capacity to drive a culture of continuous improvement in health service delivery. A culture of research prompts the question: 'is there a better way?' The understanding and application of research disciplines provides a mechanism for testing alternatives and assessing the benefits in change.

Another form of translational research looks at the operation of the whole or a part of the health system and seeks to improve outcomes and efficiency through changes to the manner in which health services are delivered.

The primary program of the Australian Government in this type of health research is the Primary Health Care Research, Evaluation and Development Strategy. Under this Strategy, the Government has funded the Australian Primary Health Care Research Institute (APHCRI) and the Primary Health Care Research and Information Service (PHC RIS).

APHCRI is based at Australian National University. Its mission and goals are provided below.

Mission

'Provide national leadership in improving the quality and effectiveness of primary health care through the conduct of high quality priority-driven research and the support and promotion of best practice. It focuses on important sectoral questions relating to the organisation, financing, delivery and performance of primary health care, including its interaction with public health and the secondary and tertiary health care sectors.

Goals

- Strengthen the knowledge base of primary health care by conducting and supporting research.
- Facilitate the uptake of research evidence in primary health care policy and practice.

- Enhance research capacity in primary health care through strategic partnerships with other relevant national and international groups.[34]

Since 2010, the bulk of APCRI's program funding is used to 'administer centres of research excellence (CREs) that will produce relevant research and continue building the capacity of the primary health care research sector.'

The PHC RIS is based at Flinders University. Its website 'provides a gateway to general practice and primary health care research resources for practitioners, researchers, policy makers, primary health care organisations and consumers.' Its mission and goals are provided below.

Mission

PHC RIS works in partnership with our stakeholders in the primary health care community to generate, manage and share quality information and knowledge that informs and influences policy and performance in primary health care.

Goals

PHC RIS collaborates with stakeholders to:

- provide comprehensive information and evidence about Australian primary health care
- facilitate the exchange of information and knowledge
- improve accessibility to quality data, information and evidence
- expand PHC RIS opportunities in and understanding of knowledge exchange and networking[35]

There are also other models for engaging health practitioners in research. These include the Victorian Primary Care Practice Based Research network (refer Appendix 8) and the UK National Institute for Health Research's Health Technology Assessment Program (refer Appendix 9). The latter uses an approach of identifying a research need in relation to clinical practice and then seeking health practitioners to participate in the research. An example of one such research exercise is provided at Appendix 10.

One advantage of these programs would appear to be the greater opportunity they provide for health practitioners in the field to engage with health and medical researchers in research that is relevant to the practitioners.

26. Research Australia submits that the Review should consult the sector on mechanisms for increasing the engagement of health practitioners in the field with health and medical researchers. Once again, consideration needs to be given to international models and approaches, and the extent to which these could be adapted to the Australian environment. It is expected that greater funding will need to be allocated to the effective translation of research.

There are many diseases where, as the result of a significant research effort, we know what is required to better manage the disease and to restrict its impact on individuals and the broader community. Type 2 diabetes is one such example, where significant benefits could be achieved by improving the use of existing management programs that have been developed as the result of

[34] http://aphcri.anu.edu.au/about-us
[35] www.phcris.org.au/aboutus/index.php

extensive research. This involves greater education and support for patients, their families, allied health providers and clinicians. Making the information available, and assisting its translation into changed practice is not simple, but the rewards can be significant.

The eHealth reforms include the creation of a range of electronic forms and documents, including events summaries and discharge summaries. There is scope to build on the eHealth software to integrate a range of case management tools, such as diabetes management plans, which would include aspects of the existing diabetes management guidelines. These could prompt the GP or practice nurse on tests to undertake referrals to other specialists and health professionals, scheduling of future reviews and investigations, and future appointments for monitoring. (In respect of diabetes this could be an extension of the existing Pilot of Diabetes Coordinated Care launched last year.)

27. Research Australia submits that the Australian Government should fund research on how to build on the eHealth reforms to develop case management tools which can assist in translating guidelines for the treatment of various diseases and conditions into improved practice.

Conclusion

The health and medical research sector recognises that while there is room for improvement in the operation, funding and management of the sector, although there are differences of opinion on what form these improvements should take. The sector welcomes the Review and is keen to contribute to the consultations on what form the sector should take in the future.

The key themes of this submission are:

- ensuring health and medical research leads to better health outcomes
- continued support for world class research
- the importance of collaboration in modern health and medical research
- a single clear, comprehensive and coordinated National Health and Medical Review Strategy
- the importance of promoting philanthropy as a partner in funding research
- better support for early and mid career researchers
- reducing red tape.

Research Australia believes that paying attention to these themes will ensure that the Review is able to establish a direction for health and medical research which will serve Australia well over the next decade and beyond.

Research Australia looks forward to the opportunity to engage further and in more detail with the Review during the course of its consultations.

Summary of Research Australia's recommendations

Research Australia makes the following recommendations.

How might health and medical research be best managed and funded in Australia? (Terms of Reference 2, 3 and 7)

1. That the Review consult on the current barriers to collaboration and other actions that could be taken to facilitate research collaboration domestically and internationally.

2. The Review consider both the effectiveness of existing government programs to encourage and support domestic and international collaboration, and whether these programs are receiving an appropriate level of funding.

3.. The Review should seek to determine the extent to which the Government has implemented the recommendations it accepted from the House of Representatives Standing Committee on Industry, Science and Innovation report on the Inquiry into Australia's International Research Collaboration. The Review should also consider whether there is a case for arguing that some or all of the recommendations that were not accepted at the time should now be adopted in respect of health and medical research.

4. The Review examine how philanthropic funding currently interacts with funding from other sources, and what measures can be taken to increase the effectiveness of philanthropic funding within the medical health and research sector. This includes ensuring that recipients of philanthropic funding have sufficient resources for infrastructure and other indirect costs.

5. Particular consideration needs to be given to the treatment of philanthropic funding by Government for the purposes of determining the funding of overheads and infrastructure costs to universities and MRIs. In particular, other forms of research income, such as philanthropic grants and contracted research, should be included in the base amount for calculation of the SRE and IRIIS schemes, and other components of the RGB program in addition to the JRE scheme.

6. The Australian Government has a role in encouraging greater philanthropic funding by individuals and developing a greater culture of philanthropy in Australia. Measures the Australian Government can take include funding more research in collaboration with fundraising bodies where the Australian Government matches the funds raised from the public on a dollar by dollar basis up to a fixed total budget cap (providing an incentive for donors to contribute), and by re-examining measures that can be taken through the tax system to encourage donations, including measures to allow tax deductions prior to death for donations made in bequests.

7. The Review should undertake a survey the current funding programs in place to support research positions in health and medical research. The survey should ascertain the amount of funding provided, the size of individual grants, the career stage to which the grants are directed, and the selection criteria.

8. The Review ascertain the actual cost of funding different types of research position at different levels of seniority and with different employers. This should include research by honours students, and give specific consideration to costs associated with undertaking research in rural and regional areas.

9. The Review undertake an international comparison of approaches to funding research positions.

10. The Review consult with the main grant making bodies (in particular the ARC and NHMRC) on ways to harmonise and streamline the grant applications processes and systems. In particular, this should include a review of the types of information collected as part of the application process, and its purpose.

11. An international comparison of grant application processes and methodologies should be undertaken to identify opportunities to streamline and improve Australian grant application processes.

12. The Review develop proposals to rationalise and harmonise the system of ethics committees and approvals in Australia.

13. The Review should call for examples of unnecessary red tape to be provided to the Review. While it may not have the time or capacity to address all the examples provided, such an exercise could result in a useful database of such cases and enable them to be dealt with by the various agencies involved.

What are the health and medical research strategic directions and priorities and how might we meet them? (Terms of Reference 5, 12 and 13)

14. The Australian Government needs to take a more strategic and targeted approach to the funding of health research in Australia. Determination of the health research priorities needs to be evidence based and cognisant of both research occurring elsewhere in the world and the particular expertise in Australia.

This approach needs to provide for a portion of health and medical research to be funded without taking into account the health research priorities. This portion should instead be assessed against other criteria such as the potential of the research to increase the field of knowledge and its ability to address global health issues.

15. The quality of research proposals must remain an overriding assessment criterion for all categories of funding.

16. The Review should develop the framework for a National Health and Medical Research Strategy which outlines the roles and responsibilities of the Australian, State and Territory Governments and their agencies for health and medical research, and the role of the health providers, universities, research institutes, charitable foundations and the private sector. The Strategy needs to include the translation of research into improved health outcomes.

The Review should recommend the formal completion and adoption of the National Health and Medical Research Strategy by the Australian, State and Territory Governments.

17. As part of a National Health and Medical Research Strategy, consideration needs to given to whether funding for targeted research and for other health and medical research should be administered under separate programs and/or by different bodies. In this regard, the NHMRC, which sits under the Department of Health and Ageing, would appear to be the natural home of funding for targeted research and translation into improved health outcomes, while the ARC could retain responsibility for funding less targeted health and medical research. Such an approach would better delineate the roles of the two funding bodies in respect of health and medical research.

18. The Review consider the role of Cancer Australia and the Cancer Research Leadership Forum

in facilitating a coordinated approach to cancer research, and whether similar bodies should be developed for other health research priority areas as part of a broader National Strategy for Health and Medical Research. This could include an assessment of the value of developing national plans for research in each area, similar to the proposed Cancer Research plan. Such an approach has the potential to give greater emphasis to, and accountability for, translation of research into improved health outcomes.

19. The Review examine international models for the funding, administration and coordination of health and medical research.

How can we optimise translation of health and medical research into better health and wellbeing? (Terms of Reference 4, 8, 9, 10 and 11)

20. Greater value needs to be attached to commercialisation activity in determining levels of funding, career advancement and status in the health and medical research sector. A range of changes need to be made to funding programs and selection processes to achieve this.

21. In partnership with the sector, expand government support for training programs, mentor programs and secondment opportunities specifically designed to enable early and mid career researchers to participate in commercialisation activity and gain an understanding of the commercialisation process.

22. The Review consider the specific measures that currently influence career, funding and status at the individual and institutional levels. Attention needs to be given to how the level of significance that is attached to commercialisation in these measures can be increased to ensure that commercialisation of research outcomes is appropriately recognised and rewarded, and that time spent in the private sector does not detrimentally affect the ability to return to publicly funded research at a later stage.

23. The Review consider the arrangements that exist in institutions to share the benefits of commercialisation with employees whose research leads to commercialisation and how greater formalisation and standardisation of such arrangements could be achieved in Australia. Possibilities include legislation, industry standards, and clauses in funding agreements addressing how the benefits of any commercialisation are to be distributed.

24. The Review undertake a review of the Intellectual Property policies adopted by Australian and international universities to assess the extent to which Australian IP policies act as a barrier to commercialisation.

25. The Review make an assessment of the total value of funding available in Australia for the commercialisation of health and medical research and the barriers to the use of this funding.

26. The Review consult the sector on mechanisms for increasing the engagement of health practitioners in the field with health and medical researchers. Once again, consideration needs to be given to international models and approaches, and the extent to which these could be adapted to the Australian environment. It is expected that greater funding will need to be allocated to the effective translation of research.

27. The Australian Government should fund research on how to build on the eHealth reforms to develop case management tools which assist in translating guidelines for the treatment of various diseases and conditions into improved practice.

List of Appendices

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