REVIEW TO STRENGTHEN INDEPENDENT MEDICAL RESEARCH INSTITUTES

Response to the Discussion Paper

February 2015

RESEARCH AUSTRALIA

AN ALLIANCE FOR DISCOVERIES IN HEALTH

About Research Australia

Research Australia is an alliance of 160 members and supporters advocating for health and medical research in Australia. 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. It reflects the views of its diverse membership and represents the interests of the broader community.

Research Australia's mission is to make health and medical research a higher priority for the nation. We have four goals that support this mission:

- 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.

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RESPONSE TO THE DISCUSSION PAPER, FEBRUARY 2015

INTRODUCTION

Research Australia is pleased to have the opportunity to respond to the Discussion Paper.

Australians value the contribution the Commonwealth makes to funding H&MR. The community's ongoing support depends on ensuring we continue to apply the research outcomes in ways that benefit us all, and Research Australia supports the Government's focus on ensuring that the outputs of research are utilised through the develop of new products and services ideas and the translation of non-commercial research into better and more efficient healthcare. This priority is reflected in the Review's preliminary finding that iMRIs can play a greater role in the translation of research through commercial and non-commercial pathways.

Research Australia acknowledges the Terms of Reference the Review has been given, in particular to make recommendations for improved efficiency of iMRIs and improved collaboration by iMRIs. Despite the focus on iMRIs' efficiency, **no evidence has been provided that iMRIs are less efficient than other research organisations.** While the Review focuses specifically on iMRIs many of its findings about the scope for greater efficiency, better collaboration and translation are true of the research and health sectors more broadly. There are certainly some initiatives that can be taken by, and in respect of, iMRIs, but the most effective reforms will require action across the whole sector. In particular, improving translation cannot be achieved by MRIs alone but requires a 'whole of sectors' approach to research and healthcare.

Research Australia acknowledges that there is significant scope for greater effectiveness and efficiency and to diversify funding sources. Our submission has outlined a number of measures that would support this process, while also identifying some barriers and constraints.

LIST OF RECOMMENDATIONS

Funding

Research Australia urges the Review to consider measures to promote the more effective and equitable funding of indirect research costs. As a first step, Research Australia proposes that additional funding be provided to the NHMRC to raise the level of infrastructure funding provided to MRIs through IRIISS from 20% to 30% of the value of competitively awarded grants. Based on previous years' expenditure, this measure would cost approximately $20 million in 2015/16.

Research Australia submits that the Review should consider Commonwealth Government funding programs for iMRIs that would provide longer term and more stable funding and support the more effective and efficient operation of iMRIs.

Reporting

Research Australia submits that the Review Panel should look to utilise the ACNC's 'report once- use often' reporting framework, and should supplement this with further requirements for information only where it provides additional information that is useful to governments, funding bodies and the public.

Diversification of Revenue Sources

Research Australia encourages the Panel to consider support for a single large philanthropic fund to support H&MR as an alternative to increased fundraising efforts by individual iMRIs.

Research Australia submits that the Review Panel should consider the benefits of extending government funding to the indirect costs of philanthropically funded research as a means of encouraging additional philanthropic support for iMRIs.

Efficiency

Research Australia submits that the Department of Industry and Science should collate a register of publicly funded research facilities and equipment and make it available to the research community. Subsequent funding of facilities and equipment should favour consortia and require access be made available to other researchers when and where practicable.

Research Australia submits that the Government should create a pool of funds to support publicly funded research organisations that are proposing to share back house administration. The funds would be available on an application basis subject to a business case with clear evidence of the long term savings to the organisations and a clear project plan.

Collaboration

Research Australia submits that funding bodies like the NHMRC are in the relatively unique position of having a 'helicopter view' of what publicly funded research is being undertaken and what is being proposed for funding. In addition to creating funding programs that encourage collaboration, the funding bodies are in a position to play a more active role. They could, for example, counter two 'competing' funding proposals with an invitation for the parties to submit a joint collaborative application.

Research Australia recommends:

- **A comprehensive review of the barriers to collaboration at institutional levels and between the public, private and higher education sectors, including an examination of global examples of 'collaborative best practice'**
- **Programs that encourage collaboration between academic researchers and industry**
- **The provision of research grants to collaborative partnerships or ventures between research organisations, and between research organisations and industry**
- **Greater recognition of the value of international collaboration and additional support for research which attracts overseas funding**
- **Removing barriers to collaboration that exist in the funding programs and recognition/reward systems of academia**
- **Academic institutions recognising relevant commercial achievements and supporting academic career pathways in and through the private sector**
- **Investment in new modes of research that merge life, physical and engineering sciences**

Translation

Research Australia submits the following measures to support non- commercial translation:

- **The creation of more roles in health services across medical, nursing and allied health professions that have a dedicated time and resource allocation to research (i.e. clinician researcher roles)**
- **Routine inclusion of training in research methods and experimental design in the training of health professionals**
- **Activity based funding include time allocated to health and medical research, or the creation of activity based funding for research activity itself, with funding for research activities undertaken by health care providers to be considered by the Independent Health Pricing Authority,**
- **The National Health Performance Authority include performance measures for research as recognition that research activity is a valued outcome of health services.**
- **Career structures that support moving between research and health delivery roles, and the provision of support to health care practitioners who are participating in research projects on a short-term temporary basis**
- **Provision of infrastructure within our health system to support research, including better support for investigator led and commercial clinical trials**
- **Programs to fund research involvement by primary care providers.**

Research Australia submits the following measures to support non- commercial translation:

- **Programs and incentives to promote greater collaboration of the private sector with academic researchers**
- **Programs to promote the secondment and placement of publicly funded researchers in private sector institutions to facilitate the transfer of commercialisation skills**

- **Ensuring intellectual property laws appropriately support and encourage investment in R&D**
- **Continuation and expansion of the Australian Government's dedicated support for commercialisation, including early, mid and late stage commercialisation activities**
- **Researcher career paths that move between universities, medical research institutes and industry need to be encouraged and rewarded**
- **Greater exposure of students to the opportunities for careers in the pharmaceutical, biotechnology and biomedical device industries.**

EFFICIENCY AND INDIRECT COSTS

Chapter 1 of the Discussion Paper makes some observations about iMRIs. Research Australia provides the following comments.

Research Output per $100,000 of NHMRC Funding

The Discussion Paper refers to an analysis by the NHMRC of the research outputs of universities and MRIs, which finds that they are broadly similar, and that universities produce slightly fewer publications per $100,000 of NHMRC funding. It is not clear whether the Review Panel believes that this 'slight difference' is of significance. While from the point of view of the NHMRC this may be important, it is not by itself an indication of whether iMRIs are more or less efficient in their research activities, as it does not take account of the funding from other resources that has been committed to the research that led to these publications. In particular it presumably does not take account of the funding provided by the Department of Education to universities to cover the indirect costs of research. (It is unclear whether the IRISS funding provided to iMRIs has been included in the NHMRC funding calculation.)

Indirect research costs

The Discussion paper states 'Recent reports have found that infrastructure costs for iMRIs in particular are high'. (The expression 'infrastructure costs' and 'indirect costs' are used interchangeably in the Discussion paper.) The implication is that the indirect research costs of iMRIs are higher than those of other organisations, presumably universities. The Discussion paper cites a 2009 report by the Allen Consulting Group on the indirect costs associated with university research funded through Australian Competitive Grants.[1] This report is based on a survey of universities undertaken by Allen Consulting Group for the Australian Government. It found that, across all research areas, university's indirect costs averaged 94.9% of Australian Competitive Grant Funding (page 52). It also reported significant variation in costs between universities and noted that this reflected international experience (page 56). It suggested that reasons for higher costs could include the need to maintain scientific facilities (page 57). The report makes no reference to the indirect costs of medical research institutes.

The Review Panel subsequently referred Research Australia to a 2010 report by L.E.K. Consulting which was commissioned by the Association of Australian Medical Research Institutes.[2] This report focused on grants registered on the Australian Competitive Grant Register. It concluded that in 2008, indirect costs were approximately 60% of the value of these grants.

Even allowing for differences in methodology between the two, these reports suggest that MRIs' indirect costs associated with competitive grants are lower than those of universities. They certainly do not support the implication that MRI's infrastructure costs are particularly high (when compared to universities).

The report also notes that '…iMRIs have identified the indirect costs of research as… a barrier to collaboration.' The Group of Eight universities has also identified the arrangements for the funding of indirect research costs as an important issue. In its submission to the Strategic Review of Health and Medical Research, the Group of Eight stated 'The present arrangements for supporting research infrastructure costs are unsatisfactory. A simple transparent funding basis is needed, which provides equitable support regardless of where the research is undertaken, would be preferable to the present arrangements, and

[1] Allen Consulting Group, The indirect costs associated with university research funded through Australian Competitive Grants, July 2009.
[2] L.E.K. Consulting Costing Medical Research to Reform Health Outcomes: the case for indirect cost funding for Australian accredited MRIs, January 2010

would remove incentives for artificial arrangements and "gaming" the system.[3] The Review's Panel recommended that all eligible H&MR bodies receive at least a 60% indirect cost loading for national competitive grants.[4]

The Independent Research Institute Infrastructure Support Scheme (IRIISS) was introduced by the NHMRC in 2005. It assists Independent Medical Research Institutes to meet overhead funding costs and is paid at the rate of 20% of competitively awarded research funds in the year.

Research Australia supports the recommendation of the McKeon Review and urges the Review to consider measures to promote the more effective and equitable funding of indirect research costs. As a first step, Research Australia proposes that additional funding be provided to the NHMRC to raise the level of infrastructure funding provided to MRIs through IRIISS from 20% to 30% of the value of competitively awarded grants. Based on previous years' expenditure, this measure would cost approximately $20 million in 2015/16.

Financial Analysis of iMRIs

The Discussion paper provides a breakdown of the revenue sources of 31 iMRIs that responded to the Review's request to provide financial information. The 31 iMRIs are reported to have turnover in excess of $1billion per annum, of which 43% (approximately $430 million) is Commonwealth Government funding, of which 20% ($86 million) is related to non-recurring capital grants.

In 2013, iMRIs that were administering institutions received approximately $258 million in NHMRC grant funding, including IRIISS funding. (It is not known how much of this was received by the 31 iMRIs that provided information.) While it is not possible to be definitive, this suggests that Commonwealth Government funding from sources other than direct NHMRC funding are important to iMRIs and need to be considered in any consideration of how, and for what purposes, the Commonwealth Government provides funding to iMRIs. (It is possible that some of this funding is competitive grant funding awarded to universities which is expended in iMRIs on joint research activities.)

As the Discussion paper notes on page 10, international governments are key funders of health and medical research globally. This is chiefly because health and medical research is a public good, and the outcomes of much health and medical research is not amenable to commercialisation. In public opinion polling by Research Australia over the last decade increased funding for health and medical research have consistently rated as high priorities for Commonwealth Government funding. In the polling conducted in June 2014, 76% of respondents rated increased funding for health and medical research by the Australian Government as 'Important' to 'Extremely Important'.[5]

More stable funding

The Discussion Paper focuses on the funding received by iMRIs and its susceptibility to variation on a yearly basis. This is put forward as a reason for considering alternative funding sources for iMRIs, but it is also grounds for considering how to make Government funding more stable. Longer duration grants are a step in the right direction but are not the whole solution. While reference is made throughout the Discussion Paper to government funding of iMRIs, most funding is awarded to individual researchers on a contract basis and for a fixed term. This funding structure is inherently unstable. While iMRIs should look to other funding

[3] Group of Eight, 23 April 2012 Submission No. 301, pages 10-11, http://www.mckeonreview.org.au/10231/Submissions/
[4] Australian Government, *Report of the Strategic Review of Health and Medical Research*, 2013, Recommendation 10, p.155
[5] Research Australia, *Australia Speaks! 2014 Opinion Poll- views of 1000 Australians*, http://researchaustralia.org/publications/public-opinion-polls.html

sources, serious consideration needs to be given to whether the current mix of funding programs for H&MR outside the university sector, with a strong emphasis on individual research contracts, is an appropriate model.

Research Australia submits that the Review should consider Commonwealth Government funding programs for iMRIs that would provide longer term and more stable funding and support the more effective and efficient operation of iMRIs.

ACCOUNTABILITY AND VALUE FOR PUBLIC MONEY

Research Australia supports the Review Panel's views that iMRIs should be accountable for their public funding. Increasingly governments around the world are relying on not for profit organisations to delivers services to their citizens, and funding them to do so. This trend has heightened the need for not for profit organisations to be more accountable and transparent, and iMRIs are no exception to this.

While we note the reference to the reporting systems implemented by the Victorian and NSW governments, Research Australia would like to bring to the Panel's attention the wok that has been undertaken over several years by the Commonwealth Government to reform and streamline the regulation of the not for profit sector, and in particular charities. (iMRI's are all charities and subject to regulation by the Australian Charities and Not for Profits Commission.) A key element of these reforms has related to charities' financial and other reporting obligations to Commonwealth, State and Territory governments, which have been identified as a significant compliance burden on the sector and a contributor to red tape. The ACNC has worked effectively to implement a 'report once, use often' approach to financial and other reporting and to standardise reporting requirements across Commonwealth, State and Territory government agencies.

Research Australia submits that the Review Panel should look to utilise the ACNC's 'report once- use often' reporting framework, and should supplement this with further requirements for information only where it provides additional information that is useful to governments, funding bodies and the public.

INCREASED PHILANTHROPIC SUPPORT

Research Australia agrees with the Review Panel that philanthropy is an important source of support for health and medical research. Research Australia has worked over several years to increase philanthropic support for health and medical research and has undertaken a number of activities to increase the mutual understanding between philanthropists and researchers.

Philanthropy is most effective where it seeks to complement rather than replace government funding, and as the Discussion Paper notes, it can be used to leverage funding. The Discussion Paper also acknowledges some of the risks associated with philanthropy, including donor fatigue, the need to invest in fundraising expertise (which may not work), and intense competition with other MRIs and health related causes as well as more generally with other causes.

All of these points are sobering and help demonstrate why philanthropy is not a panacea for a possible future decline in Government funding. There are however some measures that can be taken to support the development of philanthropy for health and medical research and for iMRIs in particular.

Centralised philanthropic fundraising

Individual iMRIs undertaking fundraising is expensive and inefficient, and further competition with other iMRIs for the same philanthropic dollar only makes it more so. There is scope to create a single large philanthropic foundation for health and medical research which could be used to increase the total value of

philanthropic funding for health and medical research while simultaneously reducing the cost of doing so. Such a fund would not replace the existing fundraising efforts of individual MRIs but would complement and supplement them while using its resources to expand the total level of philanthropic funding. Over time, it could allow MRI's to reduce their own expenditure on fundraising. Research Australia has worked with representatives from across the health and medical research and philanthropic sectors to develop a model for this fund. Further information is provided as an Attachment.

Research Australia encourages the Panel to consider support for a single large philanthropic fund to support H&MR as an alternative to increased fundraising efforts by individual iMRIs.

Indirect costs of philanthropically funded research

One of the issues associated with philanthropic funding for research is that it can be particularly difficult to secure funding for the indirect costs. While people might be happy to donate to fund a researcher's salary or buy lab equipment, few want to donate to pay the electricity bill. One way to support the better use of philanthropic funding and to encourage giving is for government funding of indirect research costs to be extended to philanthropically funded research projects. This level of support can be very attractive to donors, who see that their donations are being spent on the core research activities while at the same time leveraging government funding to support the iMRI's work. A cap on the total amount of funding and identification of priority areas could be used to restrict the cost and to ensure the Commonwealth funding was provided in accordance with strategic priorities.

Research Australia submits that the Review Panel should consider the benefits of extending government funding to the indirect costs of philanthropically funded research as a means of encouraging additional philanthropic support for iMRIs.

COMMERCIAL INCOME

The Discussion Paper identifies the private sector as a major source of funding for iMRIs. Research Australia acknowledges that there is scope to increase collaboration between iMRIs and the private sector, and acknowledges the initiatives the Government is taking to increase the level of commercialisation of publicly funded research. Over time this has the potential to generate significant additional revenue for Australia and to transform our economy. In the short term however, Research Australia believes that the opportunity to greatly increase the commercial income of iMRIs is limited.

The Discussion paper notes that 'between 2000/01 and 2004/05, business investment in health and medical research grew at an even greater rate than the rate of government funding.' More recently this trend has not continued. Business expenditure in the Socioeconomic Objective (SEO) categories of Human Pharmaceutical Products and Health (a proxy for H&MR) for the four years to 2010-11 are shown in the table below. Overall growth is flat, and business R&D on Human Pharmaceutical Products actually declined. (Subsequent ABS reports on Business R&D expenditure do not provide data at the same level of SEO sub-category to enable this table to be further updated.) . Furthermore, there are relatively few research intensive health companies in Australia and a very small number that are of a large scale.

Business R&D Expenditure, by SEO, selected sub-categories[6]

	2007–08	2008–09	2009–10	2010–11
Human Pharmaceutical Products	707,072	804,100	736,830	696,138
Health	*402,174*	*436,844*	*448,564*	*523,597*
Total Business H&MR	***1,109,246***	***1,240,944***	***1,185,394***	***1,219,735***

Figure 1 in the Discussion paper indicates that approximately $100 million of MRI turnover is derived from 'Other Commercial/Grant funding'. As indicated in the table above, in 2010/11, total business expenditure on health and medical research was $1.2 billion, suggesting that iMRIs are currently capturing a little less than 10% of this figure. While there is scope for iMRIs to capture more it needs to be recognised that not all of this R&D expenditure is spent on research that can be conducted in MRIs. For example, in 2010-11, $696 million of this R&D expenditure was in the sub-category of 'Human Pharmaceutical Products.' A significant portion of this will have been spent on commercial product development, clinical trials and other activities that cannot be conducted in an iMRI. Business R&D expenditure in health and medical research in Australia is significantly less than the amounts invested by the Australian Government. Even a doubling of iMRI's commercial income to $200 million per annum would only have a mild impact on the percentage of total income derived from the Commonwealth Government.

The discussion paper proposes greater collaboration with business as a means of diversifying income and balancing the inherent instability of Government funding. Business investment is also of a fixed term contractual nature and is also subject to significant variation over the business cycle. Like philanthropy it is no panacea for a possible future decline in Government funding. It also tends to complement (and build on) government funded research rather than replace it. The USA, which has relatively greater levels of both government funded public research and commercial investment in health and medical research is an example of this complementarity. Reduced Government funding for H&MR has the real potential over time to reduce commercial health R&D conducted in Australia.

Like philanthropy, securing commercial revenue streams require specific non- research related expertise and an investment in non- research activities such as protecting IP, contract negotiation and product development. Even with such an investment success is not guaranteed, and in the short- term at least this investment will reduce overall efficiency in terms of total resources committed to research activities.

EFFICIENCY

Efficient use of facilities and equipment

Research Australia agrees that there is scope to make better use of research facilities and equipment, including sharing facilities and commercial leasing/hire arrangements. The first stage is understanding what publicly funded facilities and equipment exist and the extent to which they are under-utilised. Such an exercise needs to extend beyond medical research institutes to all publicly funded research organisations in all scientific disciplines. The scale of the exercise suggests that it would be best undertaken by the Department of Industry and Science. The second stage would be to establish a searchable database/register

[6] Australian Bureau of Statistics, 81040DO008_201011 Research and Experimental Development, Businesses, Australia, 2010-11, Table 3

and the development of protocols/guidelines for negotiating access to existing infrastructure. Future purchases should favour consortia of organisation to encourage the efficient use and sharing of facilities and equipment, and funding for such equipment and facilities should require that it be made available to other researchers.

Research Australia submits that the Department of Industry and Science should collate a register of publicly funded research facilities and equipment and make it available to the research community. Subsequent funding of facilities and equipment should favour consortia and require access be made available to other researchers when and where practicable.

Sharing of back-of -house administration

Research Australia agrees that there is scope for greater efficiency through better sharing of back of house administration. Identifying appropriate opportunities, evaluating the costs and benefits, reaching agreement with partners on timing, and sharing of costs are all tasks that need to be undertaken on a case by case basis and require significant resources and skills if they are to be undertaken successfully.

While the long term benefits can be significant, the up front investment of time and resources that is required can be a significant barrier, particularly for small organisations with limited resources.

Research Australia submits that the Government should create a pool of funds to support publicly funded research organisations that are proposing to share back house administration. The funds would be available on an application basis subject to a business case with clear evidence of the long term savings to the organisations and a clear project plan.

Scientific Efficiency

Research Australia agrees with the statement in the Discussion Paper that 'It is essential that the research that is supported by the Commonwealth Government makes the most efficient use of the finite resources available.'

The Discussion Paper goes on to elaborate on this point:

> 'Building upon financial efficiencies of individual research organisations, it is critical that research is conducted in the most efficient and effective way possible. This requires ensuring that research is being conducted by the best team with the most appropriate resourcing to address the health and medical research needs of Australia.
>
> The Panel recognises that it is unsustainable to support multiple separate groups undertaking very similar research in a competitive manner. Australia's public and private investment in medical research will be maximised when duplication is reduced, collaboration is promoted and the impact of the research is fully realised. At the level of individual iMRIs, ongoing monitoring of productivity will assist in measuring the progress of the sector.'

The point that is made here has application beyond iMRIs to universities and other publicly funded research organisations. And while it is reasonable to expect that individual researchers and organisations will be cognisant of others working in their field and seek to collaborate with them, there is also a key role here for the funding bodies.

Research Australia submits that funding bodies like the NHMRC are in the relatively unique position of having a 'helicopter view' of what publicly funded research is being

undertaken and what is being proposed for funding. In addition to creating funding programs that encourage collaboration, the funding bodies are in a position to play a more active role. They could, for example, counter two 'competing' funding proposals with an invitation for the parties to submit a joint collaborative application.

COLLABORATION

Research Australia agrees with the Panel's view that there is scope to strengthen collaboration across the H&MR sector and the health sector, including with the private sector. Once again, as many of the potential collaborators are organisations other than iMRIs, the scope of the measures needs to go beyond iMRIs.

There are a number of barriers to collaboration between publicly funded researchers over which the Commonwealth Government has control:

- The distribution and allocation of funding for the indirect costs of research between collaborators, particularly between universities and iMRIs (please refer to the quote from the Group of Eight's submission to the Strategic Review of Health and medical Research above)
- The treatment of research collaborations for the purposes of ERA
- The eligibility of adjunct and associate appointments when applying for ARC grants.

Research Australia recommends:

- **A comprehensive review of the barriers to collaboration at institutional levels and between the public, private and higher education sectors, including an examination of global examples of 'collaborative best practice'**
- **Programs that encourage collaboration between academic researchers and industry**
- **The provision of research grants to collaborative partnerships or ventures between research organisations, and between research organisations and industry**
- **Greater recognition of the value of international collaboration and additional support for research which attracts overseas funding**
- **Removing barriers to collaboration that exist in the funding programs and recognition/reward systems of academia**
- **Academic institutions recognising relevant commercial achievements and supporting academic career pathways in and through the private sector**
- **Investment in new modes of research that merge life, physical and engineering sciences**

MERGER, AFFILIATION AND INTEGRATION

Going beyond research collaboration to a merger, affiliation or integration between two or more organisations can be an effective means of achieving both financial and scientific efficiency, and Research Australia recognises that there is scope in the Australian H&MR sector for this activity.

Broadly speaking, to be successful, any such activity needs to provide:

- benefits for all parties

- successfully align organisational values and cultures; and
- deliver integration of systems and processes.

The Discussion paper has provided a long list of considerations that must be taken into account, and it needs to be recognised that in the short term any such exercise is likely to be disruptive and to divert resources and energy from research activities. There is also the very real risk that if it is implemented poorly it will actually reduce productivity and efficiency. (There are many examples in private sector of poorly conceived or managed mergers where the promised benefits never materialised.)

For these reasons (as well as the normal resistance to change inherent in most organisations) many organisations are reluctant to undertake these exercises. Financial and other assistance can be helpful, including providing the sector with case studies of successful mergers, affiliations and integration and providing project support and other expert resources. In the case of Academic Health Science Centres, the Strategic Review of Health and Medical Research recommended that funding of $10 million per year be provided for five years to support their creation.[7] In 2013, The Victorian Government committed funding to support the creation of two Academic Health Science Centres.

TRANSLATION OF RESEARCH TO OUTCOMES

Research Australia is entirely supportive of the need to better translate research, both through commercial and non-commercial pathways. While there is no doubt that iMRIs could do more to contribute to translation, Research Australia believes that only a 'whole of Australia' approach will succeed. This needs to involve iMRI's, universities, other publicly funded research organisations, private sector research and health companies, the healthcare system and Commonwealth and State governments.

The translation of research requires innovation. While research underpins innovation, the relationship between the creation of knowledge and new innovation is not always linear, immediate or foreseeable.

The primary role of research is to increase knowledge and the creation of knowledge needs to be the primary focus of research funding programs, with research excellence as the primary criterion of assessment for funding.

This is not to suggest that research outcomes are the only 'input' required for innovation or that there is not a role for research programs to sponsor innovation; clearly there is, but the two should not be conflated. While there is no clear delineation in practice between when the creation of knowledge ends and the application of knowledge begins, it is both possible and necessary to make a distinction between research funding programs (with the objective of creating knowledge) and innovation funding (with the objective of applying knowledge to the creation of new products and services.)

Making this distinction can assist the transition from knowledge creation to application. To this end, we need to be clearer at the outset about when publicly funded research is supported in expectation of commercial and/or practical outcomes and when this is not the case. Where there is an expectation that there will be an outcome beyond the publication of findings, innovation funding and/or other mechanisms need to be in place to support the achievement of this outcome. Programs to support research on the one hand and innovation on the other need to complement each other better than they currently do.

[7] Australian Government, Report of the Strategic Review of Health and Medical Research, 2013, Recommendation 3, p.65

For example, research is funded to test the hypothesis that a particular compound will prevent the production of an enzyme that is critical to the progression of a particular disease. The research is successful in demonstrating the hypothesis under laboratory conditions, and the results are published.

Under current arrangements, the funding now ceases even though further experiments and tests will be required to demonstrate 'proof of principle' as a therapeutic approach, and it is typically only after this stage that commercial partners can be engaged in the development of a new therapy. Progression of the body of research will be dependent on securing further funding from public funding programs or other sources, and this will require further grant applications and most likely the suspension of any further work until the funding is secured.

The need for this further experimentation should be anticipated by the researcher at the time the initial research grant application is made, and funding for this purpose should be available subject to the initial research achieving predetermined milestones/thresholds identified at the time the funding for the research is approved.

Creation of funding mechanisms for this type of further experimentation requires a clear understanding of what is to be funded as research and what is to be funded as innovation, and the criteria that are required to be satisfied in each case. And where it can reasonably be foreseen that the research has the potential for innovation, this potential should be identified at the outset.

Research Australia recognises that this is only one type of innovation and only one pathway, but it illustrates how being clear about the different objectives of funding for research and innovation can facilitate a more streamlined approach to the application of new knowledge.

Actions to support translation

As argued above, research and innovation are both essential to the translation of research to outcomes. The distinction between research and innovation helps to address the question of who is responsible for the different actions required to complete the virtuous cycle illustrated at Figure 5 of the Discussion Paper. This is particularly important in the case of non-commercial translation where the profit motive is absent.

The researcher and the iMRI can contribute to this process but they cannot ensure adoption of evidence based practice in the healthcare system.

The following actions to support translation include some which can be implemented in iMRIs but go beyond the role of iMRIs to include the whole health and medical research sector and the healthcare system.

Research Australia submits the following measures to support non- commercial translation:

- **The creation of more roles in health services across medical, nursing and allied health professions that have a dedicated time and resource allocation to research (i.e. clinician researcher roles)**
- **Routine inclusion of training in research methods and experimental design in the training of health professionals**
- **Activity based funding include time allocated to health and medical research, or the creation of activity based funding for research activity itself, with funding for research activities undertaken by health care providers to be considered by the Independent Health Pricing Authority,**

- The National Health Performance Authority include performance measures for research as recognition that research activity is a valued outcome of health services.
- Career structures that support moving between research and health delivery roles, and the provision of support to health care practitioners who are participating in research projects on a short-term temporary basis
- Provision of infrastructure within our health system to support research, including better support for investigator led and commercial clinical trials
- Programs to fund research involvement by primary care providers.

Research Australia submits the following measures to support commercial translation:

- Programs and incentives to promote greater collaboration of the private sector with academic researchers
- Programs to promote the secondment and placement of publicly funded researchers in private sector institutions to facilitate the transfer of commercialisation skills
- Ensuring intellectual property laws appropriately support and encourage investment in R&D
- Continuation and expansion of the Australian Government's dedicated support for commercialisation, including early, mid and late stage commercialisation activities
- Researcher career paths that move between universities, medical research institutes and industry need to be encouraged and rewarded
- Greater exposure of students to the opportunities for careers in the pharmaceutical, biotechnology and biomedical device industries.

CONCLUSION

Research Australia is in broad agreement with the preliminary findings of the Report and has sought to identify actions that can be taken to progress these findings. We recognise that this is not easy and that it will take time. It also requires a range of reforms both with in and outside iMRIs themselves. Some of the measures can really only be achieved with a 'whole of sector' response.

Research Australia would be pleased to provide any further information the Review might require in support of this submission.

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