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

March 2012

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Summary

Universities Australia provides the following key recommendations to the Review panel:

- Funding must be provided to cover the full cost of research;
- The funding schemes supporting health and medical research through Australian Government departments should be simplified and streamlined;
- Sustainable funding mechanisms must be implemented to meet the ongoing costs of nationally funded research projects beyond the cessation of the grant itself;
- The need for increased and diversified disciplinary funding (for allied health, public health and other fields that support health and medicine) should be acknowledged and incorporated into existing funding mechanisms;
- Increased collaboration and integration between diverse fields and disciplines of health and medical research should be encouraged;
- Research training of our future generation of health and medical researchers and professionals must be a priority and supported accordingly;
- The area of e-health should be further supported to ensure its benefits to health and medical research and delivery are optimised.

In terms of assuring the best outcome of this review and the full engagement of the sector and the public, we recommend:

- A discussion/issues paper be prepared for consideration and further stakeholder input as part of the next stage of the review process to inform the Panel's Final Report to Government; and
- The establishment of a post-review implementation committee should be recommended to Government to ensure the Panel's recommendations are enacted across the relevant government departments, funding agencies and other key stakeholders.

Introduction

Universities Australia is the peak body representing Australia's 39 public and private universities in the public interest, both nationally and internationally. Universities Australia advances and promotes the benefits of Australian Universities to the nation.

Universities Australia thanks the Australian Government and Strategic Review Panel for providing the sector with an opportunity to present key issues for consideration as part of the Strategic Review of Health and Medical Research in Australia ('the McKeon Review'). The opportunity for key stakeholders to contribute to this valuable review demonstrates the Government's commitment to supporting the nation's health and medical research endeavours.

The economic and societal benefits of continued investment in Australian Health and Medical Research are clear and have been documented through various independent analyses over the past decade. These are well-summarised in the submission to this review by the Australian Society of Medical Research, to which Universities Australia is a co-signatory. Here we present issues of particular relevance to the role that our universities play as the largest contributory sector to health and medical research. It is worthwhile recognising the principal outcomes of the economic studies that between 1993-2005 investment in Health and Medical Research¹

- is estimated to have returned a net benefit of \$29.5 billion;
- returns, on average, \$2.17 in health benefits for every research dollar invested; and
- produces an overall economic return of 117 per cent; exceeded only by the mining and wholesale/retail sectors.

Response to the Review Questions

To assist the Panel in its review, Universities Australia provides the following points in response to the four questions put forward by the panel. We would welcome the opportunity to expand on our responses in the next phase of public consultation to be undertaken in major cities throughout April – July.

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

Australian universities have a strong and proud history of research excellence in the health and medical fields. Figures from the National Health and Medical Research Council (NHMRC) reveal the significant role of universities in this sphere and confirm that universities, often in partnership with other institutional research stakeholders, conduct the bulk of health and medical research (including allied health research) in Australia. For example, long-term data available from the NHMRC shows that 72.3 per cent of all distributed funding over the past 10 years (2002-2011) was awarded to, or administered through, universities and their institutional research partners (for example affiliated research institutes and teaching hospitals). Similarly, Table 1 presents comparable sectoral funding success in the NHMRC 2011 competitive rounds.

Table 1- NHMRC 2011 Application Round - Funding and Success Rates by Sector

Sector	# of Applications	# New of Grants	Total Commitments	Proportion of All Funding
University	3969	958	\$566,418,552	71.9%
Independent MRIs	943	301	\$215,781,021	27.4%
Other	18	6	\$3,736,157	0.5%
Government	28	3	\$1,308,277	0.2%
Hospital	35	4	\$699,418	0.1%
Total minus IRISS grants for success rates	4993	1272	\$787,943,425	100.0%
Grand Total of All New Grants		1299		

Source: NHMRC 2011 Application Round - Funding and Success Rates Statistics

The volume of medical and health research that occurs either within, or in connection to our national universities confirms the central position that universities hold in the Australian research landscape in this field.

The medical and health research conducted through Australian universities in neurology, infection and immunology, genetics and gastroenterology have contributed enormously to the health of the population and have resulted in the award of Nobel prizes to Australian researchers. Likewise, Australian universities have led the world in the development of medical devices for cardiology, respiratory medicine, hearing (the cochlear implant) and vision (contact lens; lens implants). Our strong research track record has already positioned Australia as an internationally viable health and medical research sector, promoting significant contribution to the national economy and future capacity to meet both national and global health challenges of the coming decades.

Australia is proud of its significant contribution to public health and we have been at the forefront of important initiatives such as tobacco controls, road accident prevention, multidisciplinary approaches to preventing HIV infection, and educational initiatives around folate intake before and during pregnancy. Australia has hosted many successful large-scale clinical trials that, through the advantages of cooperative public health systems, a comprehensive ethics and research approval system, and an

educated population, result in excellent compliance and high research standards. Certainly, as a nation we are recognised as a global innovator and contributor to the ongoing health of world populations – contributing more than 3 per cent of the world's outcomes in health and medical research¹.

Australian universities are home to many outstanding groups of biomedical, clinical, population and public health researchers. These researchers mostly supported by a distributed local infrastructure and they coordinate a number of large population-health cohorts. As evidenced by outcomes of the 2010 Excellence in Research for Australia (ERA) assessment, Australian universities have achieved significant results within the health and medical research fields when compared to world benchmarks for quality (see Table 2).

Table 2: Outcomes of the Excellence in Research Australia assessment 2010 in fields relevant to Health and Medical Research. Shown are the number of Australian universities assessed as world standard: 3; above world standard: 4; well above world standard: 5.

Field of Research Code	Rating 5	Rating 4	Rating 3	Total Assessed
Other Physical Sciences (0299)		3	2	5
Medicinal and Biomolecular Chemistry (0304)	1	3	5	9
Biochemistry and Cell Biology (0601)	1	6	9	16
Microbiology (0605)	2	7	5	14
Medical Biochemistry and Metabolomics (1101)	1	1	2	4
Cardiovascular Medicine and Haematology (1102)	8	1	1	10
Clinical Sciences (1103)	4	7	11	22
Dentistry (1105)	2	2	1	5
Human Movement and Sports Science (1106)	5	5	7	17
Immunology (1107)	7	3	1	11
Medical Microbiology (1108)	3	5	3	11
Neurosciences (1109)	3	3	9	15
Nursing (1110)	3	6	11	20
Nutrition and Dietetics (1111)	2	2	4	8
Oncology and Carcinogenesis (1112)	7	3	1	11
Ophthalmology and Optometry (1113)	2	1	2	5
Paediatrics and Reproductive Medicine (1114)	1	3	3	7
Pharmacology and Pharmaceutical Sciences (1115)	4	7	3	14
Medical Physiology (1116)	6	3	3	12
Public Health and Health Services (1117)	1	4	7	12
Psychology (1701)	3	4	5	12
Cognitive Sciences (1702)	1	3	4	8

Similarly, many Australian universities feature consistently in the top global university rankings. Five Australian universities rank in the *Times Top 50 Clinical, Pre-Clinical and Health Universities*ⁱⁱ and eleven rank in the top 200 of the *QS World University Rankings by Subject in Medicine*ⁱⁱⁱ. To maintain and strengthen the international reputation of Australian universities, a strong participation and performance in medical research is critical. The reputation of our universities and their health and medical schools in turn ensures that we attract the best students and research minds, positioning Australia at the international cutting edge of global scholarship in health and medicine. Appropriate

government funding and support of health and medical research will ensure that Australia is not left behind our global competitors. It will also ensure that Australia remains in the forefront of translating of research into improved health and clinical outcomes.

Australia faces several health and medical challenges in the coming decades, including the care of an ageing population and increases in the incidence of chronic disease. We also have health challenges that are unique to our nation and its island isolation (for example Hendra virus; mental health effects of fly-in/fly-out employment in isolated communities; the gap between mainstream and indigenous population health). Research in these fields will address these challenges, as well as facilitating improved wellbeing and productivity amongst healthy Australians. A strong, internationally competitive research and research training sector is essential to ensure that Australia continues to realise these benefits.

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

In order to maintain and develop Australia's track record in health and medical research outcomes, strong support is required from government and private stakeholders at all levels. Universities Australia believes four main priorities must be addressed:

- The shortfall in funding for the direct and indirect costs of research;
- Increased and diversified disciplinary funding (for allied health, public health and other fields that support health and medicine);
- The need to review and simplify the range of funding sources for health and medical research;
- Strong and ongoing support for health and medical research training.

The shortfall in funding for the direct and indirect costs of research

While Universities Australia acknowledges the contributions of the Australian Government towards national health and medical research, a substantial shortfall in the direct and indirect funding available to support medical research exists, particularly in relation to the NHMRC schemes. While the Government has taken steps to alleviate this shortfall through the block grant schemes such as Research Infrastructure Block Grants (RIBG) and Sustainable Research Excellence (SRE), funding still falls well short of the real direct and indirect costs to the recipient. In terms of indirect costs, funding awarded under grant schemes does not cover, for example, infrastructure maintenance and research support services. Universities are, therefore, responsible for funding the gap between the amount awarded through the funding process and the true cost of undertaking the research from other revenue streams.

The shortfall in indirect costs is equally problematic for universities and the incongruity between Personnel Support Packages (PSP) levels awarded by the NHMRC and true salary costs is a prominent example. Failure to provide funding for the full salary and on-costs of research staff on funded research projects leaves universities in the difficult position where substantial salary shortfalls need to be covered through university funds. There is one example where a university has estimated that it contributed approximately \$12 million in addition to the NHMRC's Personnel Support Package to cover salary shortfalls of this nature.

While Universities Australia commends the Government's introduction of SRE, once the scheme is fully implemented in 2014 the total contribution it will make to indirect costs when added to RIBG is expected to reach approximately 40-45 per cent^{iv}. This remains significantly lower than the 95 per cent estimated by Allen Consulting in their 2009 report to DIISR^v and what is required to continue to support quality health and medical research into the future.

The transitory nature of major national infrastructure schemes also presents a significant challenge for health and medical research in Australia. While these schemes contribute to the establishment costs of facilities, they mostly do not support ongoing operations. Sustainable funding is needed to maximise the benefit of research infrastructure for our national research capacity. Many of the existing technology platforms that underpin Australia's biomedical research efforts were established and funded via national schemes. This has included some commencing operations under the Major National Research Facilities (MNRF) scheme (for example, genomics and proteomics). Subsequent funding through the National Collaborative Research Infrastructure Strategy (NCRIS) allowed for expanded operation of some of these facilities as well as the introduction of new capabilities. Recent investment through the Education Investment Fund (EIF) has allowed the acquisition of additional infrastructure. Nevertheless, the ongoing operation of these facilities presents a fundamental problem – while it is well recognised that our research effort depends upon such facilities, our competitive funding mechanisms (NHMRC, NHF etc.) are project-based and represent a major problem for the support of ongoing facilities. It is a real issue that schemes such as NCRIS are terminating. As pointed out by the National Research Infrastructure Committee, ongoing security of funding for the establishment and operation of national infrastructure facilities is a fundamental to the maintenance of a world class innovation system.

Increased and diversified disciplinary funding

Universities Australia encourages the Review Panel's consideration of appropriate funding for research in disciplines such as nursing, allied health and other health-related areas that play a significant role in improving individual and community wellbeing. This important aspect of the articulation of health research outcomes into the community was not covered in the Wills Review undertaken 13 years ago, but it has grown to be an important research field within universities since this time. New issues around the definition of 'health and medical research' and its eligibility for funding from the ARC/NHMRC have emerged. Any changes to such definitions should positively support nursing, allied health and psychology, and facilitate wider engagement of the social sciences in health and medical research.

While 'medical' research in the traditional sense has always been a strong focus of the major grant schemes, there is both value and need to expand our focus to these wider disciplines. This will ensure that the role of the social sciences in health and medical research is appropriately supported to deliver improved health outcomes for the population. However, it can be difficult for non-medical areas to compete with the pure medical or clinical areas based on track record and tradition.

There is a need to support long-term constructive partnerships to translate health and medical research outcomes into public benefits. Partnerships between medical and social sciences research can lead to more efficient and productive outcomes. An incentive scheme for such partnerships would ultimately lead, through a multiplier effect, to enhancing the practical effect of research knowledge on public health.

The need to review and simplify the range of funding sources for health and medical research

Universities Australia strongly recommends that the Panel consider the establishment of a mechanism to simplify and streamline funding sources and infrastructure support. The array of funding schemes and programs diverts researchers' time away from their core business of health and medical research to the exercise of achieving success in a grant application process. Such activity also requires substantial administrative resources to maintain. There are currently seven different sources of Federal infrastructure support available to universities and MRIs, as well as State-based funding sources. Whilst there are good arguments for some plurality of funding sources, Universities Australia sees a need for a simplified and united approach across government agencies to the overall funding of health, medical and health-related disciplinary research, particularly within the context of the newly federated health and medical research system being negotiated through COAG.

Universities Australia also recommends that a holistic analysis of the various funding schemes be undertaken to ensure that all the mechanisms for funding meet their objectives and reach their deliverable outcomes efficiently and without duplication. Where this is not the case, measures should be taken to improve these schemes in the interest of greater efficacy and improved outcomes for research funding.

Grant success rates from the ARC and the NHMRC are around 22 per cent^{vi}. This low success rate creates opportunity costs in the medical and health research community. Many worthwhile and viable projects do not achieve funding in every round. Universities Australia would like to further discuss how to turn well conceived, highly developed, important research projects that fail to secure major national investment into funded research activities. This would further capitalise on Australia's research talent and expertise for the benefit of the nation.

Health and medical research training

Australian universities consider research training to be a critical issue for our ongoing health and medical research culture, capacity building and public health success. The majority of health and medical higher degree by research (HDR) students undertake their research training in universities and their affiliated research institutional partners. Therefore the role of universities in training and developing the next generation of health and medical researchers, and the support required to effectively undertake this function, is critical.

Universities are currently moving to expanding the range of formal and non-formal teaching that accompanies an Australian PhD. Research training operates in a competitive international environment and it is recognised that our doctoral students need to graduate with a broad range of skills giving them capability to engage a wide variety of colleagues in research collaboration; they require far more than just the production of a thesis and associated papers. Universities provide the broader context in achieving this aim.

Universities Australia recommends that the Panel further investigate how the education, training and supervision of HDR students can be more effectively funded to encourage more clinical practitioners into research and develop new ways of investigating health and medical research problems, including researchers from wider disciplinary bases. Better-trained research practitioners will provide a re-invigoration of the way in which new questions are asked and answered. This is predicated by the need to provide a mixture of viable career paths for health and medical researchers that must include a viable national scheme for full time researchers as well as part-time practitioner and health professional researchers at each level. A core of talented highly trained and committed researchers provides the capacity to respond quickly to emerging problems and threats as well as the essential momentum for the national health and medical research enterprise.

The existing schemes are limited in funding and scope, have been reduced in the extent of career continuity and flexibility they provide, and are not well aligned to career progression.

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

In summary, this submission has outlined important strategic directions that encompass redressing funding shortfalls, funding non-medical allied health research, simplification of funding sources and enhancing research training. Universities Australia also believes that integration is a fundamental future strategic direction: integration across our centres and across our disciplines. Appropriate provision of support to enable such integration will provide great gains in the health of present and future generations.

We would add that e-health is playing an increasingly substantial role in health and medical research and the provision of services, and that this should be recognised and appropriately supported to maximise its impact on reforms and to enable the leveraging of such data for research purposes.

Further, the tools for individualised provision of medicine and healthcare are now available and will become affordable over the next ten years. Properly implemented, these tools will provide savings for the health system. To ensure these tools move from the domain of biomedicine and genetics to become standard practice for our clinicians and public health professionals requires appropriate and strategic funding and infrastructure.

There is a well-recognised need to introduce up-to-date biological, physiological, pathological and imaging analyses into population-health and disease-specific cohort studies. Given the strength of Australia's cohort studies, if the next generation of individualised medical treatments are not used great opportunities will be missed. Consequently, expanded investment into a range of areas to support the addition of biological data into all cohort studies is required including bioinformatics, genomics, metabolomics, proteomics and imaging. In addition, effectively co-ordinated investment in biobanking, biostatistics, pathology, health economics, and health services research would constitute a strategic direction for future investment and allow for participation in international consortia in these areas.

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

The translation of a diverse range of health and medical research outcomes into better health and wellbeing for our population is essential. Nevertheless, currently there is considerable concentration of knowledge purely in the biomedical sphere. Universities Australia believes that it is essential that this narrow view of health research be broadened to include wider research fields. We would advocate that a balance between the importance of biomedical research and other health fields is imperative to ensure the translation of research advances into realised health outcomes. Avenues that encourage and support the close alliance of biomedical researchers and their clinical colleagues, such as those found in university collaborations with hospitals are required. Structures and funding mechanisms that artificially force a separation of these groups must be avoided if optimal health and medical outcomes are to be achieved.

Universities not only develop the next generation of researchers, but also the next generation of health and medical practitioners. Students learn from research undertaken in universities, and have unique opportunities in teaching hospitals through their collaboration with universities. This connection between teaching and research is instrumental in translating research into health and medical outcomes, and graduates carry the latest knowledge into the world of health and medical practice.

Other Observations

In order to create the best possible recommendations to Government that embrace the fullness and complexity of the responses to this strategic review, Universities Australia strongly recommends that the Panel release a discussion, issues or options-style paper, based on the sector's combined responses to this phase of consultation. This paper should then be distributed for consideration and further stakeholder input as part of the next stage of the review process to inform the Panel's final report to Government.

Universities Australia also recommends that the establishment of a post-review implementation committee be recommended to Government. This will ensure the Panel's recommendations are realised across the relevant government departments, funding agencies and other key stakeholders.

Endnotes

- ⁱ Access Economics, 2008. *Exceptional Returns: The value of Investing in Health R&D in Australia II*. <http://www.asmr.org.au/Publications.html>
- ⁱⁱ Top 50 Clinical, Pre-Clinical and Health Universities 2011 - 2012, Times Higher Education, <http://www.timeshighereducation.co.uk/world-university-rankings/2011-2012/clinical-pre-clinical-health.html>
14 – University of Melbourne; 24 – University of Sydney; 33 – Monash University; 42 – University of Queensland (FOUR in total)
Top 50 Clinical, Pre-clinical and Health Universities 2010-2011, Times Higher Education, <http://www.timeshighereducation.co.uk/world-university-rankings/2010-2011/clinical-pre-clinical-health.html>
18 – University of Melbourne; 25 – University of Sydney; 31 – Monash University; 40 – University of Adelaide; 42 – University of Queensland (FIVE in total)
- ⁱⁱⁱ QS World University Rankings by Subject: Medicine 2011, <http://www.topuniversities.com/university-rankings/world-university-rankings/2011/subject-rankings/life-sciences/medicine>
15 – University of Melbourne; 29 – University of Sydney; 33= - University of Queensland; 36= - Monash University; 46= - Australian National University (FIVE in total) --- 51-100 – University of Adelaide, University of New South Wales, University of Western Australia, 101 – 150 – University of Newcastle; 151 – 200 - Flinders University, Macquarie University, (ELEVEN in total)
- ^{iv} Analysis by University of Newcastle
- ^v Allen Consulting Group 2009, *The indirect costs associated with research funded through Australian Competitive Grants*, July 2009. Report to Department of Industry, Innovation, Science and Research <http://www.innovation.gov.au/Research/ResearchBlockGrants/Documents/IndirectCostsUniResearch.pdf>
- ^{vi}

Year	Success Rate (%)
2001	23
2005	21
2006	21
2009	23
2010	23

Source: NHMRC Research Funding Facts Book 2010, <http://www.nhmrc.gov.au/guidelines/publications/nh138> and NHMRC Research Funding Facts Book 2011, <http://www.nhmrc.gov.au/guidelines/publications/nh154>

Success rates for selected ARC funding schemes 2009 – 2011

Projects	Success rates (not specific to health and medical research)		
	2009	2010	2011
Discovery Projects	20.4	22.7	22.0
Future Fellowship	n/a	20.5	26.4
Australian Laureate Fellowships	n/a	10.1	15.5
Discovery Indigenous Researchers Development	34.6	39.1	45.0
ARC Centres of Excellence	n/a	n/a	11.7
Linkage projects (January)	49.4	44.9	46.7

Source: Australian Research Council Annual Report 2010–1, pages 174 - 175
http://www.arc.gov.au/pdf/annual_report_10_11.pdf