



Australian Academy of Science

SUBMISSION TO THE

**CONSULTATION FOR THE  
DEVELOPMENT OF THE AUSTRALIAN  
MEDICAL RESEARCH AND  
INNOVATION STRATEGY AND  
RELATED PRIORITIES**

**FROM THE AUSTRALIAN ACADEMY OF SCIENCE / JUNE 2016**

# Australian Medical Research and Innovation Five Year Strategy

**Title:** Submission to the consultation for the development of the Australian Medical Research and Innovation Strategy and related Priorities

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## Please note:

- *Submissions on the Strategy should be broad reaching, addressing the challenges to the performance and delivery of outcomes from health and medical research and innovation in Australia and/or other challenges relevant to the topic. Submissions must be kept to three pages in length.*

## Investing in preclinical and early clinical stages of research

**The MRFF Strategy should set out how the MRFF will be used to address the twin ‘valleys of death’ in commercialising research, and show MRFF investments will be used to complement the Government’s recent investment in the Biomedical Translation Fund.**

The MRFF Strategy should pay significant attention to addressing the twin ‘valleys of death’ in commercialising research, as detailed in the Strategic Review of Health and Medical Research [1]. The review found that in the health and medical research commercialisation process, funding is required at three key stages, preclinical, early clinical and late clinical, and that it is the first two stages where shortfalls in funding are frequently experienced.

During the preclinical stage of research (from discovery to proof-of-concept), funding for laboratory research is difficult to obtain, but research is not well developed enough to attract investment from biotech companies, angel investors, venture capital or industry investment. The Strategic Review of Health and Medical Research found that, while there were some government programs aimed at addressing this issue, the level of funding available was insufficient [1]. The review also found that lessons should be learnt from the previous small scale research commercialisation schemes that have operated in this area to ensure that commercialisation criteria applied to applicants are not too onerous and unrealistic for early-stage development [1].

During early clinical stages of research funding is needed to collect data to support late clinical stage development proposals seeking funding from venture capital, biotechnology and industry corporations. The Strategic Review of Health and Medical Research found that there was inadequate funding available in this area.

The Government has recently responded to some the funding issues for preclinical and early clinical stages of research through the creation of a new \$250 million Biomedical Translation Fund. The creation of this fund is a very welcome development, but as the MRFF is a longer-term initiative that will outlive the Biomedical Translation Fund, it would be prudent for the MRFF Strategy to clearly articulate how the MRFF can complement and build on this investment.

## Supporting all stages of the research pipeline

**The MRFF should fund activities at all stages of the research and innovation pipeline, from blue-sky, basic and fundamental research, right through to applied research, research translation, clinical research and commercialisation processes.**

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So many of Australia's most successful research commercialisation developments in health and medical research have had their origins in blue sky curiosity-driven research undertaken in Australia. Examples include the Gardasil vaccine, *Helicobacter pylori*, and resistance to influenza infection (Relenza). Therefore, it is important for the MRFF to not solely fund research and innovation activities that have an immediate and obvious commercial application. Part of the MRFF's activities should be to ensure Australia continues to have a sufficient body of knowledge in the innovation pipeline from which to draw in the future. This will be best achieved by funding a range of different types of research activities, from blue-sky, basic and fundamental research, right through to applied research, research translation, clinical research and commercialisation processes.

## Funding the full cost of research

**The MRFF strategy should provide clear direction on the need for the MRFF to cover the full cost of research activities**

The existing funding arrangements for health and medical research in Australia are complex, do not fully fund the cost of undertaking research, and can act as disincentive to hospitals to take part in research activities [1]. While on the surface, properly funding the full cost of research might not appear as a bold and innovative breakthrough initiative, if funding complexity, and specifically the funding of indirect costs of research, are not covered by the MRFF funded activities there is a risk of financial harm being caused to the research sector.

Funding grants for health and medical research through the NHMRC and other Commonwealth Government agencies only covers the direct costs of undertaking research projects (for example, research staff salaries and the cost of materials for experiments). Funding grants exclude indirect costs incurred by institutions hosting grants, such as laboratory equipment, IT, overheads, research ethics approvals, human resources, building maintenance. Funding for these indirect costs is provided through a variety of different schemes depending on the host institution. The indirect costs of undertaking research have been estimated to be between 60 and 90 cents in the research dollar [1, 2].

Support to cover the indirect costs of research is provided through different programs depending on the type of host research institution. Independent medical research institutes receive funding through the NHMRC Independent Research Institutes Infrastructure Support Scheme [3]. Universities receive funding for indirect costs of research through university research block grants. Neither of these programs fully covers the indirect costs of research, and institutions invariably cross-subsidise these indirect research costs from other programs. Hospitals receive no funding for the indirect costs of undertaking research, and this acts as a significant disincentive to participate in research activities as meeting the costs themselves can involve diverting funding from healthcare activities. The complex and differential nature of how support for indirect costs are funded makes it difficult for some research institutions to fully contribute to the medical research effort and is a real barrier preventing upscaling of Australia's health and medical research capacity.

Despite repeated reviews identifying this as an area for attention [1, 4-8], this problem persists and the MRFF Strategy should ensure that future research funded by the MRFF does not add to the weight of unfunded indirect research costs needing to be met by research institutions. Any significant increase in health and medical research funding made through the MRFF needs to properly cover both the direct and indirect costs of research.

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## Supporting sustainable research careers

**The MRFF strategy should give high priority to investing in the workforce needed to deliver health and medical research breakthroughs. This should include making a commitment to researchers by funding larger and longer-term research projects.**

The lack of funding certainty and the consequent job insecurity in the health and medical research sector are major concerns that the MRFF strategy should address. Many early- and mid-career researchers are only employed for the length of the research grant on which they are funded. Securing an ongoing future in health and medical research for these researchers requires continuous success in a grant funding scheme where success rates languish at around 15%. Inevitably, this means that each year many highly trained and highly talented researchers are forced to leave the sector as they have missed out on securing funding or no longer wish to work in a sector with such a high degree of career uncertainty.

This is an inefficient way to run a research system. Skilled researchers have undertaken many years of research training at great public expense and have gained substantial experience, but because of a lack of immediate funding opportunities they can no longer remain in the sector. The chances of returning to health and medical research after exiting even for a short period are very low. Other researchers leave the research system as they simply need longer and more secure positions, something which the health and medical research sector struggles to provide.

The MRFF presents an opportunity for a real step change in terms of supporting sustainable careers. By supporting larger and longer-term projects, teams of researchers should be able to have their research positions secured for greater amounts of time. The MRFF should have a clear focus on sustainable careers in the medical research sector would provide greater career certainty for researchers, particular early career researchers, allowing them to concentrate on undertaking world class breakthrough research rather than spending months of each year securing next year's employment.

## References

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6. Bradley, D., et al., *Review of Australia Higher Education Final Report*. 2008: Canberra, ACT.
7. Bennett, C., *A healthier future for all Australians*, in *National Health and Hospitals Reform Commission final report*. 2009.
8. Watt, I., *Review of the research policy and funding arrangements*. 2015: Canberra, ACT.