

Australian Medical Research and Innovation Five Year Strategy

Title: The Early- and Mid-Career Researcher (EMCR) Forum of the Australian Academy of Science submission to the Australian Medical Research and Innovation research strategy

Submitted by: Early- and Mid- Career Researcher (EMCR) Forum of the Australian Academy of Science

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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.*

Recommendation: Invest in all stages of health and medical research and provide seed funding to support Early- and Mid-Career Researchers (EMCRs)

The current challenges identified in the “Building Blocks for the Australian Health and Medical Research Innovation strategy” highlight the need to **facilitate the translation of research into health outcomes**. The MRFF is seeking to specifically **address medical research priorities** and convert findings into clinical practice. In order to **drive innovation**, the fund should support a balanced portfolio of projects comprised of basic and applied science objectives. Fundamental research underpins development of the **preventions and cures of tomorrow**, yet it is becoming increasingly difficult to secure funding for discovery projects. Less than 15% of NHMRC project grant applications were funded in 2015, with success being dependent on the ability to present preliminary data and track record. This puts EMCRs at a distinct disadvantage, particularly where individuals are seeking to apply their expertise to a new research challenge.

The MRFF presents an opportunity to fund forward-thinking research that will **improve the delivery of healthcare**. Current schemes do not typically support innovation and ‘high risk, high reward’ activities. Examples of this type of research are two Nobel-prize winning discoveries of Australian scientists: the discovery of penicillin (Florey) and the identification of *H. pylori* as the causative agent of gastritis and peptic ulcers (Marshall and Warren). We believe that EMCRs should be encouraged and supported to take calculated risks in basic and applied health and medical research. We recommend that the MRFF strategy incorporate a seed funding initiative allowing EMCRs to test innovative ideas within an allocation of funding partitioned specifically for this purpose. The seed funding could be used to **leverage and enhance collaboration and integration** by bringing together multidisciplinary teams of EMCRs with similar interests. Outcomes can be quantified by the conversion of these seed projects into bigger initiatives – **a translation pathway that maximises opportunities for success**.

Recommendation: support emerging disciplines as a mechanism to deliver practical benefits from medical research and innovation to as many Australians as possible

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It can take a significant amount of time for emerging research disciplines to become established in Australia to a stage where they can attract financial investment. EMCRs are disproportionately affected by the difficulties associated with securing funding in emerging disciplines as there is a primary focus on being able to demonstrate a track record rather than an ability to innovate and deliver. In the era of 'big data' (e.g. genomics, proteomics, microbiomics, e-health, longitudinal studies, and large social surveys of health, mortality and morbidity), support for researchers and projects that set out to interpret this data will become increasingly important. Informatics can be used to deliver significant and quantifiable **economic benefits** by solving major medical challenges and reducing costs within the healthcare system. We recommend that the MRFF include a strategy to support informatics. This will ensure sufficient investment is targeted to this area of emerging need.

Recommendation: Implement a system for continuous peer review of funded project outcomes

In current funding schemes (e.g.: NHMRC project grants), a significant amount of effort and cost goes into grant assessment, yet there is little attention paid to whether project outcomes have been achieved. We recommend that all projects be required to participate in a yearly milestone report and peer review process to **support research and innovation from concept to delivery**. Allowing researchers to contribute to the process of assessing other projects will help overcome some of the building block challenges by **reducing barriers to collaboration** and generating a **research engaged workforce**. It will ensure that projects are on track by measuring achievement against key performance indicators (KPIs). This addresses the mandatory consideration of **how to ensure that financial assistance provides the greatest value for all Australians**. Projects should not be allowed to continue if they are failing to meet their objectives. This initiative would represent a fundamental shift in the way block funding is managed in Australia. It will ensure all researchers are held accountable for delivering results and provide a mechanism to shape projects as they are occurring.

Recommendation: Career stability for Australian EMCRs supported by the MRFF

One of the biggest challenges for delivering health and medical research outcomes in Australia is related to job security. All areas of science from basic through to applied research rely on career stability to enable innovative and effectual research to be undertaken. Researchers from all career stages are often employed on short-term contracts, however the issue is of critical concern for mid-career researchers (typically between 5-15 years since PhD conferral) as tenured employment at that level can be difficult to obtain.

The MRFF presents an opportunity to provide 5 years of salary support for EMCRs. This will directly address the stated building block challenge to **enhance and sustain research enabling technologies, infrastructure and workforce**. It is clear that the remainder of the building blocks are not achievable without a focused workforce to address the questions/problems that have been identified. Financial support for salaries would complement the existing funding frameworks, allowing NHMRC and industry support to be used for direct research costs.

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Recommendation: Demonstrated commitment of the MRFF to equity and diversity

The MRFF should commit to improving equity and diversity in order to maximise the potential outcomes of the boost in funding to the sector. Problems of gender, age and cultural inequality remain problematic for research funding in Australia. To date, initiatives to address the inequity have been largely unsuccessful. We recommend that all funding should address strict eligibility criteria for equity and diversity *before* funding is awarded. Inequity can be addressed if the success rates of under-represented groups are monitored and corrected after assessments are complete but before funding is announced.

A positive and prospective effort will ensure MRFF funding is distributed in an equitable way. The commencement of MRFF distribution is also an excellent opportunity to ensure organisations receiving funding have *demonstrated* a commitment to equity and diversity through initiatives such as the Science And Gender Equity (SAGE) pilot. Institutions that cannot demonstrate equity and diversity initiatives should be deemed ineligible for MRFF funding.