Health and medical research funding: an investment in Australia's future

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Australians look forward to dividends from increased funding

Despite our relatively small population, Australia has made an impressive global impact in health and medical research (HMR). Our research output is twice the Organisation for Economic Co-operation and Development (OECD) average on a per capita basis,[1] with high international visibility by citation,[2-4] and Australia boasts five Nobel Prizes in Physiology or Medicine. HMR is a "golden egg". Its consequences — disease prevention, improved longevity and quality of life — reduce hospital admissions and stays, and contribute to both workforce productivity and wealth creation. Examples of outstanding success in Australian translational HMR include Frazer's cervical cancer vaccine, Cade's use of lithium for treating bipolar disorder, Clark's bionic ear technology, and Marshall and Warren's unravelling of the role of *Helicobacter pylori* in peptic ulcer. The Access Economics report commissioned by the Australian Society for Medical Research in 2003 put figures on the value of the golden egg: every dollar invested in health research and development (R&D) yields an average annual return of $5.[5]

Despite these successes, and the Australian Government's visionary legislation for a 6-year phased-in doubling of the National Health and Medical Research Council (NHMRC) budget enacted in 1999, Australia has slipped down the OECD ladder in terms of government spending on health R&D (this was 0.12% of gross domestic product [GDP] just a few years ago, compared with the OECD average of 0.2%).[1] Many of Australia's best and brightest health and medical researchers, judged by their peers to be in the top 10% internationally, have been missing out on NHMRC Fellowship support (almost 35% of applicants scoring in the "excellent" category were not funded in 2005). Moreover, without further increased HMR spending, projections indicate that success rates for Fellowships would fall by a further 50% by 2011, with project grant success rates dropping from 21% in 2006 to 8%–9% in 2011.

This 5-year scenario, however, was averted in the May federal budget when the government allocated an additional $905 million for HMR. This injection was universally applauded and includes $670 million to be administered by the NHMRC, made up of $500 million over 4 years for research grants, and $170 million for Australian HMR Fellowships which will run over the next 9 years supporting 50–65 outstanding researchers over 5-year terms. The $500 million for grants will be incorporated into NHMRC's base allocation for research, increasing this from $420 million in 2006 to over $700 million by 2010. The NHMRC will continue to serve as the main administrator of these funds, as it should, for transparency and equitable distribution based on peer review. The remaining $235 million earmarked in the federal budget for HMR will support adult stem-cell research ($22 million) and infrastructure and capital works programs shared among 17 research facilities nationally ($213 million). This is on top of the $200 million in infrastructure provided to institutes last year, builds on Wills' Strategic review,[2] and is the government's response to the 2004 Grant Investment review.[1]

The NHMRC has now become a statutory agency. This development strengthens its independence and facilitates clear lines of responsibility for governance and financial accountability. Increased funding coupled with this restructure provides a key opportunity for the NHMRC to improve HMR outcomes through new strategic initiatives, wide-ranging stakeholder consultation, organisational resource-building, and articulating its vision and plan early in its triennium. A recent editorial in the Journal suggested that much of the NHMRC's success under the new governance structure would be dependent on effective leadership by the new Chief Executive Officer (CEO), who now reports directly to the Health Minister.[6] The NHMRC's new CEO is Warwick Anderson, past Head of the School of Biomedical Sciences at Monash University, and its Chair is Michael Good, Director of the Queensland Institute of Medical Research. In April last year, Anderson described 10 challenges for Australian HMR, which included the capacity to respond rapidly to national and international health needs, improving collaborative links, enhancing our strong record of discovery-based research, and developing a more "wide and deep" workforce.[7]

Effective change will require a fresh look at policy by the NHMRC and all levels of government, for example, by (i) encouraging increased private sector investment from sources "outside the square" (eg, health and superannuation funds, life insurance companies), possibly through tax incentives; (ii) expanding established schemes (ie, development grants) for increased leverage of non-government monies; (iii) greater recognition of high-performing "David" (rather than "Goliath") research organisations, that may be embedded in universities and hospitals, with adequate infrastructure support; (iv) restoring faith in career structure for the nation's best health and medical researchers (eg, narrowing the growing gulf between Career Development Awards and Fellowships; providing local allowances for Fellows just as allowances are provided to CJ Martin overseas postdoctoral Fellows depending on location; and encouraging more clinician–scientist researchers into the sector); (v) increased state government support of HMR, building on local strengths in technology and innovation (eg, "Smart State" and "Health Futures" initiatives); (vi) ensuring Australia's record of groundbreaking fundamental research is not compromised by the "translational (applied research) wave"; and (vii) ensuring health services and population health research continue to develop in capacity and quality, as these will be increasingly relied on as the population ages and socioeconomic differentials widen.

The longer term needs to be in our sights, and we should be mindful of sustainability in the post-2010 era, particularly if issues arising from the now complete doubling of the United States National Institutes of Health budget are any guide.[8] This is true of the Australian HMR Fellowship scheme, which will attract top scientists (including the most senior NHMRC Fellows, presumably drawing more junior Fellows into the existing scheme), yet the program's fate is unclear after individual terms. Moreover, even with increased HMR investment, which starts with a modest (around 5%) increase in 2007,

the NHMRC has received close to 30% more applications for project grants this year compared with 2005, which may negatively impact on success rates, and mean missed opportunities for knowledge, health and wealth creation unless additional funds can be sourced for 2007. This becomes more of a concern in the current evaluation round, despite commendable intentions of improving efficiency and reducing "reviewer fatigue", given the absence of external peer review or the opportunity for applicant rebuttal. Mechanisms of perpetually increasing funding for HMR should therefore be explored and debated. This could include indexing the HMR budget to the health budget or the OECD average for government HMR funding.

Investment in HMR is vital and should be an ongoing priority for any government in the developed world. Greater funding will help Australian researchers build on previous gains, and turn both curiosity-driven and priority-driven knowledge into new medicines and treatments, with flow-on health, social and economic returns nationally and abroad. We are opening an exciting new chapter in Australian HMR and I can't wait to turn the pages.

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