

Strategic Review of Health and Medical Research in Australia

Submission from Anthony J. Hannan, PhD

I write this submission as an Australian citizen with over 20 years experience as a scientist and medical researcher. I have carried out this research in medical research institutes and universities in Australia overseas (including the Universities of Melbourne, Sydney and Oxford). I will address the four questions within the terms of reference below.

- *Why is it in Australia's interest to have a viable, internationally competitive health and medical research sector?*
(Terms of Reference 1 and 6)

A logical argument will conclude that the health and medical research sector will be the largest sector of the economy at a future stage. There is two things in this world that money cannot buy: long-term health and immortality. This was recently proven by Steve Jobs, one of the world's wealthiest individuals with tens of billions of dollars in assets, who was sadly unable to save himself from cancer at the age of 56. As our neighbours, including China and India, become wealthier, the demand for health products and new medicines will expand enormously. As the mining boom can clearly not sustain Australia, health and medical research leading to successful biotechnology and pharmaceutical sectors could prove to be our long-term salvation.

- *How might health and medical research be best managed and funded in Australia?*
(Terms of Reference 2, 3 and 7)

All of the statistics demonstrate that, per capita, health and medical research is still inadequately funded compared to comparably wealthy nations such as the US. China and India are also investing far more in this area (but lack the current knowledge base of Australia), demonstrating its strategic importance. Another doubling of the NHMRC budget would be a minimal target that could be considered.

With respect to management, we need to ensure that our best and brightest medical researchers are funded properly, both for salaries and research costs, in the kind of long term projects that will deliver the greatest benefits. Therefore, the default length of time for an NHMRC project grant should be 5 years. New investigators (who have not held a grant before) could apply for 3 year grants, and after they have demonstrated their success would then be eligible for standard 5 year grants. In the current system 5 year project grants are at a disadvantage because they are rare and not actively encouraged.

We also need to improve the funding of salaries via NHMRC research fellowships. These fellowships, right through to senior/professorial, are currently so difficult to win that many talented scientists give up and leave the sector, which is an enormous 'brain drain'.

Finally, the best science and medical research comes out of innovation, non-conformity and risk taking. The current system encourages conservatism and conformity, by forcing researchers to have done most of the experiments prior to submitting a 3 year grant proposal (the salaries on which don't fully cover overhead costs), and then immediately having to worry about winning the next grant or fellowship. A system needs to encourage 'blue sky' innovative research from the best and brightest, with 5 year grants, increased grant/fellowship success rates (by doubling the current budget) and ensuring that NHMRC senior fellowship not only include salary (plus full overheads) but that they also come with direct research costs to allow the Research Fellows to spend most of their time doing medical research and less time writing applications and doing endless paperwork.

- *What are the health and medical research strategic directions and priorities and how might we meet them?*
(Terms of Reference 5, 12 and 13)

Australia needs to look forward, not just beyond the next election (!), but at least 10-20 years into the future. An optimist would suggest that some of the common causes of mortality and disability will become treatable in that time frame. Therefore, the biggest burdens of the future will be complex diseases that are on the increase, such as neurological and psychiatric disorders. Thus disorders such as neurodegenerative diseases, depression, anxiety disorders, schizophrenia and other psychotic illnesses, and autism spectrum disorders, represent enormous and expanding health burdens that require large injections of new resources.

If Australia could increase spending, for example by doubling the NHMRC budget, we could also attract some of the best and brightest medical researchers in the world, who over the coming years may consider leaving parts of Europe which are experiencing financial constraints. Ian Frazer is an example of the potential advantages of having more funding to attract the best minds from overseas. At the same time we could stop our best and brightest Australian medical researchers moving permanently overseas (Elizabeth Blackburn, our first female Nobel Laureate, is an excellent example). Thus, for the first time in Australian history we could reverse the 'brain drain'!

- *How can we optimise translation of health and medical research into better health and wellbeing?*
(Terms of Reference 4, 8, 9, 10 and 11)

We need more research in basic medical research in order to understand diseases well enough to design effective treatments. However, we also need research institutes and universities that place basic medical researchers, biologists, bioengineers, bioinformaticians etc., in close proximity with clinical researchers working on presymptomatic and symptomatic populations, to truly address the 'bench to bedside' spectrum. However, it is ultimately the basic science and medical research, generating patents and intellectual property, that may deliver the greatest economic benefit to Australia. Furthermore, the value of having a highly educated, highly skilled, population of health and medical researchers is enormous and will reap rewards at public health, medical, societal and economic levels.