

Submission to
Strategic Review of Health and Medical Research in Australia
By
Professor John Rostas
President,
Neuroscience Society of Australia and New Zealand (NSANZ)

As President of the Neuroscience Society of Australia and New Zealand (NSANZ), formerly known as the Australian Neuroscience Society, I write this submission on behalf of the Society. NSANZ is the Peak Body in Australia and New Zealand representing laboratory-based and clinical researchers seeking to understand the role of the nervous system in health and disease. Neurological and mental health disorders are one of the fastest growing and largest burdens of disease in Australia. Therefore, neuroscience represents a particularly important focus for health and medical research. However, the research policy issues in relation to neuroscience are fundamentally not different from those that affect other areas of health and medical research.

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

Economic modelling by government agencies and independent consultants shows that, as a result of the ageing population, **Australia's future expenditure on health care is projected to rise dramatically** (approximately doubling every decade for the next fifty years, according to Deloitte Access Economics). Two of the major health factors driving this increase are: an increased prevalence of those diseases and conditions whose incidence increases with age (e.g. dementia, cancer, cardiovascular disease including stroke), and the need to treat chronic conditions (e.g. mental health disorders, diabetes, asthma, substance abuse, cognitive decline) for longer because of the increased life expectancy. The development of evidence-based, cost effective interventions to prevent and/or treat these conditions offers the best chance to reduce the huge cost to health care and social services that is expected. Given the time lag between the performance of research and the translation of its outcomes into policy and practice, Australia needs to increase its investment in health and medical research now.

Australia must maintain and nurture an internationally competitive health and medical research sector rather than rely on health and medical research performed overseas. There are three main reasons for this:

1. To reap the maximum economic and social benefits from health and medical research, Australia must be an early adopter of the outcomes from such research. Only those countries that are part of the research effort can be early adopters. An increasing proportion of clinical and basic biomedical research depends on multinational collaborations, the exchange of specialist personnel and access to special resources and techniques. Australian researchers will only be admitted to this "international research club" if we are recognised as internationally competitive researchers whose contributions will enhance the global research effort as well as benefit from it. The training of the workforce to deliver an internationally competitive health and medical research sector also depends

on exchange of personnel and knowledge with international research leaders who will only engage in such exchanges with teams that are of comparable standing.

2. Only by being part of the research effort to develop new diagnostic tests, therapies, interventions and preventive strategies can Australian researchers participate in the commercialisation of the outcomes of their research. Also, health and medical research performed in Australia already benefits those Australians involved in the research as it is being performed and can be more rapidly extended to benefit the whole community. Leaving the research effort to other nations will prevent Australia realising commercial gain from intellectual property developed through its own health and medical research, force Australia to pay dearly for the intellectual property of others, and delay the introduction of the new treatments and strategies allowing the cost burden on society to grow more than necessary.

3. An internationally competitive health and medical research sector is necessary for Australia to be able to respond rapidly to emergencies (e.g. avian influenza), especially if they relate particularly to our region. Australia's research capability in infectious diseases contributed significantly to the international response to avian influenza, and the rapid implementation of public health measures in Australia effectively contained the spread of infection and led to increased immunisation rates that are expected to prevent considerable future health care expenditure. Furthermore, local and emerging challenges in health that are specific to Australia and our region will only be a research priority for Australia and will need an appropriately skilled and resourced research sector to find solutions for them.

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

There is an urgent need to address the level of funding available to support health and medical research. In particular, **the level of personnel funding available through the NHMRC (both the PSP levels for research staff and salary levels for fellowships) has not kept pace with salary levels in the sector.** This forces the host institution and/or the grant holder to find substantial amounts of extra funding just to cover salaries. The infrastructure funding of a research institution is supposed to cover the difference between the direct cost of research and its true cost. Using a large proportion of this infrastructure funding to cover the shortfall in direct research costs leaves the institution with inadequate infrastructure, slowing the progress of the research and compromising its quality.

The Australian Society for Medical Research has made a detailed pre-budget submission to government arguing that the investment into the NHMRC be tied as a proportion of total health expenditure, starting at 1% in 2012 and rising by 0.2% annually to reach 3% by 2022. **We support the principle that health and medical research, which is the major means by which the rapid growth of future health care costs can be contained, should be allocated a predetermined proportion of the total health care budget.** Such support for R&D is a well-accepted principle of business management.

To obtain the most effective return on our investment in health and medical research we will need to **ensure that a range of initiatives are supported targeting projects that are likely to**

lead to tangible benefits in the short, medium and long term. One way of ensuring that this happens is to quarantine a minimum proportion of the funding for projects that have the potential to translate into practical outcomes in the short to medium term. Similarly, quarantining a proportion for fundamental “blue sky” research will nurture the creativity that drives researchers to make the new discoveries upon which new approaches to prevention and treatment can be based.

Irrespective of the type of research, it is important to retain the principle that funding be allocated to projects and special initiatives on the basis of expert peer review. The track record of government agencies trying to “pick winners” without expert peer review, is not good. Not only does this practice produce a poor outcome in terms of investment, it sends a message to researchers that success comes through lobbying rather than research excellence. It also encourages research teams and institutions to become parochial, focussing on competing with each other for local patronage rather than striving for internationally competitive standards of success. By providing a supportive environment in which there is outcomes-driven competition, internationally competitive “winners” will emerge naturally.

Developing strategies to encourage industry to increase its funding for health and medical research is also a high priority. This is likely to involve a combination of tax and other financial incentives as well as introducing more flexibility into funding schemes so they align better with commercial time frames. With the broadening of the disciplines involved in health and medical research particularly in relation translating outcomes of research into changes in behaviour of both health professionals and the community, the definitions of industry funding may need to be reviewed.

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

An internationally competitive health and medical research sector depends on close and effective collaboration between researchers based at universities, medical research institutes and hospitals/health care centres. There is a danger that multiple government funding schemes will place more emphasis on the boundaries between entities rather than recognising the enormous gains to be achieved by making it easier for researchers to collaborate across these institutions. Similarly, the recent change in the funding eligibility rules by the ARC for projects relating to health and biomedical research impedes progress. This is not principally because it reduces the project funding available, but rather because these decisions inevitably bleed across into decisions about the awarding of certain research fellowships (e.g. Future Fellowships) for which researchers in many health and biomedical areas are supposed to be eligible. An integrated approach to funding and encouraging research collaboration across these research institutions is a top priority.

To build the research teams of the future and ensure succession planning for the current generation of health and medical researchers we need to **attract the best and brightest students** from high school and undergraduate programs to research training programs and careers in health and medical research. The NSANZ sponsors the Australian Brain Bee Challenge as an international initiative to inspire high school students and encourage them to enter neuroscience training

programs. Similar programs should be encouraged in other areas relevant to health and medical research.

The long term success of such initiatives aimed at building the skills base for Australia's health and medical research sector is critically dependent on a clear and flexible career structure for researchers. The old linear career structure had researchers, immediately after their research training degree, competing for a succession of full time research fellowships in research institutes or universities all aimed at a lifelong, full time research career. This structure is no longer adequate in a growing and evolving research sector with many multidisciplinary research teams. It also ignores the important nexus between research and research training of the next generation of researchers and the nexus between research and clinical care or community intervention for translation of research into practical outcomes. Clinicians and other health professionals often need to retain a fractional appointment at a hospital or health service in order to perform their research and maintain their professional standing. To enhance the translation of research outcomes into commercial application, clinical or community intervention or health policy, we need to find support mechanisms that enable people to pursue non-linear career structures that allow movement between research institutes, academia, health practice, industry and government. With the increasing participation of women in the research sector, such flexibility in research careers would also enable women to better balance their careers and family responsibilities. A more complex aspect of this career problem, whose solution requires cooperation from the various professional Colleges, is the lack of opportunity or incentive in most specialist training programs or careers for clinicians to become involved in research. And yet, health and medical research is becoming increasingly dependent on effective collaboration with clinicians and other health professionals.

The next revolution in health provision will have a strong focus on personalised medicine where the choice of clinical treatment (or behavioural or preventive intervention) will be determined by the specific genetic profile and biological markers expressed by an individual. Personalised medicine offers treatment that is both more effective and more cost effective. The research and analysis needed to uncover the data on which such personalised medicine will depend relies on analysis of large and multiple datasets (often via international collaboration), the ability to analyse and correlate data from multiple sources using e-Research tools, and a close, mutually supportive collaboration between clinicians in health care settings, laboratory based scientists and specialists skilled in analysing large datasets. Specific funding initiatives to encourage such large scale collaborative projects should be a high priority. A key enabler of such projects would be a change in the mindset of hospital CEOs and employment conditions of hospital clinicians to encourage clinicians to become involved in such research by recognising that such activity falls within the range of duties undertaken by clinicians.

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

A critical requirement for building the best health and medical research teams is effective communication and collaboration between clinicians and basic scientists (both biomedical and behavioural). A hallmark of successful multidisciplinary research teams is an ongoing, iterative exchange of ideas between clinicians and scientists that results in testing of each other's hypotheses

leading to conceptual and practical advances. A high priority should be given to activities that will enhance the formation of such multidisciplinary research teams e.g. support for joint symposia, multidisciplinary seeding initiatives and improved science education for clinicians and clinical education for scientists.

Another important strategy that will help to optimise the translation of health and medical research into better health and wellbeing is to ensure that the outcomes from the deliberations of the McKeon Committee become available for a second round of public consultation. The questions for the present round of public submissions are necessarily very broad to encourage the broadest range of responses. However, **once the Committee has formulated some specific strategy alternatives, a second opportunity for public submissions, or face to face consultations, would add value to the Committee's recommendations.** Given the complexity of the institutional, governmental and ministerial boundaries across which the recommended strategies will have to be applied further input from the research community, the health sector and the general public would be valuable.

Professor John Rostas
President, Neuroscience Society of Australia and New Zealand

March 28, 2012