



Innovating in Our Health System

The development of new and better health products and services saves lives, eases suffering and assists rehabilitation.

None of this happens by itself. We need a strong, dynamic and sustainable research enterprise to provide the foundation for these new products and processes.

Nowhere is this idea expressed better than in a 1996 open letter to the US President from captains of industry which stated: "History has shown that it is federally sponsored research that provides the truly 'patient' capital needed to carry out basic research and create an environment for the inspired risk-taking that is essential to technological discovery".

We need to make the link — ensuring the building of a creative environment that will encourage the inspired risk-taking that has typified the US over the years.

Last year, my office wrote to 63 organisations, peak bodies and individuals seeking their answer to the question: What are the top breakthrough actions that governments could take to make Australia a more innovative nation.

The Australian Society for Medical Research was one of those organisations. Its recommendations included protecting the future workforce by reforming science education as well as building better bridges (and more of them) between science and industry.

Through all of the submissions, there was a consistent view on what the breakthrough actions should be. We were told it is not just the effort that is important, but also the scale. Australia already has many support or incentive programs, which are considered useful. But, too often, they are small with largely a local reach.

The proposed actions offer the chance of doing things differently to boost innovation and productivity.

The breakthrough actions for innovation are — establishing an Australian Innovation Council; strengthening business access to publicly-funded research; encouraging mobility between academia and



Australia's Chief Scientist, Professor Ian Chubb

business, harmonising intellectual property frameworks, and emphasising students and their potential for changing the culture — in businesses and in universities.

But we need to go further. We need alignment, focus and scale to guide Australia's scientific enterprise over the decade to come and beyond.

Imagine the future we want for Australia and then ask how we might earn it?

For this purpose, I am currently drafting a National Science, Technology, Engineering and Mathematics (STEM) Strategy.

We need this strategic whole-of-government vision for our national science system, astute investment of limited resources that link to the challenges facing our society and the research priorities to meet them.

The strategy will map out where we want to be and how we want to get there.

The strategy will be a part of the building of a culture that values and supports STEM, improving our education system, strengthening our research sector and its links with industry, producing a highly-skilled workforce, and connecting us to other nations that do well in science.

We need to aim to do better. There is still much work to be done.

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The Australian Society for Medical Research

Suite 702, Level 7, 37 Bligh Street, Sydney NSW 2000

ACN 000599235 · ABN 18000599235

Catherine West Snr. Executive Officer

Ph: 02 9256 5450 Fax: 02 9252 0294 Email: asmr@alwaysonline.net.au Web: www.asmr.org.au

Newsletter Editor-in-Chief, Dr Steven Polyak

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Preparing Graduates for Both Academia and Industry



Associate Professor Chris Collet



Associate Professor Damian Hine

In calling for education programs to bridge the gap between STEM and industry, Australia's Chief Scientist lan Chubb recently asked: are STEM graduates suitable for employment in areas other than research?

One needs to understand the skills gap between graduate exit and the demands of knowledge-intensive industries to appreciate why STEM graduates are not considered ready for industry. Companies, large and small, face constant changes from increased impacts of globalisation of education, new technologies, global competition and economic instability. In response, systemic innovation has become a necessity for technology-based firms seeking sustainable growth.

How do knowledge-intensive industries see their skills requirements in a workplace that has become flatter in structure, more collaborative and service-focused? Potential employees are viewed from three perspectives, all of which are focused on the organisation: organisational fit, career success and individual performance.

STEM education does instill technical and thinking skills. Beyond that, industry and academia diverge at the fulcrum of the application of skills necessary for commercial awareness, high-level professionalism, leveraging knowledge for competitive advantage, leadership and initiative. STEM does teach teamwork (i.e., division of labour, working in like-minded groups) but industry wants more than that. They are after interprofessional collaboration where professionals and non-professionals with diverse skills and knowledge work to facilitate positive outcomes for a client.

In industry, interpersonal and intrapersonal skills are just as important as technical skills. Industry

representatives believe that it is easier to up-skill someone technically than it is to teach the necessary interpersonal and intrapersonal skills for workplace practice and career success.

STEM education not only fails to deliver this balance of skills but a central problem is that academia has a poor concept of what skills are actually required and how they are applied. Two projects, funded by the Australian Learning and Teaching Council, highlighted the level of academic discomfort around the topic of generic skills training. Academics argue, rightly, that they are ill-qualified to teach and assess interpersonal and intrapersonal skills.

In an environment requiring constant innovation, it is, however, the very (high level) generic skills that industry are now seeking for the changed business landscape, whether it be from the STEM graduate or STEM PhD. Professor Chubb calls for industry and university to collaborate on skills delivery through work-based learning but the capacity of Australian industry to deliver meaningful work experiences is severely limited as is the capacity of the Federal Government to fund such initiatives.

The challenge for universities is to teach high-level generic skills, in the curriculum or in the extra-curricular space, to deliver higher education outcomes of relevance to national productivity.

Associate Professor Chris Collet, Institute of Health Biomedical Innovation.

Associate Professor Damian Hine, University of Queensland Business School.



The new era is transdisciplinary research - be part of this groundbreaking program. Learn how to merge boundaries to make way for fresh, innovative and speedy health care delivery.

Team science will accelerate your research and give you a competitive edge.



NHMRC — Improving Application and Assessment Processes

The broader Australian community is very interested in the outputs and health improvements resulting from the investment of public money in health and medical research, as shown by the prominent position of medical research stories in nightly news broadcasts. It is generally accepted that Australian medical research "punches above its weight" and that the impacts and health outcomes from research are invaluable. However there is also an ever-growing concern within the research community about the time spent on writing and assessing grant applications.

NHMRC is committed to examining and improving peer review as part of its current Strategic Plan. The integrity and quality of the peer review process is of paramount importance. However it is also recognized that we need to minimize unnecessary burden on applicants and reviewers to make the process as efficient as possible.

In February this year NHMRC held its first *Evolutions in Peer Review* Symposium. The purpose of the symposium was to bring together research funding agencies, medical journals, researchers, research institutions, consumers and other stakeholders to discuss how application, assessment and peer review processes can be improved and streamlined. The Symposium included senior representatives from the British Medical Research Council, the U.S National Institutes of Health, the Canadian Institutes of Health Research, and the New Zealand Health Research Council.

A full summary of the symposium, including a discussion paper prepared by the Office of NHMRC, is provided on the NHMRC website. Some of the key issues are discussed here.

While the topic for the day was 'peer review' much of the discussion and feedback to NHMRC was about other aspects of health and medical research funding, such as increasing numbers of applications, the proportion of applications funded, the effort involved with preparing applications, feedback to unfunded applicants, and the mix and balance of NHMRC's funding schemes. The outcomes of the symposium are now being taken forward as the NHMRC Streamlining Application and Assessment Project.

A key issue is the effort involved with preparing, submitting and reviewing grant applications. NHMRC is working to reduce the unnecessary effort placed on researchers and peer reviewers. It has recently been estimated that the cost of preparing grant applications to NHMRC is equivalent to about 3% of the average NHMRC Project Grant. Researchers spend most of their time preparing the scientific parts of their application and the preparation of competitive research proposals

does take effort — however it must also be acknowledged that the planning of a research proposal based on sound evidence and preliminary data, with a clear research plan, appropriate collaborations and demonstrated feasibility is most likely to result in excellence in research outcomes. The NHMRC is committed to reducing the administrative component of applications.

NHMRC's Streamlining Application and Assessment Project will review how current application and assessment processes can be improved, without compromising quality and assurance to Government and the tax-payer that funds are being invested wisely. Wherever possible changes will be evidence-based. Research Committee recently advised that changes to applications should take the following principles into account:

- Grant applications (and RGMS data) should comprise the minimum data set necessary for reporting and peer review.
- 2. Information required for peer review will be organised (wherever possible within the pdf file) to meet assessment criteria for each scheme.
- 3. Maintaining trust with the Australian community, including the research community.

There is also a need for clear and consistent training and mentoring of younger researchers on how to undertake peer review, as much of this currently happens on the job. During the rest of 2013 NHMRC will be working with a number of major universities to help develop training materials.

It was interesting to note that while NHMRC Project Grants are available for anywhere between one and five years, most applicants request three years. It is our belief that a research project should be funded for the efficient time required to complete the work, and we would like to encourage more well-constructed, five-year grant applications. In 2012 only about 10% of applications requested four or five years, even though the proportion funded was greater.

These are just a few of the issues that Research Committee and the Office of NHMRC are dealing with, and there is a lot of detail yet to be worked out. For example, much of the work to streamline application and assessment processes will be conducted within our Research Grants Management System, which in itself requires supporting and upgrading. Over the coming months NHMRC will be releasing further information and discussion papers, to inform and consult the research community regarding its planning in this important but complex area.



Dr. Clive Morris, Head of Research Policy, Office of NHMRC



Professor Kathryn North,
Chair NHMRC Research Committee



Australia Needs Smart Investment in Medical Research, Not Cuts



Honourable Tanya Plibersek, Federal Minister for Health and Medical Research

t doesn't take a brain surgeon to realise that health and medical research is critical to reducing incidence of disease and suffering, as well as being a major contributor to the strength of our economy. The question is: How do we keep Australian researchers punching above their weight?

The short answer is we not only need to continue increasing investment in the sector, we also need to be smart about where our precious dollars are going. To that end we commissioned the Strategic Review of Health and Medical Research, chaired by Simon McKeon. The review's central theme of embedding H&MR into all aspects of the health system is one I am particularly keen to advance. I raised this with the state health ministers at our meeting recently.

In the face of increasing international competition, it is only through strategic investment that we will continue to make world-first discoveries such as the Gardasil vaccine, which is now given to both Australian girls and boys to protect against the spread of the HPV virus.

Actions speak louder than words, and this Government has continued to make record investments in H&MR through the implementation of the Clinical Trials Action

Group recommendations funding of the NHMRC. Since October 2012 alone, we have committed funding of nearly \$802 million for 1,309 grants for ground-breaking H&MR across Australia. These investments will ensure that Australia researchers continue to be at the cutting edge of their fields. NHMRC funding continues to increase over the next four years to a record \$814 million in 2016–17 despite the tight fiscal environment. This figure is almost 25% higher than the annual investment in the NHMRC that Labor inherited from the Howard Government in 2007.

Given the Coalition's track record, I am concerned that Tony Abbott has only committed to maintaining NHMRC funding at current levels, should he win government. Such flat-lining would cost the H&MR sector \$88 million between now and 2016–17. That is because if you don't increase spending every year you actually go backwards as funding fails to keep up with health inflation and growing expenses.

An \$88 million cut in funding to H&MR is something the future health and wellbeing of Australians can ill afford. Rather than punching above your weight, you may instead feel like you'd been kicked in the guts.

McKeon Review Deserves Serious Consideration



Honourable Adam Bandt, Greens Deputy Leader, Spokesperson on Science and Research

The Greens believe science and innovation, particularly health and medical research are critical to our prosperity and our economy. That is why we have worked hard for increased science and research funding and campaigned strongly against cuts to health and medical research.

Here in my electorate of Melbourne, which hosts so much biomedical research, I have worked closely with health and medical researchers to protect NHMRC and ARC funding from the Budget knife. The Discoveries need Dollars campaign put the issue on the national agenda and had a big impact in Canberra. It has been important in subsequent Budget decisions.

Earlier this year I successfully moved a motion in the House of Representatives calling on the government to quarantine health and medical research funding from budget cuts and I have worked hard to use the weight of the Greens in Parliament to ensure funding remains secure.

However, despite this successes government funding to research and development continues to decline and

along with Labor's cuts to universities these are challenging times for the sector.

The Greens believe the recommendations in the McKeon Review all deserve serious consideration. We will go to the forthcoming election with a considered plan to put into place the Reviews key recommendations such as:

- support of Integrated Research centres, sites of excellence in health and medical research;
- establishment of a Transitional Bio Tech fund to help translate discoveries to widely available cures.

We have also urged the government to take seriously the recommendation to provide an additional \$1.5bn per annum for research in the health system.

Overall, we would like to see the government set a target of 3% of GDP for research and development in Australia, bringing us in line with the top research countries in the OECD.



Funding H&MR is a Priority

The Coalition recognises that funding for medical research is the best long-term investment a government can make for the health of the Australian people. Consistent, long-term funding of medical research lifts national productivity, improves quality of life and life expectancy and takes pressure off the hospital system. That is why a future Coalition government is committed to protecting Australia's medical research funding.

As a former Health Minister with an outstanding record on medical research funding support, Tony Abbott remains strongly committed to Australia's research sector. Despite a tough Budget position, the Leader of the Opposition announced in November 2012 that if elected, the Coalition will quarantine health and medical research from any further reductions in funding.

The previous Coalition Government made funding of health and medical research and building the infrastructure capacity to support it, a priority. It recognised, as the Coalition still does, that health and medical research infrastructure is essential to Australia's ability to deliver high quality health care now and into the future.

The last Coalition Government increased funding for the National Health and Medical Research Council five-fold from \$131 million in 1995–96 to \$715 million in 2010–11 after our funding commitments had been implemented. As Health Minister, Mr Abbott announced an additional \$905 million for Australian health and research in 2006 and in 2007 provided \$485 million in grants to medical research facilities.

Investments in health and medical research make good health and economic sense. It has been estimated that every dollar invested in medical research returns five dollars in economic benefits to Australia. The recent release of the McKeon Review into medical research was welcomed by the Coalition and we will continue to be guided by the 21 strategic recommendations it brought down, particularly as they relate to streamlining processes and cutting red tape.

Breakthroughs in health and medical research may come at any time, but they do not come cheaply and may take years to develop. While the Coalition is committed to returning the Budget to surplus, we also recognise that funding of medical research needs to be consistent and ongoing to ensure Australia does not undermine its capabilities in this field.

Consistent with this, a Coalition Government will provide \$35 million to help find a cure for type 1 diabetes. Over 122,000 Australians have type 1 diabetes including 20,000 children. More than 800,000 Australians suffer from both forms of diabetes. Excluding the costs of complications, diabetes costs the Australian health system \$1.6 billion annually.

Australia is a world leader in this important area of medical research and the Coalition's commitment will ensure this continues.



Honourable Peter Dutton, Federal Shadow Minister for Health and Ageing

The full article is available on the ASMR blog @ asmr1.wordpress.com

ASMR Medical Research Week®

while the ASMR board and membership works diligently throughout the year promoting the importance of Health and Medical Research through Public, Political and Scientific Advocacy, the achievements and importance of Health and Medical Research are brought into focus each year in early June with ASMR Medical Research Week®, our premier event showcasing Health and Medical Research with outreach activities across the Australia.

Through the efforts of our hard working and enthusiastic State committees, supported by Cath West and Priscilla Diment in our Executive Office along with the team at ASN Events, a broad range of activities were held around the country. The scope of activities provided opportunities to engage a wide range of stake holders from politicians, industry leaders, general public, through to students who will be our future leaders.

Our National online Schools Quiz, Careers in Medical Research seminars engaged high school students, and Science in the Cinema provided opportunities for the public to be both entertained by a movie and informed about topical research fields such as reproductive medicine and cloning.

The research achievements of our early career researchers impressed all those who attended the scientific meetings held around the country. Congratulations to all of this year's prize winners.

The 2013 ASMR Medallist, Dr Anna Wirz-Justice, Emeritus Professor and Research Fellow at the Centre for Chronobiology, Psychiatric Hospital of the University of Basel, highlighted the great benefits to society that Health and Medical Research can achieve with her medallist's speech delivered at Gala dinners across Australia.

Thanks to all involved, especially our state convenors and their committees for their tremendous efforts ensuring the success of this year's ASMR MRW®.

Dr Amanda Philp ASMR Medical Research Week® Convenor Visit the ASMR Facebook page for more photos from MRW®.



ASMR President's Report



Professor Naomi Rogers, ASMR President

The President's full report is available on the ASMR blog @ asmr1.wordpress.com

s we finalise and submit our NHMRC rebuttals for the 2013 project grant submissions, many of us are now turning our attention to what we will be submitting for the 2014 project grant round. I am sure many people have already been thinking and planning for next year's grant submissions — getting papers submitted, pulling together preliminary data, continuing with this year's experiments, and planning new hypotheses, protocols and research teams.

As we work through these annual rituals, I think there are subtle changes in the evolution of our thoughts and priorities compared to several years ago. As we develop our research questions I think many of us start thinking about our research teams earlier, and what novel approaches we will develop to answer these questions. We are moving beyond silos, and single groups tackling these questions. Instead we find ourselves asking more often how else can we answer this? Who can help us test our hypotheses? How can we best move ahead

knowledge, understanding, and the ever talked about research translation?

There are a number of fashionable words thrown about: interdisciplinary, multidisciplinary, transdisciplinary. We hear these words used frequently, often interchangeably, and I think sometimes without a full understanding of the exact meaning of each. I know I have been guilty of this, until recently I was provided with some clear definitions of these words. The word which rang loudest with my neurons was transdisciplinary. Essentially, this terms applies to 'research undertaken by investigators from different disciplines working together to create new conceptual, theoretical, methodological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem'.

Professor Naomi Rogers, ASMR President

ASMR Medalist 2013



Professor Wirz-Justice addresses the National Press Club

he honour of being the ASMR Medalist for 2013 was a chance to think through my own experiences of the iterative process of basic research — linking it to the clinic — and back into the lab again. I told some stories about our field of chronobiology and sleep research that emphasised the unpredictability and the odd directions a simple finding can lead to. Discovery of a new blue-sensitive photoreceptor in the eye of an ancient fish, responsible for synchronising the biological clock to the 24-hour day-night cycle, was recognised as important for alertness, mood, cognition and sleep in humans — and this is now being translated into daylight simulation lighting systems as architectural support for the wellbeing of elderly and demented in nursing homes. An understanding of the neuronal mechanisms underlying seasonal hibernation in hamsters was the basis for developing light therapy for winter depression — and this has led to widespread applications of light as a treatment not only in other forms of depression, but also many psychiatric and sleep disorders.

I also emphasised the critical importance of sufficient sleep and well-synchronised circadian rhythms as an essential underpinning of good health. When we recognise that the recovery and memory-consolidating role of sleep is essential for daytime function, perhaps sleep will be given the respect it is due. Sleep debt in our 24/7 society leads to enormous costs through poor performance, errors and accidents, depressive

disorder and physical illness — there are now strong links to diabetes and obesity. Sleep is affected across medical and psychiatric illness and thus is an exemplary trans-disciplinary field.

The ASMR brings together scientists and politicians, researchers and clinicians, students, patient advocates, government and funding agencies. As I travelled around the country, I grew to appreciate the unique quality of the ASMR as an extraordinary organisation that has promoted excellence, support, and community understanding for health and medical research in Australia for over fifty years. I was impressed by the enthusiastic commitment of young researchers in every state to the ASMR (and particularly the women!) who actively participate in organising events ranging from the annual gala dinner to visiting schools and promoting science in the media, thereby profiting from the networking experience. I was also impressed by the medical research institutes that have sprung up all over the country, adding to the remarkable established ones. An institute is not only a state-ofthe-art new building, it relies on generous funding from state and federal agencies as well as philanthropic support to attract and maintain world-class researchers. In these hard times, funding will be crucial to extend their influence within the country and abroad.

Anna Wirz-Justice 2013 ASMR Medalist



Silver Tsunami: Can Medical Research Ride the Ageing Wave?

ife expectancy in Australia is at its highest level ever and seems set to continue rising. Whilst this is an indication of success in terms of improvements in healthcare — and a real tribute to the value of medical research — it brings a different set of health related issues. Age is the greatest risk factor for the most common causes of death and disability (ischaemic heart disease, cerebrovascular disease, Alzheimer's disease, some cancers etc), thus, the number of people at increased risk from these conditions is growing. Consequently the huge economic burden on our health-care system resulting from long hospital stays and repeat admissions due to ageing related disease will undoubtedly escalate within the coming decades unless interventions occur. Surely the monumental task of alleviating these predictions should make research into the biology of ageing a priority? The next ASMR National Scientific Conference (Ballarat 17-20 Nov, 2013) will address these issues.

Despite significant advances in the treatment of cardiovascular disease (CVD) over the last 40 years, it remains the primary cause of death in Australia. The prevalence of obesity and diabetes is escalating in the population, with both shown to lead to CVD in much younger people than in previous generations. Debate continues regarding the cause of bone disorders and how they are best clinically managed, despite major advancements having been made in predicting fracture

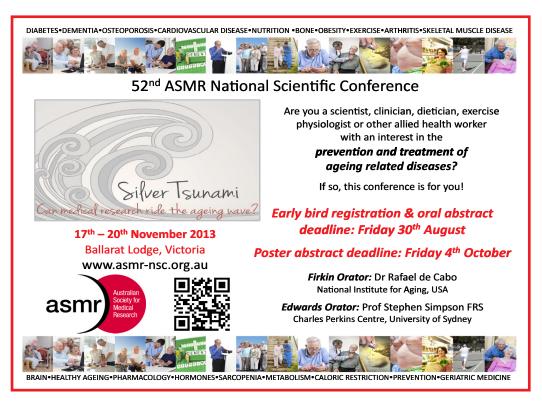
risk and in identifying markers for bone disease such as osteoarthritic bone pain . Ageing also brings a decline in muscle strength, increasing the risk of injury from falls and a gradual loss of independence. Sarcopenia (agerelated loss of muscle mass, strength and function) and osteoporosis are tightly linked reduced muscle activity exacerbates osteoporosis, establishing a vicious cycle. For dementia, including Alzheimer's disease (AD), identifying the underlying causes of neuronal cell death, biomarkers and early diagnosis in high-risk populations will hopefully allow potential preventative therapies to be trialled.

Strategies aimed at lifestyle modifications such as improving diet and increasing exercise have

huge potential to reduce the risk of all these agerelated diseases. Is there also a genetic predisposition? Should we be focussing on early screening of subclinical disease and simple lifestyle modifications in people at a high risk of future disease? What is the best treatment option i.e. education and prevention vs. nutraceuticals and pharmaceuticals? Clearly, a multi-disciplinary approach is required to provide greater insight into these age-related diseases and their prevention.

A constant problem we face in ageing research is that we still do not really understand what ageing is. We know that our physiology, our metabolism and our phenotypes change as we get older, but the processes dictating and orchestrating these changes are relatively unknown. What we focus on tends to be the consequences of these changes — blocked arteries, weakened bones, impaired cognitive function, to name just a few. As medical researchers we need to be mindful of the fact that we cannot separate these diseases from the ageing process itself, and a greater understanding of the biology of ageing may be the underlying foundation required for us to build a healthier future.

The NSC2013 Program Committee — Aisling McMahon, Joshua Lewis, Vance Matthews, Kristen Nowak, Alice Owen, Nathan Pavlos, Juliet Taylor





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Contact details from

www.asmr.org.au/Statebranch.html

Call for Nominations of Directors of ASMR

Nominations are now being called for election to the ASMR Board. Six current directors Terms of Office expire at the November 2013 AGM. Further information and the Nomination Form are available at **www.asmr.org.au/Nom13.pdf**. Nominations are required at the executive office by no later than September 1st.

The ASMR is the peak professional body representing medical researchers in Australia. The Society has a long and successful track record of public, political and scientific advocacy with a reputation for integrity second to none. ASMR has been a key player in the NHMRC Budget successes of the last fifteen years (doubling of government investment in 1999 and 2006) and will continue to pursue appropriate investment in NHMRC through clearly articulated and evidence-based submissions supported by the sector. This is an important and exciting time to be on the ASMR board and we do encourage a wide representation of the membership from across all sectors.

Directors are elected for a term of two years and must be prepared to accept portfolio responsibilities and attend three board meetings a year in March, September and at the National Scientific Conference in November. Being an ASMR director is a rewarding experience and an opportunity to make a solid and valuable contribution to H&MR in Australia.

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