

# An Integrated healthcare system

In *The Voyage Home*, the 4th film of the Star Trek franchise, the crew of the star ship Enterprise travel back to the 20th century to avoid planetary catastrophe in their own time. When a crew member sustains a brain injury, the film begins a rolling commentary on the backward nature of 20th century medicine.

In one scene, the crew search a hospital for their fallen comrade. The ship's medico, Bones McCoy, passes an obviously unwell older woman lying on a trolley and asks what her problem is to which the patient replies, "Kidney dialysis".

McCoy's frustrated response of, "Dialysis... what is this, the Dark Ages?" allows him to give the woman a pill to swallow that cures her. Later, McCoy passes the woman surrounded by incredulous medical staff with the patient joyously exclaiming, "The doctor gave me a pill and I grew a new kidney!"

We may be a while away yet from McCoy's instant kidney cure and we are certainly some distance away from reversing brain injuries by applying a small gadget to the skull as McCoy did to cure his comrade's brain injury. Medicine in the 21st century is certainly not mediaeval, but it can't yet cure as completely as McCoy's interventions could.

And therein lies our dilemma... we've been pretty good at saving and sustaining lives, but not so good at providing the supports that patients left with complex health and other needs require, post health intervention. Indeed, despite the significant investment health services make, the net result can be poorer health and life outcomes for individuals with this complexity of need. The lack of any systemic response for this group means that, despite lacking the resources and capability to do so, disability and aged care services are often expected to pick up the slack, while supporting their health needs places extra demands on already stretched health services to neatly complete a cycle of diminishing returns.

One way to address this endemic problem is to develop pathways of connected care that draw on multiple human services programs to deliver the care and supports those with complex needs require. Rather



than working separately as they currently do, programs such as health, aged care, mental health, disability and employment services need to work together to incorporate their services into an integrated whole.

Instead of simply passing patients with complex needs over to disability, mental health or aged care as health services tend to do at discharge, health would stay in the game. As well as developing connected care pathways, partnering with programs like the National Disability Insurance Scheme (NDIS) may, for example, reveal the need for new service responses that health networks are ideally placed to deliver, such as workforce development programs, shared services and specialised service coordination.

Health services might also partner locally with aged care and disability providers to deliver outreach programs that provide the health input and oversight needed to enable those with intensive health needs to remain in their own homes... something currently unavailable in the community. Partner contribution and genuine collaboration by individual programs with each other is needed to take advantage of these opportunities and deliver viable connected care responses.

The *Living Longer Living Better* aged care reforms that focus on keeping older people at home for longer; and the arrival of the NDIS with its focus on improved social and economic participation for its members, means the demand for new and improved community health responses is only going to get greater. Both reforms offer an exciting opportunity for health networks to think differently about delivery of existing services outside hospital walls; and how, in collaboration with other programs, new health responses can be developed to the mutual benefit of all.

McCoy would certainly demand it be so!

**Bronwyn Morkham,**  
Young people in nursing homes alliance

## In this issue:

<b>President's Report</b>	<b>2</b>
<b>Facts</b>	<b>3</b>
<b>Innovation Made Easier</b> — The value of diversity	<b>4</b>
<b>Mathematics Teaching and Learning for the 21st Century</b>	<b>5</b>
<b>Research Spotlight: Q&amp;A on Climate and Health</b>	<b>6</b>
<b>Article-level metrics: How can you influence the impact of your research?</b>	<b>7</b>
<b>ASMR Travel Award</b> — 2015 recipients reports	<b>8</b>



## 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 9230 0333  
Fax: 02 9230 0339

Email:  
asmr@alwaysonline.net.au  
Web: www.asmr.org.au

Newsletter Editors-in-Chief,  
Dr Joanne Bowen

Print Post Approved  
25500300067

# President's Report

Discoveries underpinning new cures and prevention of disease can be likened to a symphony where the talented minds of our exceptional workforce (orchestra) play in the great Concert Halls (laboratories). The audience are the Australian people, witness to and enjoying the incredible benefits; improvements to health and economic prosperity. At this time, in this country, our symphony is being quashed. While an orchestra will still play in the absence of a conductor, trumpeter and violinist, the quality and magnificence is severely compromised. Our world class health and medical research sector is being damaged, Australia's talented and motivated people are disappearing, because of lack of career opportunities and job security as a direct result of 5 years of static funding into the NHMRC MREA.

Building and maintaining the great hall for discovery takes many elements which are produced by multi-lateral discussions between policy makers, experts, stakeholders and the public. In 2016, three key government consultations have been undertaken and ASMRs input provided to improve the health and medical research sector. In summary the

1. R&D Tax Incentive Review (which has just entered phase II of consultation),
2. Structural Review of the NHMRC Grant Program and,
3. Medical Research Future Fund consultation for the development of the Australian Medical Research and Innovation Strategy and related Priorities (for ASMR response visit [www.asmr.org.au](http://www.asmr.org.au) and click on submissions).

In terms of the Structural Review of the NHMRC Grant Program, the ASMR Board engaged in all city consultations which was touted "the biggest game in town", by witnessing the big turnout of the sector. The review and outcomes are on everyone's lips. **ASMR strongly agree that the current complex NHMRC grant structure (9 different grant schemes) is unsustainable for both researchers and the NHMRC, unless there is a significant injection of investment into the MREA.**

ASMR's view of the objectives of the Structural Review is to optimise support of the most number of talented researchers **within the current resources of the NHMRC MREA.** Without a re-structure of the NHMRC's grant program, the majority of the sector will continue to struggle for the foreseeable future, with dire consequences for the ability of the sector to address present and future health challenges. The health and medical research sector is vulnerable, notably the talented pool of future leaders (early and mid-career researchers) who, in the current climate, are being lost from the sector. ASMR's unreservedly feels a responsibility to ensure that a re-structure of the current NHMRC program supports the next generation of research leaders and has built-in mechanisms to foster succession planning so that our sector can continue to provide positive health, economic and social returns. Succession planning is essential to maintain research excellence and capacity. ASMRs view to optimise NHMRC investment, research excellence and capacity need strengthening, which will require a correction of 5 interrelated challenges faced by the health and medical research sector:

1. lack of opportunity for, and loss of, establishing (mid-career) researchers;
2. low innovation productivity;
3. poor gender and cultural diversity;
4. reluctance to foster multi-disciplinary collaborations/partnerships;
5. lack of opportunities for translation.



Let me go back to the issue that was highlighted in italics. "The current complex NHMRC grant structure is unsustainable for both researchers and the NHMRC, *unless there is a significant injection of investment into the MREA*". The major challenge the sector faces now, is a tight budget. There has not been a significant injection of investment into the NHMRC MREA since 2011. The impacts are crippling on the sector. Last year funded rates were at an historic low 13.7% for the NHMRC Project Grant scheme (< 1 in 7 grants being funded. NB 2/3 of the applications submitted are considered fundable). What will funded rates be this year? Inevitably lower. Declining funding rates are an indicator of pressure on the system and on the workforce and hence the reason for the Structural Review. The reality of this rising pressure equates to job losses. The Australian workforce has a strong international reputation for quality and ideas, however it is being damaged and our talented and highly qualified people are disappearing. Those being lost are not simply those 'on the fringe or the margins' but more and more of these researchers considered outstanding by their peers.

## Facts

- Data that ASMR has gathered from the NHMRC the project grant scheme that is funded from the Medical Research Endowment account show over the last 3 years, there has been a decline of nearly 700 FTE positions.
- There has been a 20% decrease in the number of the NHMRC Fellowship awarded over the past 5 years. This represents a loss of highly qualified individuals and a loss of leaders needed to train the future workforce.
- Greater than 20% of survey respondents in 2015, were unsure whether they had employment in 2016.

What does all this mean to ordinary Australians? It means that our country, our people will not have the health system they deserve. That discovery, development, breakthrough, that new screening strategy or therapy will be lost forever as will its potential to impact in a positive way on the health of our friends and family, on the economy and the country.

The overarching issue, which there is broad consensus from the science, research and innovation sector, is that Australia need to create a predictable investment strategy for the future, to eliminate the toughs, which results in loss of talented individuals and reduces the momentum of discovery and in turn translation into end user outcomes, of which in our sector is health benefits (and economic and social returns). More specifically for our sector, invest more money into the NHMRC MREA incrementally until 3% of the total health expenditure is achieved (2025). Why wouldn't you invest in the NHMRC MREA? Investment into the NHMRC has generated exceptional returns for example, for \$1 invested the return is \$3.20; in 2011, there has been \$6.1B in commercial returns from the NHMRC funded research; NHMRC Development grant scheme that funds proof of concept projects has been shown to be highly productive. An independent and comprehensive review of 40 completed grants in 2012 showed 6 resulted in product to market, 80% had found a commercial partner and 55% were under some form of commercial development. **Investment into the NHMRC has been profoundly successful and investing in the NHMRC MREA critically important**, because it is the bedrock of curiosity (basic) driven research which feeds the research pipeline to translation and health products to market because it supports our best and brightest, it mitigates the squandering of past and future investment, the latter meaning the tremendous initiatives of the Medical Research Future Fund (MRFF) and the National Science and Innovation Agenda (NISA). The MRFF and the NISA cannot replace the MREA, these initiatives rely on the solid footings of the MREA.

At ASMR we have always likened the MRFF and NISA investment to a 2 storey house, the MRFF and NISA the 2nd storey and the value-add and the NHMRC MREA as the first storey; the foothold-erode the foothold and the integrity of future investment will collapse. The NHMRC MREA, is the economic pillar to success, and that's why ASMR wants to protect it. New data from Deloitte Access Economics, commissioned by ASMR, will be launched shortly and will provide useful data in leveraging policy.

ASMR welcomed the tremendous initiative of the MRFF since its announcement. We have worked cautiously to influence its development since inception through to the MRFF Bill, (ASMR President at the time, Associate Professor Phoebe Phillips gave evidence at the 2015 senate enquiry), and now to guide strategies and priorities. Progress has been made, the MRFF Advisory Board public consultation phase has occurred nationally. \$61M is expected to be disbursed in 2016/17 and \$784M over the next 4 years. This should provide some level of predictability for the broader sector in the long term, but the MRFF will not save those talented people that the sector has lost already and we will continue lose. These individuals are not replaceable, it takes decades to acquire the skills and deep knowledge they have, and a lot of tax payer dollars.

Questions ASMR is keen to have answered are, what will be the priority areas for the first \$61M and future disbursements? ASMR advocate the initial disbursement to provide substantial and immediate benefit (to alleviate the current pressure the sector is facing) to the sector by investing in NHMRC program schemes that complement key translational objectives of the MRFF and re-training the sector to encourage cultural change and the development of new skill sets to facilitate collaboration across industries and disciplines thus improving innovation performance. Will grants be awarded via the preferred approach of independent expert review, the only way to ensure the best ideas are supported? Will opportunities be available for the entire pipeline of research including curiosity driven research? ASMR will keenly await further developments and **the opportunity to continue to advocate for what's best for the sector and for all Australians.**

Dr Sarah Meachem

For up-to-date news and information about what is happening with ASMR —

Follow us on

Social Media!



[twitter.com/theasmr1](https://twitter.com/theasmr1)



[www.facebook.com/theASMR/](https://www.facebook.com/theASMR/)



[www.youtube.com/channel/UCq3Hqjgmyz3ZeYjyi5yOcJQ](https://www.youtube.com/channel/UCq3Hqjgmyz3ZeYjyi5yOcJQ)

Dr Sarah Meachem

<https://asmr1.wordpress.com/category/presidents-blog/>

## Calendar of Events

### ■ Innovation Week 2016

#### **Biomedical Commercialisation Forum**

"Creating communities to drive biomedical commercialisation: Connecting talent in industry and academia"

**7 November 2016, Sydney**

Book tickets at: <https://innovationweek2016.org/events/>

### ■ Neuromodulation Society of Australia and New Zealand

17th Annual Scientific Meeting

**8-9 April 2017, Adelaide Convention Centre**

# Innovation Made Easier — The value of diversity



Successful businesses are innovative businesses. This is true for those involved in information technology. It is evident in engineering and manufacturing. We see it in education and training and many other sectors.

However innovation is not just part of the recipe for success in the area of medical research and development. It is a fundamental goal, particularly in this era of biotechnology commercialisation and the push to not only publish but also to patent.

Diversity is a great facilitator of innovation. Bringing together different viewpoints, contrary perspectives and opposing needs often demands new and atypical thinking. An essay in The New York Times entitled *"Diversity Makes You Brighter"* drew on experimental data published in PNAS into the evolution of financial bubbles to explain how diverse groups in both the United States and Asia were better at problem solving than homogenous teams.

The sociologists attributed diverse teams' greater accuracy to cognitive friction and greater deliberation, disruption to conformity which can often lead to a blind acceptance of inaccuracies, less mindless imitation of "like-minded" colleagues. Those from similar racial or ethnic backgrounds were less likely to question. Blind trust can lead to the proliferation of miscalculation. Whereas disruption to conformity can sometimes produce truly innovative solutions.

Medical scientists have a great track record for international collaboration. Some of the greatest developments have emerged by bringing together the ideas from laboratories from opposite ends of the globe. Expertise and facilities can differ from country to country and sharing these resources has been extremely beneficial for everyone involved.

Yet diversity is more than just race. Diverse teams are a mix of genders, ages, cultures, sexualities and abilities.

Much has been made recently of the need to recruit and retain more women into science and technology. There has been a concerted push to break down the myth that girls are not suited to or good at engineering, maths and IT. In fact several of Australia's leading universities have banded together to develop an innovative advertising campaign to attract female undergraduates to engineering.

However this problem doesn't appear to exist as much in the medical science arena. When STEM (Science Technology Engineering Maths) becomes STEMM (extra M for medicine) the gender imbalance is partially redressed. Higher Education Research Data from 2014 as reported by Science in Australia Gender Equity

(SAGE) shows that 72% of those taking a Bachelor degree in medical sciences and health were female and 62% of those working towards a PhD in this field were female.

The more worrying statistic is the discrepancy between the genders as their careers progress. Like so many other industries, medical science and research is top heavy with men. There is a marked decline in the number of women beyond academic level B in medical science.

What is happening to all this female talent after that initial post-doctoral appointment? Does their career progression stall once they attain lecturer status? Are they leaving the profession for other fields that offer more flexible and family friendly environments? Or are they opting out of the highly competitive quest for research funding, as historically women have a tendency to be more risk averse when it comes to financial security?

Over 40% of respondents to a Professionals Australia survey on women in STEM professions did not believe they received equal compensation for work of equal value compared to their male counterparts and 70% believed that taking maternity/parental leave was detrimental to their career. To what extent this is true for medical research sector alone, is not clear but further review is needed if gender equity is to become a reality.

In an era when patient-centred care, which empowers the person living with the disease or illness to make informed decisions in conjunction with their physician about their own care, is producing positive outcomes, isn't it also time to examine the role that those affected directly by a condition can make in the medical research context. Those that know first-hand what an illness is really like can bring a highly relevant perspective to the understanding of a condition and the needs that must be taken into consideration when looking for new treatments. Paternalistic claims that those suffering with a condition are too emotionally charged to make meaningful contributions to the team, should be, and are becoming a thing of the past.

Innovation isn't easy. Diversity can also be challenging. But the two have proven to go hand in hand in many sectors and the field of medical research may move faster by embracing more diversity dimensions.

**Lisa Annese — Chief Executive Officer,  
Diversity Council Australia Ltd**



# Mathematics Teaching and Learning for the 21st Century

Claims of a decline in the level of mathematical understanding in Australian school students have been a regular occurrence for at least twenty years. Responses to this perceived crisis have varied in time and place, but a common theme has been that students should study more mathematics. People ask me when the best time to attract kids to maths and science is, and what I believe is that are multiple times. Now more than ever, if Australia is to be an innovative country, with clever ideas and new technologies being the foundation of our economy into the future, we must bring students back to maths. To do this, we need to reconsider what is taught in the maths classroom. It is my opinion that we teach the wrong skills for the 21st century. We teach 18th and 19th Century mathematics content and give students 20th Century skills.

In daily life no one solves maths problems by hand. The only people who solve simultaneous linear equations by hand are maths teachers and students. Every science and engineering speciality uses software packages written for their domain to solve and model problems, processes, objects and events. For school students, there are even apps for smartphones which can photograph a problem in a maths textbook and provide a solution complete with intermediate steps. And computers are fast. So why do we teach students laborious techniques to do something which the phone in their pocket can do almost instantaneously?

## Maths Skills in the 21st C

A mathematician's task is to take a problem which has been defined by a client and translate it into a mathematical description which can be solved to generate useful information for the client. It may also be the mathematician's task to interpret the results for the client. In the 21st century, thanks to computers, mathematicians translate the problem into something that a computer can solve. Yet, solving problems using pen and paper is a 20th Century skill that we continue to force students to do. Even students who are taught to solve problems with electronic devices are first taught to solve them by hand. Australian students will be best served by mathematics teaching which recognises the changes in how mathematics is used in the world and gives them the skills to compute rather than solve by hand. In doing so we will remove some of the tedium associated with learning skills using tools from a bygone era. We will also enable them to concentrate much harder on the other sections of doing maths. They will become better at describing the world in mathematical terms. And most importantly they will gain a greater understanding of the world

by better understanding the results which come from a mathematical analysis. The emphasis will become "What does this result mean?" not "Is this result right or wrong?"

## Student Engagement with Mathematics

Students at primary school don't have strong opinions about mathematics any more than they have strong opinions about other subjects in their curriculum. By the end of year seven that has all changed. Students have decided (or been told) that they are either good at maths or not. A significant proportion, have also decided that they do not like mathematics, even if they are "good" at it since maths has no use for them.

If we are serious about improving the standard of mathematics understanding in Australian society we need to begin with these students at the start of their secondary education. Students who are engaged in mathematics will enjoy it, learn more and continue studying it for longer. The first steps in engaging students should be to make the material relevant to their lives and futures and to enable them to use the immensely powerful computer they all carry in their pocket.

## VSSEC's 21st Century Approach to Teaching Mathematics

The Victorian Space Science Education Centre is developing a year 7 & 8 program, *Surviving Mars*, based on Andy Weir's *The Martian*. Students will come to VSSEC where they will find themselves supporting an astronaut stranded on Mars. Their tasks will be to keep the astronaut alive and organize a safe return to Earth. They will investigate a range of problems which confront the astronaut and create simple equations to describe the situation. The equations will be solved electronically, not by the students. The interpretations of the solutions by the students will give them further understanding of the difficulties of the astronaut. There will be no "right" or "wrong" equations or solutions, rather the emphasis will be on creating equations and understanding the solutions, not solving them. Students will work in teams with each team tackling different problems but all contributing to the mission.

The overall aim is to show students that real problems can be solved mathematically but the most important parts cannot be done electronically or with procedural skills for solving equations but require creativity and original thinking.

Ian Christie —  
Victorian Space Science Education Centre



I am Trinity Meachem. I am 11 years old and I go to Glen Iris Primary School. I love maths and science. My favourite thing about math is that whatever you do you are always achieving something, whether its completing an equation or even if you get the answer wrong it could be as simple as writing it out correctly. The point is that no matter how simple it may be you are always moving forward. I love science because there is so much variety. For example, if you don't like learning about biology you might like learning about engineering or if you don't like that, you may like the environment. I also love that there is no limit to science. Therefore, if you think you have discovered everything, there is always more to study or pursue. Maths and science are both important because if you want to have a wide range of opportunities later in life it helps massively to understand and know science and maths. I believe that every child around the world should learn at least the basics of mathematics and science.

# Research spotlight: Q&A on Climate and Health

**Dr Rebecca Patrick**, Co-lead of Health, Nature and Sustainability research group at Deakin University, campaigner for a National Strategy for Climate, Health and Wellbeing and former ASMR Board member/Director of ASMR MRW \* brings us up to speed with some facts about climate change and health in Australia. In her interview with ASMR President Dr Sarah Meachem, Dr Patrick brings into focus the implications of climate change for H&MR and the health sector.

**Question:** *There appears to be contradictions in leading H&MR journals about whether climate change presents risks or opportunities for health. Could you explain this?*

**Answer:** International journals like BMJ and The Lancet and peak bodies such as the Doctors for the Environment, agree 'climate change is a health emergency'. They declare this because there is an irrefutable body of scientific knowledge that demonstrates many immediate and long-term risks that climate change poses to population health and health systems (refer IPCC, CSIRO & BOM). On the other hand, The Lancet also declared in 2015 'climate change is the biggest opportunity for health in the 21st century'. Is this a mixed message? No, they all are declaring ideas we have known in public health for a long time — that human health is dependent on the health of the environment and that what is good for the environment is, as a general rule, good for human health. The subtext of these declarations points to a co-benefit model of interdisciplinary scientific knowledge and action underpinned by health and medical research and political advocacy.

**Question:** *What does current research say about the impacts of climate change on human health, particularly in Australia?*

**Answer:** Climate change is already occurring in Australia as demonstrated by record breaking temperatures (CSIRO & BOM 2014), prolonged heat waves (Black et al 2015), increased intensity and frequency of heavy rainfall periods leading to floods (CSIRO & BOM 2014)(e.g. Queensland floods) and increased risk of bushfires (CSIRO & BOM 2014) (e.g. Victoria 2009 Black Saturday bushfires).

Climate and health researchers categorise climate change impacts on human health in three broad ways: Direct health impacts on morbidity and mortality through extreme weather events such as floods, bushfires and heat waves, indirect health impacts through loss of livelihood (e.g. mental health of farmers and drought) and increased pressure on the health system (e.g. increased hospital admissions) and eco-system mediated health impacts such as increasing the range and prevalence of pathogenic agents in water and food vector borne diseases (e.g. Dengue, Ross River). (Corvalen et al 2005; DEA 2016). Again, what this tells us is that human health is intimately linked to the health of ecosystems.

**Question:** *So, climate change impacts on natural ecosystems and in turn human health. Can you provide some relevant examples from H&MR perspective?*

**Answer:** Let's take the example of ecosystem mediated health impacts and biodiversity loss. The loss of biodiversity reduces the stock of raw materials H&MR's use for drug discovery and biotechnology, initiates a loss of medical models, affects the spread of human diseases, and threatens food systems and water supply (Alves & Rosa 2007).

There are two notable examples — a tree and an animal — that demonstrate the potential for missed medical discoveries resulting from climate-related biodiversity loss. Taxol derived from Pacific Yew tree of the USA's old growth forests was formerly considered commercially useless and was routinely discarded. That was until it was found to contain taxol, a substance that kills cancer cells through a novel mechanism. It is showing promise in the fight against breast and ovarian cancer (Alves & Rosa 2007). Then there is the Cone Snail whose survival depends on tropical coral reefs which are threatened by climate-related ocean warming and acidification (BMJ 2014). Cone snail venom contains peptides that have been implicated in the treatment of chronic pain, without the morphine type side effects such as addiction. To date only a small percentage of these peptides have been studied (BMJ 2014)

In addition to helping people recover from illness, there is a burgeoning field of H&MR which demonstrates how biodiversity and healthy ecosystems are essential for the protection and promotion of health. There is an established tradition of psychology and social sciences research which demonstrates the link between contact with nature and the promotion of mental health and social inclusion.

**Question:** *What evidence is there for climate change impact on Australia's health system?*

**Answer:** In addition to the personal health impacts, climate change also poses a threat to the resilience of our health sector. The 2009 Black Saturday Victorian Bushfires saw a 12% increase in presentation to emergency departments and a 25% increase in ambulance call outs. During the Queensland Floods, 14,600 people were supported by Red Cross across evacuation centres with 1400 staff and volunteers assisting with recovery efforts (DHS 2009; ARC 2016). Despite these and other compelling statistics, there is currently a lack of understanding of and political commitment to building capacity of Australia's health system to cope with the demands of major climate change events.

**Question:** *How does Australia compare globally within the arena of climate and health policy? How is the health sector progressing the climate and health agenda?*

**Answer:** A recent global survey of national climate and health plans found Australia lags behind comparable countries when it comes to protecting the population health from climate change. The survey pointed out that Australia has not recognised climate change related health impacts in its national climate change policies and planning efforts (Parry et al 2016).

Nationally, many health professionals are currently engaged in a campaign for a National Strategy on Climate, Health and Wellbeing. This campaign will help raise the profile of health issues in the context of climate change and stimulate debate about the issues with the help of respected and trusted H&M professionals. The campaign focuses on the co-benefits for health of action on climate change and notably for H&MR, one of the key action areas of the proposed National Strategy is re-establish climate change and health research capacity.

**Question:** How can H&MR get involved in the campaign?

**Answer:** Join the campaign team:  
email [convenor@caha.org.au](mailto:convenor@caha.org.au)

Email your MP and Senators asking them to protect health through climate action:

<http://climateandhealth.good.do/act-on-climate-to-protect-health/email-your-local-mp-and-senators/>

Visit the campaign leader's website Climate and Health Alliance (CAHA) for more information: <http://caha.org.au/campaigns/national-strategy-climate-health-wellbeing/>

#### References

- Alves and Rosa 2007, Biodiversity, traditional medicine and public health: where do they meet? *J Ethnobiol Ethnomed.* 3:14
- ARC 2016, Queensland floods 2011
- Black et al 2015, The contribution of anthropogenic forcing to the Adelaide and Melbourne heat waves of January 2014. *Bull Am Meteorol Soc.* 96: S144
- Corvalen, et al 2005, Ecosystems and Human-wellbeing Health Synthesis: A report of the Millennium Ecosystem Assessment, *WHO Press*
- CSIRO & BOM, 2014, State of the Climate
- DEA 2016, Climate change and Health in Australia Fact Sheet
- DHS 2009, January 2009 Heat wave in Victoria: An assessment of health impacts
- Godlee 2014, Climate change is a health emergency, *BMJ.* 348:g2546
- IPCC 2014, Climate Change 2014: Impacts, Adaptation, and Vulnerability
- Parry et al 2016, Towards a National Strategy on Climate, Health and Wellbeing

## Article-level metrics: How can you influence the impact of your research?



Complex, frustrating, useful, intimidating, fascinating...however you feel about research metrics, as a researcher, you do need to have a reasonable grasp on how various metrics are calculated and how they could affect your work and career.

As a publisher, I often work with journal editors to develop strategies to increase journal-level metrics, like the Impact Factor and Eigenfactor. There are a number of metrics that purport to assess the quality and value of a journal, and even an [author](#). For a full explanation of these, [this article](#) is a useful guide.

These metrics are important to journal editors and the authors who get published in these journals (although their importance is being debated by organizations like [DORA](#)), but the value of a high impact-factor journal isn't really transferred to an individual manuscript. Authors have long been in the dark about what impact their publications are having on policy or practice, relying on institutional PR departments to promote articles and report back on any resulting activity.

With the introduction of Article Level Metrics (ALMs), authors are now able to discover exactly what impact their articles have. [Altmetric](#) is a company that calculates a score for an article based on how often it is referenced in online media, social networking sites and policy documents. Wiley and some other publishers now

showcase [an article's Altmetric score](#) alongside the article information. If you click on the Altmetric badge, you can easily see details about media coverage and social media activity for your article.

Anecdotal evidence suggests that institutions are now starting to place value on Altmetric scores when evaluating research impact. So, how can you, as an author, influence your article's Altmetric score? [Integrating social media into your workflow](#) is key to increasing your network and influence in your research community. There are some [simple ways](#) you can help improve your article's Altmetric score.

One of the challenges of social media is understanding what activities are useful and how to use your time most effectively. [Kudos](#) is a company that can help you track your social media activity and results. Linking your articles (ideally with an [ORCID](#)) to your profile allows you to [take steps](#) to improve your article's potential for social sharing and to track the impact of your research, including its Altmetric score and citations.

This is an exciting time in research and publishing. Never before has a researcher been able to have so much influence on the perception and dissemination of their research. I encourage you to take advantage of all the tools available to you to ensure your research delivers the impact you desire and the recognition it deserves.

**Julia Ballard-Wiley**  
**Senior Publishing Manager**

# ASMR Travel Award - 2015 recipients reports

## Dr Kimberley Wang

### (International award)

Asthma is a prevalent disease in Australia producing significant life-long morbidity and over 400 deaths each year. Health expenditure due to asthma was \$655 million in 2008–9. Fifty percent of this cost is in the 5 to 10% of patients with severe asthma, where increased airway smooth muscle is the most striking pathological feature. Contraction of the airway smooth muscle contributes substantially to symptoms of wheeze, chest tightness and cough, and in some patients causes mortality.

Few laboratories in the world have established reliable methods to examine phosphorylated (or unphosphorylated) myosin light chain in airway smooth muscle. Myosin light chain phosphorylation in airway smooth muscle initiates the contractile cycle (force development) and is therefore a pivotal pathway in the study of airway disease. The difficulty in the approach relates to the specific extraction of myosin light chain from the airway smooth muscle cells and the sensitivity of the signal. With respect to the assessment of myosin light chain, the leader in this area is Dr Lu Wang from Professor Chun Seow's Laboratory at the Centre for Heart Lung Innovation, University of British Columbia and St Paul's Hospital, Vancouver, Canada. In a recent methodological publication, Dr Wang highlights important procedural factors for the accurate assessment of myosin light chain.

In June 2016 with the support of ASMR International Travel Award, my visit to the Seow's Laboratory has formalized an international collaboration with Professor Chun Seow and Dr Lu Wang. I was able to be trained first-hand in methods for extraction and analysis of myosin light chain by urea-glycerol electrophoresis and Western blot analysis (using an ovine model). I am now able to transfer this knowledge to our Perth Laboratory.

During my stay in Vancouver, I was also invited to give an oral presentation at the Centre for Heart Lung Innovation's Friday Seminar Series. I sincerely would like to thank ASMR for allowing me to build on my molecular skillset to examine molecular pathways of airway smooth muscle contraction at the Seow's Laboratory by funding the travel expenses for my 3 weeks stay in Vancouver



## Dr Sivaraman Purushothuman

### (National Award)

In May 2016, I undertook a 3-week lab visit to Adelaide University's Alzheimer's Disease Genetics Laboratory under A/Prof Michael Lardelli. Here, I learnt about the Amyloid precursor protein (APP) gene and protein structure using bioinformatics and phylogenetic studies to examine the evolution of APP genes among several others using online databases and specialised computer-based programs. The physiological function of APP gene is yet to be fully understood as there are at least ten protein isoforms of APP present, having somewhat distinct functional roles, localisations, and metabolic pathways generated by alternative mRNA splicing. This further adds complexity to Biology. In humans, the three major isoforms of APP are produced due to the alternative splicing of exons 7 and 8, which encode a 56-amino acid Kunitz-type proteinase

inhibitor (KPI) domain and a 19-amino acid OX-2 domain, respectively. The longest isoform of the three major APP isoforms, APP770, contains both the KPI and OX-2 domains, whereas APP751 contains only the KPI domain. These two isoforms are known to be the most amyloidogenic that causes elevated levels of amyloid-beta protein production and aggregation in brains of patients with Alzheimer's disease. Both the KPI and OX-2 domains are absent from the shortest isoform, APP695. Currently, very limited knowledge is present in the literature about the KPI and OX-2 domains. Further research evaluating the functional importance of these domains is warranted.

Overall, I enjoyed my time in Adelaide, broadening my research adventure while understanding more about bioinformatics which is a field that I always wanted develop for my own future research career. I thank the ASMR for giving me this opportunity.





## 55TH ASMR NATIONAL SCIENTIFIC CONFERENCE



### **Firkin Oration**

**Professor Alim-Louis Benabid**  
Clnatec, France

*Deep-brain stimulation pioneer 2014  
Lasker Prize Winner  
2015 Breakthrough Prize Winner*



### **Edwards Oration Professor**

**Alan Trounson** Hudson  
Institute, Melbourne IVF and  
stem cell science pioneer Former  
President – California Institute for  
Regenerative Medicine

### **National speakers:**

Professor Melissa Little (MCRI)  
Professor Sanjoy Paul (QIMR)  
Professor Frank Caruso (University of Melbourne)  
Professor Jennifer Martin (University of Newcastle)  
Dr Natalie Bradford (University of Queensland)  
Dr Graham Radford-Smith (QIMR)

**Early-bird registration deadline 30 September**  
**Abstract submission deadline 21 October**



Nov 13–15, 2016  
Gold Coast, Queensland  
<http://www.asmr-nsc.org.au/>  
**Secure your place today!**

**NEXT GENERATION  
HEALTHCARE:  
MERGING BIOLOGY  
& TECHNOLOGY**



---

## ASMR Directors 2016

### Executive Directors

#### Dr Sarah Meachem

— President

#### Dr Daniel Johnstone

— President-elect, NSC 2016

#### Dr Roger Yazbek

— Honorary Treasurer

#### Dr Phoebe Phillips

— Honorary Secretary

### Directors

#### Dr Demelza Ireland

— ASMR Medical Research Week®/  
Sponsorship

#### Dr Joanne Bowen

— Newsletter Editor

#### Dr Brigid Lynch

— Membership and Communications

#### Dr Shyuan Ngo

— Careers

#### Dr Bree Foley

— Indigenous Health/  
Community Advocacy

#### Dr Jamie Fletcher

— NSC 2017 and assisting 2016

#### Dr Matt Dunn

— Media

### Executive Office

#### Catherine West

— Senior Executive Officer

#### Priscilla Diment

— Administrative Assistant

---

## ASMR State Branch Convenors

#### Dr Siva Purushothuman

— New South Wales Convenor

#### Dr Jill Larsen

— Queensland Convenor

#### Dr Rajaraman Eri

— Tasmania Convenor

#### Dr Brooke Harcourt

— Victoria Convenor

#### Dr Belinda Brown

— Western Australia Convenor

#### Dr Ian Johnson

— South Australia Convenor

#### Dr Sharon Pok and Tanya Racic

— ACT Convenor

#### Dr Nicole Ryan

— Newcastle Convenor

Contact details

[www.asmr.org.au/Statebranch.html](http://www.asmr.org.au/Statebranch.html)

---

## ASMR Affiliate Members

ANZAC Research Institute  
Australasian College for Emergency Medicine  
Australasian College of Dermatologists  
Australasian Faculty of Occupational and  
Environmental Medicine  
Australasian Gene Therapy Society Inc  
Australasian Neuroscience Society Inc.  
Australasian Sleep Association  
Australasian Society of Clinical Immunology  
and Allergy  
Australasian Society for HIV Medicine Inc  
Australasian Society for Immunology  
Australasian Society for Infectious Diseases  
Australasian Society of Clinical and  
Experimental Pharmacologists and  
Toxicologists  
Australian and New Zealand Association of  
Neurologists  
Australian and New Zealand Bone & Mineral  
Society  
Australian and New Zealand College of  
Anaesthetists  
Australian and New Zealand Obesity Society  
Australian and New Zealand Orthopaedic  
Research Society  
Australian and New Zealand Society for Blood  
Transfusion  
Australian and New Zealand Society of  
Nephrology  
Australian Atherosclerosis Society Australian  
College of Nursing  
Australian Diabetes Society  
Australian Medical Students' Association Ltd  
Australian Physiological Society  
Australian Rheumatology Association  
Australian Society for Biochemistry and  
Molecular Biology Inc  
Australian Society for Parasitology Australian  
Vascular Biology Society  
Baker IDI Heart & Diabetes Institute  
Bionics Institute of Australia  
Brain and Psychological Sciences Research  
Group  
Burnet Institute  
Cardiac Society of Australia and New Zealand  
Children's Cancer Institute Australia Children's  
Medical Research Institute Deeble Institute  
for Health Policy Research Ear Science  
Institute Australia  
Endocrine Society of Australia  
Eskitis Institute  
Fertility Society of Australia  
Haematology Society of Australia and  
New Zealand  
High Blood Pressure Research Council of  
Australia

Human Genetics Society of Australasia Hudson  
Institute of Medical Research Institute of Health  
and Biomedical Innovation Institute of Mind &  
Behavioural Sciences Kolling Institute of Medical  
Research  
Lions Eye Institute Limited  
Mater Research Institute  
National Association of Research Fellows  
Nutrition Society of Australia Inc.  
Ophthalmic Research Institute of Australia  
Paramedics Australasia  
Perinatal Society of Australia and New Zealand  
Queensland Eye Institute & Prevent Blindness  
Foundation  
Research Centre for Clinical & Community  
Practice Innovation  
Royal ANZ College of Obstetricians and  
Gynaecologists  
Royal Australasian College of Surgeons  
Royal Australian and New Zealand College of  
Radiologists  
Royal Australian and New Zealand College of  
Psychiatrists  
Royal Australasian College of Physicians  
Royal Australian College of General  
Practitioners  
Royal College of Pathologists of Australasia  
Society for Free Radical Research (Australasia)  
Society for Reproductive Biology  
Society of Mental Health Research  
Thoracic Society of Australia and New Zealand  
Transplantation Society of Australia and New  
Zealand  
University of Queensland —Diamantina  
Institute  
Westmead Millennium Institute for Medical  
Research  
Women's & Children's Health Research Institute

---

## ASMR Associate Members

Arthritis Australia  
Australian Red Cross Blood Service  
Australian Respiratory Council  
Brain Foundation  
Clifford Craig Medical Research Trust  
Foundation for High Blood Pressure Research  
Haemophilia Foundation of Australia  
Juvenile Diabetes Research Foundation  
Kidney Health Australia  
Lupus Association of NSW  
McCusker Alzheimer's Research Foundation  
Muscular Dystrophy Association Inc  
National Heart Foundation of Aust  
Scleroderma Association of NSW Inc  
Queensland Government

---

## ASMR Supporting Members

Research Australia  
Wiley Australia