

President's Report

I feel extremely privileged and honoured to represent you and our sector as the 54th ASMR President. I am very proud to be leading a society which has continued to provide evidence to support its advocacy for all Australian health and medical researchers.

In 2014, only 14.9% of National Health and Medical Research Council (NHMRC) project grant applications were funded (this marks a significant drop of over 8% since 2011). The sad reality is that *over 45% of last year's applications were considered fundable, but remain unfunded* due to budgetary constraints. In addition, the total NHMRC budget allocation in 2014 was just over \$778 million, which is less than that of 2008 (\$784 million) where the project grant success rates were 27%. The situation for the sector is the worst we have seen and the result will be an attrition of our world-class, highly skilled and productive workforce as well as a reduced capacity to improve health outcomes.

Current government investment into NHMRC represents 0.6% of the health portfolio spend, a fall from 0.8% in 2011. This is of critical concern given that Australia faces unprecedented health and economic challenges over the next 50 years, due to an ageing population and increase in chronic diseases.

Last year, health and medical research received overwhelming publicity with the announcement of the Medical Research Future Fund (MRFF) in the May Budget. The outcome of the MRFF is still uncertain, but I am committed to ensuring continued government recognition of the value of investment into the sector through a sustainable investment model to secure the future health of all Australians.

In our recently submitted pre-budget submission to the Federal Government, ASMR has requested that investment be immediately lifted in the National Health and Medical Research Council (NHMRC) to 1% of total health expenditure (this would require an immediate injection of funds calculated to be \$300M). In terms of benefit from the MRFF, the sector will not see any significant increase in research funding until 2017 (\$0.18 billion; Chart 2.2 of our recent Deloitte report; <http://www.asmr.org.au/Publications.html>). In addition, we have asked that Government commit



Dr Phoebe Philips, ASMR President

to incrementally increasing investment for health and medical research to reflect 3% of total health expenditure by 2023. This evidence based investment strategy will have a conservative **saving of \$25.9 billion to the Australian Economy**, as well as significantly improving health outcomes for all Australians.

I am mindful of the particular vulnerability of mid-career researchers resulting from the current financial constraints and will be arguing the case to ensure the continuity of our valuable workforce.

ASMR's hard working Directors and State Committee members are busy organising this year's ASMR flagship events: **ASMR Medical Research Week®** and the **ASMR Medallist Tour**. The tour will cover Hobart (Thursday, 28th May), Brisbane (Friday, 29th May), Adelaide (Monday, 1st June), Sydney (Tuesday, 2nd June), Canberra (Wednesday, 3rd June), Melbourne (Thursday, 4th June) and Perth (Friday 5th June). I encourage all members to save the dates and remember that these events provide opportunities for researchers to present their work, engage with members of the public, with key government stakeholders and foster networking and collaboration. I am pleased to announce this year's **ASMR Medallist** is **Professor Ashok Saluja**.

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This award will recognise Prof Saluja's outstanding work in pancreatic diseases (pancreatitis or inflammation of the pancreas and pancreatic cancer) and the huge impact his findings have had on science and medical research. Ashok moved from India to the USA in 1980, where he spent 20 years at Harvard Medical School. Currently he is Professor and Vice Chair of the Department of Surgery and Medicine at the University of Minnesota Medical School. Prof Saluja is committed to finding a cure for pancreatic cancer, as it is one of the most lethal of all cancers. One of many highlights of Ashok's career was his discovery that a stress protein (Heat shock protein 70) protects pancreatic cancer cells from death. He also discovered a novel inhibitor to block this protein in cancer cells, resulting in the cancer cells dying. His group developed a small molecule, which they have named *Minnelide™*. This compound kills tumours in several models of pancreatic cancer in mice. This novel drug is currently being tested in phase 1 clinical trials in human patients with pancreatic cancer. The scientific community is eagerly awaiting the outcome of this trial in patients because currently the best drug we have for pancreatic cancer only prolongs life by 6 to 12 weeks, with most patients succumbing to the disease within

3 to 6 months following diagnosis.

This year we are pleased to announce our **National Scientific Conference** will be held in the Stamford Plaza, Adelaide from the 15th-18th November. The theme for this meeting is **Bugs, Bowels and Beyond: Innovations in Digestive Health and Disease Research**. Keep an eye out for our program. Although every year our national conference has a theme, all researchers are welcome and we particularly encourage students and early career post-docs to submit an abstract. A highlight of our meeting this year will be combining networking with local wine tasting (an essential source of flavonoids with excellent anti-cancer properties).

I ask all members to continue raising the profile of health and medical research to government by communicating examples of how medical research makes a difference. Together we can have a positive influence on the sector and continue improving health outcomes for Australians. I am looking forward to a productive year.

Dr Phoebe Philips, ASMR President



Professor Warwick Anderson

The Past, Present and Future of the NHMRC

It has been an enormous privilege to be the CEO of NHMRC since 2006 and the first CEO since NHMRC emerged from the Department of Health as an agency in its own right. Throughout my time, I saw my responsibilities as identifying and supporting the highest quality research through peer review, working to ensure that the nation benefits from that research, and bringing rigour,

evidence and ethics to NHMRC's other roles of evidence-based advice.

I was keen to bring a more transparent process to NHMRC especially in peer review, to broaden our research approaches right across all areas relevant to improving health and to tackle some of the areas in health where the evidence from research needs to be having a greater impact.

What follows is a list of some of the changes made in the last nine years of which I am particularly proud. Of course, the fact that NHMRC research funding almost doubled from \$437 million in 2006 to \$859 million in 2015 was crucial to many of the changes being able to be made.

Excellence and trust

When I started in 2006, it was made known to me that some senior officials in Canberra were convinced that NHMRC's peer review systems were just "mates giving grants to mates". The need to fix this was signalled to me from the highest levels.

This aligned with my own view that excellence and quality in peer review was the essential ingredient in research funding and so I have had a special focus on strengthening our peer review process.

One of the first and most contentious changes at the time was ruling out the use of the Journal Impact Factor in judging individual grants and fellowship applications (beginning in 2008), but this practice is now widely accepted including in the San Francisco Declaration on Research Assessment (DORA). In all our schemes, we have worked to broaden the criteria for how 'researcher achievement' is judged. This has gone beyond just the number of citations they receive, to include achievements in industry engagement, policy development and mentoring.

Other steps we have taken to ensure quality and fairness in peer review include the introduction of independent chairs for all our panels, establishing clear criteria upon which to assess grants (so both applicants and assessors know what is wanted) and

'separating powers' in decision making (for example, the spokesperson is no longer the person who also chooses the external reviewers).

Today, we fund 4,000 more researchers than we did when I first began. In 2015, NHMRC supports 584 Early Career Fellowships, 268 Career Development Fellowships, 427 of the SRF/PRF/SPRF Fellowships, 83 Practitioner Fellowships, over 2,042 Project grants, 54 Program Grants and 81 Centres of Research Excellence. I am confident that every single one of these grants was funded following a rigorous, fair and transparent process.

Responsible research conduct

Funding research is only half the story. I believe NHMRC has an important role to play in ensuring that the research we support is conducted according to the highest ethical standards. The introduction in 2007 of the *Australian Code for the Responsible Conduct of Research* was an international first — a 'self-regulation' approach that both promotes best practice and sets up mechanisms to address allegations of research misconduct.

There is more to be done and right now, NHMRC is tackling the new issue of apparent lack of reproducibility in some biomedical research. It's an issue that concerns funding organisations the world over, but the solution requires everyone — NHMRC, institutions and researchers — to ensure the integrity of the scientific method, in order to have results upon which other researchers can build reliably, and upon which clinical and public health guidelines can be built.

Broadening NHMRC's research effort

Over the last decade, NHMRC has expanded to cover all research relevant to health; not just biomedical research but clinical, population and health services research and all disciplines and approaches relevant to health.

Separate fellowship streams have been introduced for clinical and population researchers in our Early Career and Career Development Fellowship, and the Centres of Research Excellence scheme has expanded to include public health and health services translation as well as clinical translation.

Priorities

I also introduced priority driven research calls in areas where Australia needs specific answers, known as Targeted Calls for Research (TCR). Recent NHMRC TCRs have included Suicide Prevention in Aboriginal and Torres Strait Islander Youth (2013), Fetal Alcohol Spectrum Disorder among Aboriginal and Torres Strait Islander People (2013) and Mental Health (2012). One of the most recent is a major call for research to better prepare our health system for the genomics revolution. Targeted research calls have also been the focus of our

international relationships with Singapore, China, the Global Alliance for Chronic Disease and the Californian Institute of Regenerative Medicine.

Almost every week there is a call from some group to make a particular area of research a 'research priority'. Though this is understandable and there is often a compelling patient-centric case, NHMRC needs always to keep a perspective that no matter how much priority we might give, say, mental health or cancer or musculoskeletal research, this will never result in Australian research being greater than still just a few percent of the total world effort. For this reason, our Targeted Calls for Research are largely in the health services and public health areas, where there is a need for research that specifically addresses how we deliver health care and address prevention here in Australia, with our own demographic profiles and environmental conditions. It's no coincidence then that Indigenous health issues have predominated in NHMRC's Targeted Calls.

Aboriginal and Torres Strait Islander health research

Because the health of Australia's Aboriginal and Torres Strait peoples is so much poorer than for the rest of Australia, the country must give priority to the improvement of our First People's health. This area of health and medical research is not a responsibility we share with others; it's our own national responsibility. I am proud that NHMRC's funding for Aboriginal and Torres Strait Islander health research has continued to grow and is now above our 'at least 5% of total funding' commitment. Recently, we have begun to rigorously analyse (through the Cochrane Collaboration) what has been learned from this research because, despite the research, the 'gap' in health outcomes is closing much too slowly.

I have been very grateful for the unanimous and constant support that I have received from all Council and Principal Committee members in this priority focus on Aboriginal and Torres Strait Islander health research. It has also been very helpful to have the different perspectives of Canada and New Zealand through the NHMRC/HRC/CIHR Tripartite agreement.

International engagement

When I began, I was determined that we should participate in major international collaborative efforts; an increasing feature of medical research.

I saw it partly as our responsibility as a country that is much richer than the vast majority of countries worldwide. Perhaps more importantly, the excellence of Australian health and medical research and the highly collaborative nature of Australians meant that we had much to offer. These international collaborations also test us — are we really up to international quality?! (The answer so far is yes!)

We are now part of international efforts in such areas as cancer genomics, chronic disease research, mental health, dementia, stem cell science, rare diseases, Type 1 diabetes, Type 2 diabetes, infectious disease science, and more. As well, we are involved with policy work collaboratively in such areas as First Peoples health, genomics, clinical trials, guidelines, dementia, health ethics, research ethics, data access, and lab animal welfare. Building relationships in our region, we have collaborations with Singapore (A*STAR) and China (the National Natural Science Foundation of China) and are in negotiations with Vietnam.

Women in health and medical research

One of my last actions as CEO was to gain Council's agreement to add requirements on supporting women to our Administering Institutions requirements.

The problem to be addressed is the loss of women from senior positions in health and medical research. Although our NHMRC Early Career Fellows are roughly 50:50 women to men, this ratio falls and falls as the NHMRC Fellowships become progressively more senior. Though we must be vigilant about comparative success rates, the reason that the ratio falls is predominately because the proportion of women *applying* falls progressively as the fellowship becomes more senior. Thus, in the 2014 application round 55% of Career Development Fellowship applicants were women, but only 11% of applicants for Senior Principal Research Fellows were women.

The loss of women from research is not a problem that NHMRC can solve on its own. The changes to our Administering Institutions policy are designed to ensure that female researchers in Australia have adequate support in their workplaces nationwide.

Translation of research

The concept of research translation was just beginning a decade ago but since then, NHMRC has introduced a number of initiatives in this important area. The internationally unique Research Translation Faculty concept introduced three years ago is bringing research evidence more powerfully to policy makers, through the unique "Case for Action" process.

In 2008 we also established a new funding scheme, Partnerships for Better Health, where organisations can partner with health researchers and with NHMRC for funding in research on questions for which they (the partner organisations) need answers from research. The Partnerships Projects scheme has attracted over 200 very diverse government, community and private organisations; for example the Royal Australian College of General Practitioners, the National Prescribing Service, Guide Dogs (ACT/NSW), the Spinal Cord Injury Network, Coroner's Court of Victoria, Victorian Foundation for Survivors of Torture and many more.

Our Development Grants scheme has yielded outstanding commercialisation translational outcomes. An independent review of 40 individual Development Grants found that 85% had reached complete or partial proof of concept, 80% had secured a commercial partner, 55% were under some form of possible commercial development and 6 had a product to market or were awaiting regulatory approval.

In another new concept to promote translation, NHMRC's Advanced Health Research and Translation Centres have just been announced. These Centres can be, I am convinced, a powerful means of bringing research and patient care together, opposing the centrifugal forces that have tended to drive them apart.

Guidelines, health advice and ethics

Half of NHMRC's task is outside research funding and this part of the CEO's job is perhaps the most contentious. We publish clinical and public health guidelines after we have conducted systemic unbiased reviews of the literature and issue NHMRC Public Statements in such contentious areas as natural therapies, alcohol drinking, dietary advice and on environmental issues (lead, wind farms).

NHMRC has also continued its many decades long leadership in human and animal research ethics, through periodic updates of the *National Statement on Ethical Conduct in Human Research* and the *Australian Code for the Care and Use of Animals for Scientific purposes*.

Of course, all of this could not have been achieved without the hundreds, perhaps thousands of people who have offered me their ideas and advice (whether we asked for it or not!) and the many thousands of researchers who have supported the work of NHMRC, especially through our peer review panels.

I would especially like to thank ASMR for their support over the last nine years. As ever led by younger researchers, ASMR's mature, balanced and persuasive work has continued as a powerful force over my time at NHMRC. Long may it be so!

Professor Warwick Anderson
— Chief Executive Officer,
National Health & Medical Research Council

How I became a Science Advocate

From laboratory scientist, to ASMR President, to the NHMRC leadership team:

Dr Sarah Meachem has worn many hats. Here, she tells her story about how she became a science advocate, and how you can too.

They say 'charity begins at home', and that's exactly where I believe science advocacy begins. All you have to do is share *why* you do research with your family and friends. That is where it all started for me.

To tune my communications skills, I cherry-picked communication workshops that enabled me to provide better and more inspiring explanations of my work, for everyone from pre-kinder kids to the Prime Minister. Literally! There are many courses that can facilitate better communication skills. Just take a close look at what is offered by your Institute, University and/or Professional society. Much of my training came from attending ASMR professional development days. It's really about getting on the court and giving it a go, not sitting back in the stands and being a spectator, 'practice makes perfect'; it's true. If anyone asked me about my work, or a group invited me to speak, I took the opportunity to inspire people and to explore new ways to communicate.

In 2003, I had a light bulb moment. Rather than doing it for fun, perhaps I could use it for something practical, in the event I found myself jobless (no funding). It was becoming increasingly clear to me that investment in health and medical research was decreasing, and job insecurity and lack of career opportunities were increasing. In short, I needed a plan B. So I looked for a mentor and an organisation that I was aligned with that could teach me how to be a cautious and responsible political, scientific and public advocate. ASMR became my training ground. The past ASMR Presidents were well-decorated researchers and science advocates, so I needed to 'hang' out with these people — and that I did. Now I have been part of ASMR and the Board for more than a decade. ASMR has proved a fertile ground for learning how to become an advocate for health and medical research to many opinion leaders across the health sector. As the ASMR President in 2008/9, I pounded the pavement at parliament house and spoke to opinion leaders to positively influence the health and medical research landscape of Australia. The benefits, for me personally, have been enormous. I have won awards for science communication and leadership, and have worked in executive positions in a variety of organisations, including the Children's Cancer Institute and the

NHMRC. Personally I feel I have greater job security, better career prospects and an unforeseen benefit of a healthier pay packet.



Dr Sarah Meachem, ASMR President-elect

So, who knows where science advocacy will take you? Who knows what you will discover? But, just like your research, it will be a big adventure.



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Professor Stephen Tong

A dwindling species — the challenges to keeping afloat as a clinician-scientist

The most hazardous time in one's life, by far, is the nine months gestating in mum's womb. Fetuses succumb to stillbirth due to poor placental function, infection, or rampant maternal diabetes. Preeclampsia, ectopic pregnancy and massive bleeding during pregnancy can claim mothers. Thus, pregnancy complications exact a terrible toll and demand the attention of talented scientists to find solutions.

And yet, the sum total of active NHMRC funded senior clinician-scientists with sizeable laboratory teams tackling pregnancy complications can probably be counted on one hand. And as I stock-take the hurdles we face, it is surprising there are any of us at all.

There are formidable challenges facing those who brave the career track of half scientist and half clinician — a jack of two trades and in constant peril of being master of none. This is particularly so in a craft specialty such as obstetrics where constant clinical exposure to maintain procedural skills is essential. I spend 40% of my time providing clinical care. During this time, I pack a lot in. I am on the call roster for a large maternity hospital (on call for public obstetrics can be a brutal all night affair) and I have a small private practice where deliveries can unpredictably strike at most inconvenient times (they have a habit of arising precisely when grants are due).

On the flip side, to acquire funding from NHMRC, our track records must compete with full time science colleagues.

A further challenge for the clinician-scientist is that we are cruelly dealt a double serve of bureaucracy. Red tape is mounting everywhere, and there are no concessions for those living in the two worlds of science and medicine. OH&S requirements times two, performance reviews times two. Project grant reports. HREC reports. Hospital paperwork. Online modules for the Uni, online modules for the hospital. Accredited junior clinical staff. The withering burden of paperwork packs a punch on research productivity.

The next challenge is an ever-present temptress. Opposite to my poor scientific colleagues who apply for grants to survive, should I pack in the clinician-scientist gig for full time clinical work, my income instantly triples. This temptation is acutely felt when receiving NFFC notices from Canberra.

However, if one is able to overcome these challenges, the rewards — though abstract — are there. The gaze often falls upon us when leadership is needed in either the clinical or scientific spheres. Secondly, we are important partners for those aspiring to undertake clinical translational research. I have a strident view that for scientists wishing to do genuine translational research, partnering with a clinician-scientist is vital, not a luxury. Deciphering where the true clinical need lies for different diseases is far more complex than some think. The perk for us is that we are invited to contribute to the cutting edge of translational medicine.

I am privileged to lead The 'Translational Obstetrics Group' (TOG). My group is a talented team and we have a laser beam focus on true translational research. We have taken three concepts from the laboratory to international clinical trials/studies (treatments for ectopic pregnancy, preeclampsia, and a diagnostic test for fetal hypoxia) and we are very proud we have done this.

Our team runs well because we have struck a happy balance of scientists supporting clinician-scientists, and vice versa. I have two deputies — Drs Natalie Hannan and Tu'uhe-vaha Kaitu'u-Lino — young scientists leading their own teams of research assistants and students within TOG. They never get annoyed when the clinic beckons and meetings are cut short. I welcome their text message updates between caesarean sections and I respond ASAP. They pull off assays I propose. I visit them daily and make myself available (my office sits five metres from theirs). They deal with important scientific details. I keep major projects clinically relevant. And most importantly, when there is a free moment, we head down the road for lunch, quite often, in fact.

I would also proudly note TOG is training the largest number of Australian obstetric clinician-scientists undertaking PhDs of any research group in Australia in recent times. Hopefully these emerging academics will overcome the difficult hurdles — and temptations — to become the clinician-scientists of tomorrow. We need them if there is any hope to make the hazardous journey for mother and baby safer.

**Professor Stephen Tong,
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“Healthy Start, Strong Family”: ASMR Indigenous Health Forum 2014

On the 17th of November 2014, ASMR held its annual Indigenous Health Forum (IHF) in Melbourne. The theme of this forum was “Healthy Start, Strong Family”. Our speakers Mr Joshua Creamer (Barrister, President Indigenous Lawyers Association of Queensland), Prof Elizabeth Elliott (Paediatrics and Child Health at the University of Sydney), and Prof Lisa Jackson Pulver (Chair of Indigenous Health at UNSW Australia) covered a range of topics including the legal implications of harmful lifestyles on health outcomes, stress during pregnancy, fetal alcohol syndrome, and health issues affecting our

indigenous community from birth to elder. Below Prof Elliot discusses some of her recommendations, which were discussed at last year’s forum. A special thanks to our speakers for all of their efforts to improve health outcomes and education for our indigenous community. I would also like to thank Dr Roger Yazbek, Dr Paul Dawson and Ms Cath West for all of their help with this great event. ASMR will continue its strong commitment to facilitate improved health for our indigenous community.

**Dr Phoebe Phillips, ASMR President,
Forum Convenor**

Drinking for two is an unhealthy start: reflections on Fetal Alcohol Spectrum Disorders from the Lililwan project

The 2013 report from the Australian Government’s Inquiry into Fetal Alcohol Spectrum Disorder (FASD) was, for good reason, called *The Hidden Harm*. FASD is poorly recognised in Australia: it remains under-diagnosed and the general population prevalence is unknown. Health professionals lack confidence in its diagnosis and management and a fear of stigmatising women and children inhibits them from asking about alcohol use in pregnancy and making a FASD diagnosis. Risky alcohol use in young Australian women is common, as is alcohol use in pregnancy — and where there is alcohol use in pregnancy, we should expect to find FASD.

FASD comprises a group of disorders resulting from *in utero* exposure to alcohol and characterised by facial dysmorphism, structural brain anomalies (including microcephaly) and functional abnormalities of the Central Nervous System (CNS), including impairment of memory, executive function and impulse control, attention, cognition and language. Growth failure and a range of birth defects (e.g. in the heart, kidney) may occur. To diagnose FASD, exposure to other teratogens, chromosomal abnormalities and other dysmorphic syndromes must be excluded as must post-natal brain injury. In the USA, FASD is the most common non-genetic cause of intellectual impairment. It is expensive to society — with a devastating impact on families and high costs to health, education and justice sectors. Importantly, it is preventable.

Although FASD occurs throughout Australia, high risk groups are identifiable including children in foster or

adoptive care; with alcohol-dependent mothers; and Indigenous children, especially those living in communities where historical trauma and disadvantage led to excessive rates of alcohol misuse and dependency. In response, Aboriginal communities have led the way in tackling FASD and the communities of Fitzroy Valley in remote Western Australia provide the best example. There, community leaders were aware of women drinking alcohol during pregnancy and wondered if this may explain the behavioural and learning problems rampant in their schools. In a culture based on oral tradition, they were concerned that children with FASD — with acquired brain injury and poor memory — would not be able to pass to the next generation the lore, songs, language and stories so important for continuation of their ancient culture. So, in 2009 they invited researchers, including me, from the University of Sydney and the George Institute for Global Health, to partner with the Marninwarntikura Women’s Resource Centre and Nindilingarri Cultural Health Services, to document rates of alcohol use in pregnancy and FASD, to develop strategies for prevention and to help plan services for children with FASD and supports for their families. Following extensive community consultation we agreed to proceed with a population-based study of FASD prevalence — the Lililwan Project. In this action-research project we were cognisant of the need to give back to the community and also provided a clinical and diagnostic service, community education, family support and a management plan for individual children.



Professor Elizabeth Elliott

We recently published data showing that 55% of women with children born in 2002–2003 used alcohol during pregnancy, most with a pattern of frequent, risky or binge drinking. Not surprisingly, Fetal Alcohol Syndrome — the condition within the FASD spectrum associated with facial anomalies, was diagnosed in one in eight children. These prevalence rates, amongst the highest worldwide, are likely representative of remote communities with similar risky drinking rates, elsewhere in Australia. Rather than paralysing this community, these tragic data have empowered leaders to advocate for enhanced health and education services and FASD prevention programs.

In Australia, the last 15 years have yielded research data to inform our approach to FASD. We need a national co-ordinated approach and first and foremost must be prevention. Australian Government support of a FASD Technical Network is a positive step. We require a comprehensive strategy including public awareness campaigns; targeted education about potential harms from alcohol use in pregnancy; health professionals training in asking about alcohol and advising on pregnancy planning; and improved drug and alcohol services for women. Knowledge alone does not change behaviour, so these measures must be underpinned

by strategies to restrict access to alcohol — proven disincentives to risky drinking. These include supporting Aboriginal community-led alcohol restrictions; limiting numbers and opening hours of liquor outlets, particularly in disadvantaged communities; and appropriate pricing and taxation of alcohol. Akin to Australia's campaign against smoking harms, alcohol promotion and advertising must be banned. Community and sporting organisations must be weaned off their dependency on sponsorship by the alcohol industry. For children with FASD, early intervention will improve academic achievement and life outcomes and minimise the risk of common secondary harms in adulthood (contact with the justice system, mental ill-health, drug and alcohol misuse and unemployment). Parents require support to care for these children and deal with their own alcohol use.

**Professor Elizabeth Elliott,
Professor of Paediatrics and Child Health
at the University of Sydney;
Consultant Paediatrician at the
Children's Hospitals Network in Sydney;
NHMRC Practitioner Fellow; and
Chair of the National FASD
Technical Network**



Dr Tina Bianco-Miotto

7th Australian Health & Medical Research Congress 2014 — Highlights

The 7th Australian Health and Medical Research Congress (AHMRC) commenced on Sunday the 16th November 2014 with three internationally renowned speakers defining "A Transdisciplinary Future for Research". Professor Tanya Monro noted that there were two things we needed to think about before defining transdisciplinary research. We needed to think about the 'tools' we use to do our research; and, the research 'questions' we are asking. Professor Monro defined transdisciplinary research as the question you can't pose without harnessing the tools from the other disciplines. The opening forum's second speaker, Assistant Professor Manu Platt, told us 'there is no box'. He suggested that we need to avoid assigning each discipline to a 'box'. If there is no box, then working across disciplines is seamless. Professor Josef Penninger then used several examples from his own work to provide examples of transdisciplinary research. In doing so, he highlighted the outstanding and world-class research that is occurring at the Institute of Molecular Biology in Vienna, a place that has embraced the ethos of transdisciplinary research.

The following three days, 17th–19th of November 2014, were filled with outstanding, world-class examples of transdisciplinary researchers tackling questions in all areas

of chronic disease. Some of the highlights, for me, included: Dr Saskia Decuyper discussing the development of a simple test to determine whether severe febrile illness in African children is due to malaria, bacterial infection or both; Professor Allison Cowin discussing her research into developing dressings that will change colour when they need changing or an infection is present; Brooke Pereira (ASMR Champion Ma Playoust Winner) combining engineering with biomedical research to develop new tools for studying prostate cancer; and Associate Professor Felicity Baker's inspirational work in music therapy. There were numerous other highlights from the professional development sessions, the transdisciplinary incubator, the communication workshop, the plenary speakers, the Congress dinner and the fantastic line up of local, national and international speakers.

Transdisciplinary research is all about 'team' science and AHMRC was only possible due to a fantastic team. I extend my thanks to all the ASMR Directors and the Executive Office, ASN Events, the participating societies, all the sponsors and supporters, and the program convenor Associate Professor Gilda Tachedjian.

**Dr Tina Bianco-Miotto,
7th AHMRC Convenor**

Growing Tall Poppies

The lone ranger is dead: we need new crops of tall poppies to rule the range

The *Growing Tall Poppies in Science Program* (GTP) gets year ten students at the cusp of subject and career choices to work with real scientists on current research to connect them with the interdisciplinary nature of science, and to hear and see scientists at work and play. Immersing students in fully functioning science environments demystifies the science and the scientists. The GTP program reprograms their thinking and modernises their view of scientists not as lone rangers but as social collectives of people who love the same thing — to make the world a better place whether it be by being a medico, chemist, physicist or mathematician working together to share insights, create knowledge and a new way for humanity through drug design, climate change or neurobiology.

The GTP program, founded in 2008, has had over 600 students involved. It works with schools from all sectors to deliver weeklong immersion programs, workshops and conferences investigating the playground of science as diverse as: The Physics of Malaria, Climate Change, The Science of Wine Making, and Sudoku — Algorithm of Life. GTP nurtures meaningful experiences through multiple disciplinary approaches of real science to resolve real world problems, and to give innovative insights, to derive mechanisms or guidelines that help people.

Gone is the concept of the lone scientist working into the night to make the great discoveries. Science today is big, interdisciplinary and social with large groups of people from many science domains working together to tackle the harder more detailed questions that cannot be solved by 'the lone ranger': this is what makes it exciting. To quote Josef Penniger (last edition ASMR) "...technologies made research endeavour much more transdisciplinary ... and innovation ... happens at the intersection of different ideas and different research arenas." In Australia this is certainly the philosophy of the Centres of Excellence funded handsomely by the ARC.

It is the power of working in groups where the next generation of discovery lies and it is those who can think across and integrate disciplines who will be the greatest assets. School science on the whole remains segmented and traditional due mainly to standardised mechanisms of learning 'en masse'. Tight curriculum content and the focus on past discoveries makes science disconnected from young socially active minds. Instead students need current role models to

identify with. At a time in Australia when we need more students taking up STEM (science technology engineering and mathematics) we have fewer selecting science at high school and the subject most affected is physics and the gender most affected is girls. We need more women in the physical sciences as part of the transdisciplinary teams. The GTP program is tapping into the psyche of how to attract more students into science subjects at school.

Growing Tall Poppies Program in Science coordinates schools and scientists to create the experiences that inspire students to take up science to Year 12. We have shown it is possible through partnerships to increase the number of girls willing to study physics. GTP is tapping into the social psyche to engage students to study science to become scientists who can work in scientific social networks to understand, appreciate and fathom the needs of biology, chemistry, physics, environment and medicine. This is a balanced 'playground' for scientists who will contribute to improving the lot of humanity. The Australian Government has funded, for the next three years, the growth of GTP as an important nexus between the science community and schools to increase the number of science students especially girls and physics.

Student engagement through GTP is different from traditional school science because it focuses on scientists, their community and the outcomes for people as the inspirational element. It makes the world of science a playground with the potential to change the course of human and earth history. It makes it social and connected, because let's face it, who wants to be a Lone Ranger anyway?

If you want to make a difference and deliver some excellent outreach for your research network register at www.growingtallpoppies.com/contact/

Eroia Barone-Nugent



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FIRKIN ORATION

Professor Eran Elinav

Weizmann Institute of Science, Israel.

Professor Elinav is a clinician and scientist leading a team that investigates interactions between the innate immune system, the intestinal microbiota and their effects on health and disease.



EDWARDS ORATION

Professor Nicholas Talley

Pro Vice Chancellor, Faculty of Health, University of Newcastle
Professor Talley is an icon of Australian health and medical research with over 1,000 publications and recipient of more than \$10 million in research funding. His team investigates the molecular basis and treatment of Irritable Bowel Syndrome (IBS), as well as the link between bacteria and dyspepsia, gastroesophageal reflux disease (GORD) and gastritis.



INVITED SPEAKERS



Professor
Mark Morrison,
Microbiome



Dr Vicki Whitehall,
Colon Cancer



Dr Ilse Rooman,
Pancreatic Cancer



Associate Professor
Phil Sutton,
Mucosal Immunity