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MESSAGE FROM THE IHMRI CHAIR

From its beginnings, the Illawarra Health and Medical Research Institute (IHMRI) has been developing into a nationally and internationally recognised centre of health and medical research targeting regionally relevant health improvements through fundamental research, exploration of novel treatments, better clinical practices and preventative health programs.

Together with our founding partners, the University of Wollongong (UOW) and the Illawarra Shoalhaven Local Health District (ISLHD), we’ve created a strong foundation from which to advance our research impact and agenda of growth.

In our first five years, we achieved significant growth in competitive research funding, culminating in recognition by the New South Wales Government in 2014 as an independent Medical Research Institute.

This status has led to sustained funding, including an announcement in April 2016 of a further $1.8 million for the 2016-17 to 2018-19 financial years, to be allocated towards the infrastructure that underpins and supports our research program.

Securing these significant building blocks meant that the time was right to revise our strategy under a new Executive Director, and in December 2015 we welcomed Professor David Adams to the role.

Professor Adams’ skills and experience as an institute director and researcher have proven invaluable in supporting IHMRI’s research strategy and leading our 500 plus researchers and students through a rejuvenated, translational research agenda.

He has also transferred his substantial and successful research program, a National Health and Medical Research Program Grant and an ARC Discovery Project Grant to IHMRI to investigate the use of peptides for chronic pain management.

Professor Adams will be supported by another new appointment made this year, Clinical Director Professor Leonard Arnolda. Professor Arnolda’s appointment and role is jointly held with the ISLHD, which creates an exciting opportunity and a truly multidisciplinary environment to transform regional health.

I’d like to extend a sincere ‘thank-you’ to IHMRI’s outgoing Chief Operating Officer, Sue Baker-Finch. Sue has ably developed and managed the Institute’s operations team and supported the Institute’s Board for its first eight years, and we’ll greatly miss her contributions. We’ll be recruiting a new COO early in the new financial year.

I have every confidence that, with our new leadership team in place and our excellent researchers and support staff, we have the right mix of people, infrastructure funding, facilities and partners to further advance IHMRI’s goal of world-class translational research with local relevance.

PROFESSOR ALAN PETTIGREW
Chair, IHMRI Board
IHMRI Interim Executive Director (July - December 2015)
MESSAGE FROM THE CHIEF EXECUTIVE OF THE ILLAWARRA SHOALHAVEN LOCAL HEALTH DISTRICT

The Illawarra Shoalhaven Local Health District (ISLHD) leadership team is committed to providing the 385,000 people living in our catchment area with timely and equitable access to quality health care.

Central to delivering this goal is a strong health and medical research program.

Research that responds to the specific needs of the local community improves the level of care patients receive by ensuring our prevention programs, service models and treatments are evidence based, and relevant to our demographic.

A strong research program also plays a vital role in attracting and retaining the best clinicians to our region, boosting the services available at our major referral and teaching hospital in Wollongong.

It means patients can access specialist care locally, and it helps to establish the reputation of our medical training program, which is vital to the long-term sustainability of our service. These outcomes better serve our community.

With our joint partner, the University of Wollongong, we have supported IHMRI from the beginning and see the institute as central to the coordinated progression of a research agenda that focuses on improving patient outcomes.

This year, we were delighted to announce the conjoint appointment of Professor Leonard Arnolda as Clinical Director, who provides a vital bridge between the health district and the research institute. Together with Leonard, we will foster a research culture that encourages staff to collaborate with academics and apply evidence and information to drive improved programs and policy.

I’m confident that with IHMRI at the helm, we are well positioned to continue growing the region’s reputation as a globally recognised force in health and medical research driven by the needs of our community.

Margot Mains
Chief Executive
Illawarra Shoalhaven Local Health District
MESSAGE FROM THE VICE CHANCELLOR OF THE UNIVERSITY OF WOLLONGONG

The University of Wollongong (UOW) is a young and dynamic university focused on developing teaching and research programs that anticipate, respond to and equip graduates for next-generation challenges, industries and an increasingly global workforce.

One reason we’re among the best universities worldwide and are confident in our progression, is our outstanding health and medical research program.

Since its inception in 2008, UOW has backed the Illawarra Health and Medical Research Institute (IHMRI) as a founding partner, and it remains our primary vehicle for advancing superior health and medical research outcomes.

Responding to needs of our local community—a purpose assisted by co-founder, the Illawarra Shoalhaven Local Health District—has continued to produce research outcomes of national and international relevance and standing.

Our visibility in high impact journals not only underpins our international rank but also promotes a cycle of success, attracting ambitious students and distinguished academics as well as researchers and collaborators eager to advance our purpose.

With the right people, we get better results, attract more sustained funding and, ultimately, achieve better health outcomes for people all over the world.

IHMRI has provided a much-needed focal point for health and medical research in our region and has refocused our efforts on translational research opportunities in addition to fostering a culture of collaboration across institutions and disciplines.

I’m confident that, under the new leadership of Executive Director Professor David Adams and Clinical Director Professor Leonard Arnolda, the institute will continue to keep UOW and our region at the forefront of health and medical research.

PROFESSOR PAUL WELLINGS, CBE
UOW Vice-Chancellor
“Fostering translational research will continue to be a key part of the IHMRI strategy”
The end of the financial year ushers in my first six months as IHMRI’s Executive Director, and in that time I’ve affirmed my views of the institute’s key strengths.

We have exceptional professional staff and researchers, an internationally recognised program of translational research, and a unique, outcome-driven partnership with the University of Wollongong and our local health service.

I’d like to acknowledge the IHMRI leadership team, past and present, for these strong foundations and, in particular, the late Professor Don Iverson who set up the University’s medical program and, later, our very own medical research institute.

Professor Iverson’s legacy has helped to attract high-quality medical practitioners and researchers to the region, greatly enhancing community health outcomes.

His death earlier this year was profoundly felt by our research community.

I’d also like to acknowledge Professor Alan Pettigrew for holding down the fort as Interim Director prior to my arrival—ably supported by the operations team and, most notably, outgoing Chief Operating Officer of eight years, Sue Baker-Finch.

Alan is one of Australia’s most respected research and innovation advisors and has been instrumental in leading the institute as Chair of the Board for many years, and he continues in that capacity.

In fact, it was Alan who sparked my interest in IHMRI when we worked together some years ago. I’m a researcher too, and bringing my chronic pain laboratory to IHMRI as well as the prospect of working with clinicians and the wider community was a real drawcard. Talks with Alan helped me realise that the IHMRI model enables research impact—that is, research excellence times relevance.

Fostering translational research will continue to be a key part of our strategy.

To this end, in January we welcomed the co-joint appointment of Professor Leonard Arnolda as IHMRI Clinical Director, to provide a vital bridge between clinicians and researchers. Leonard is a practising cardiologist and, like me, a researcher. He is working with the Illawarra Shoalhaven Local Health District to foster more collaborative research.

Our direction for the next twelve months is clear.

We need a strong, diverse team to attract more funding and remain competitive internationally, and as such we need to stay true to our research strengths, increase our involvement with clinicians, and widen our collaborative network.

Already we have:

• adopted a new grant scheme that aligns with our strategic goals by fostering research in health service contexts, incentivising interdisciplinary collaborations and building on existing capabilities;
• begun devising a strategy to boost the number and diversity of affiliated researchers and collaborators; and
• progressed a framework to enable the appointment of IHMRI Research Fellows, which will provide a much needed career path for researchers.

We are still a young institute, with much potential. I’m looking forward to leading the institute on a path towards critical mass where people will say: “IHMRI is the place to go if you want translational health and medical research”.

PROFESSOR DAVID ADAMS
IHMRI Executive Director
December 2015 ongoing
It’s been six months since I took up the new role of Clinical Director—a conjoint appointment between IHMRI and the Illawarra Shoalhaven Local Health District (ISLHD). Central to IHMRI’s strategic plan, the role is both challenging and stimulating.

I’m charged with encouraging more clinicians to get involved in research, incorporating research into the provision of care as well as research governance into the local health district.

As a clinician researcher who has worked in hospitals around Australia I saw the role as an exciting opportunity to mentor medical and allied health clinicians, conduct some of my own research in heart disease and work with a committed group of researchers.

The established collaboration between the local health district and the University of Wollongong was also a draw card for me. This kind of partnership, with a dedicated institute to coordinate the research strategy, is less common than you might think. It creates a supportive environment where academics and clinicians can work together to address real-world problems and translate their discoveries into practical tools and strategies to improve the lives of people in the Illawarra and beyond.

My time is divided between IHMRI and ISLHD, and my initial focus has been to meet the leading academic researchers and clinicians at both organisations

I have spent much time with the newly-appointed IHMRI Executive Director, Professor David Adams, discussing our future plans and how we can promote a strong research culture.

I have also made significant in-roads. Some highlights include:

• working closely with the Clinical Research and Trials Unit (CRTU) to develop its function as a coordination centre for clinical research in the Illawarra region;

• making plans with IHMRI’s CRTU to conduct clinical trials at Wollongong Hospital;

• working with Research Central and the Executive to advance ISLHD’s research agenda and drive excellence, productivity and individual and team performance in clinical research; and

• canvassing a new ISLHD Research Governance Board to advise the Chief Executive on research governance and develop strategies to encourage research.

Throughout this work I have encountered a huge amount of good will and support, and I’m confident that together we will achieve our goal of supporting more collaborative, multidisciplinary research focused on bench to bedside solutions for our community.

PROFESSOR LEONARD ARNOLDA
IHMRI Clinical Director
January 2016 ongoing
“I’m confident that we will achieve our goal of supporting more collaborative, multidisciplinary research focused on bench to bedside solutions for our community.”
THE ILLAWARRA HEALTH AND MEDICAL RESEARCH INSTITUTE

TRANSLATIONAL RESEARCH: BENCH TO BEDSIDE

IHMRI is an INDEPENDENT medical research institute which brings academics and clinicians together to solve health and medical problems through translational research, taking outcomes from the lab and into the hands of health providers.

2008
IHMRI ESTABLISHED

FOUNDING PARTNERS
UNIVERSITY OF WOLLONGONG & ILLAWARRA SHOALHAVEN LOCAL HEALTH DISTRICT

FIRST & ONLY
INDEPENDENT MEDICAL RESEARCH INSTITUTE IN THE ILLAWARRA

TOP 2%
AFFILIATED WITH ONE OF THE TOP UNIVERSITIES IN THE WORLD
**IHMRI 2015-2016**

- **189** Researchers
- **278** PhD Research Students
- **102** Active Grant Funded Research Projects
- **25** Clinical Trials
- **$11 Million** Awarded to New Projects (39 New Projects)
- **34** Australian Collaborating Institutions
- **20** International Collaborating Institutions
We are finding treatments, cures, preventative strategies and improving clinical practice and health service delivery to patients with diseases including:

- Diabetic
- Personality Disorders
- Cancer
- Dementia
- Psychiatric Disorders
- Kidney Disease
- Motor Neurone Disease
- Childhood Obesity
- Chronic Diseases
- Drug and Alcohol Dependency
- Superbugs
- Alzheimer’s Disease
- Tuberculosis
- Schizophrenia
- Hypertension
- Obesity
WE AIM TO BECOME A NATIONAL AND INTERNATIONAL LEADER IN HEALTH AND MEDICAL RESEARCH, servicing the Illawarra residents on our doorstep and the wider Australian and international community.
IHMRI researchers are, first and foremost, dedicated to delivering research-driven health and medical solutions for the Illawarra community.

Illawarra residents have poorer health outcomes than the NSW average. They are more likely to be overweight or obese, experience psychological distress and engage in risky behaviour. With prevalent chronic disease and a rapidly ageing population, the region also has a high number of potentially avoidable hospitalisations (Illawarra Shoalhaven Population Health Profile 2013).
ILLAWARRA IMPACT

IHMRI’s Illawarra Health Insights research program is driven by IHMRI’s vision to improve the health of the local community through its research excellence.

To realise this goal, IHMRI is committed to undertaking strategic research initiatives that target and engage the Illawarra’s culturally diverse residents.

Our aim is to translate research findings from our region into health and service improvements that benefit communities across Australia and overseas.
FIT FOR SURGERY? TAKE THE SIX-MINUTE WALK TEST

Rising rates of obesity not only represent a major health risk to individuals, but a significant challenge to the health system, as research suggests that obese patients are harder to treat and have more complications than non-obese patients.

Around 12% of Australians have a body mass index greater than or equal to 35 which is classified as severe obesity.

At the Wollongong Hospital, more than 1,600 severely obese patients have elective surgery each year and while most sail through their surgeries without any problems, some patients experience clinical complications in the postoperative period.

One of the tests that clinicians use to determine if their patients are fit for surgery—and how likely they are to recover without complications—is the Cardiopulmonary Exercise Test, a thorough but expensive and resource-intensive test that requires a dedicated team of specialists and trained technicians.

A promising alternative is the six-minute walk test (6MWT), a simple screening tool developed in the 1960s by American sports medicine innovator, Bruno Balke, to measure the distance an individual is able to walk over a total of six minutes on a hard, flat surface.

Illawarra Shoalhaven Local Health District clinician Dr Natalie Smith is investigating if the 6MWT could be used in a hospital setting and whether it would help clinicians determine if their severely obese patients are fit for surgery and how well they are likely to recover.

There is currently no published data on the use of the 6MWT in severely obese preoperative patients having ordinary operations.

“Our study will determine a range of distances measured by the 6MWT and if they can be used to identify a subset of severely obese patients with poor cardio-respiratory function who may benefit from further risk investigation and management,” Dr Smith said.

“We are excited about the potential of this study to improve care for a group of patients who often present a challenge in providing safe healthcare throughout the journey,” Dr Smith said.

Funded by: The Australian and New Zealand College of Anaesthetists and an IHMRI Collaborative Project Grant.
IHMRI RESEARCH THEMES

IHMRI organises its breadth of research around three broad based themes which span the translational continuum encompassing basic science through to clinical, population and public health research:

DIAGNOSTICS AND THERAPEUTICS

MENTAL HEALTH AND THE AGEING BRAIN

CHRONIC CONDITIONS AND LIFESTYLE

Across all three themes we have Illawarra focussed research projects.
DIAGNOSTICS AND THERAPEUTICS

Led by Distinguished Professor Nick Dixon (scientific) and Associate Professor Spiros Miyakis (clinical).

Exploring the fundamental mechanisms of disease to design, test and evaluate new drugs and develop innovative drug delivery strategies, such as implantable medical devices and improved radiation techniques for cancer therapy.
IHMRI’s Associate Professor Michael Kelso will lead a team, including IHMRI researcher Professor Marie Ranson, on a three year, $611,000 project investigating a new class of breast cancer drugs that specifically target cancerous cells and stop them from spreading.

Associate Professor Kelso said the drugs are based on a common diuretic, amiloride, which is currently used to treat high blood pressure and health failure in patients who need to limit their excretion of potassium.

“Previous research has shown that at high doses in animals, amiloride stops tumours from growing and metastasising, or spreading,” Associate Professor Kelso said. “But you can’t use amiloride safely in humans at doses high enough to see anticancer effects without dangerous changes in potassium levels.”

“If we can get the structural changes right, we will abolish amiloride’s diuretic/potassium-sparing effects and create an unprecedented new class of breast cancer drugs that act via a novel, dual-targeting mechanism.”

Breast cancer is the most common cancer affecting women, with one in eight Australian women predicted to be diagnosed with the disease in her lifetime.

Funded by: The National Health and Medical Research Council.
NEW CLASS OF MOLECULES MAY HELP IN THE FIGHT AGAINST MULTI-DRUG RESISTANT CANCERS

Cancer patients may have a new line of resistance in future, after the discovery of a new class of molecules that kill multidrug resistant cancers.

Lead researcher, Dr Kara Perrow, said the molecules, originally derived from sea snails, are showing promising results against multidrug resistant cancers.

“The results of our research are exciting because any new molecule that we discover that has an effect on multidrug resistant cells has major implications for improving survival in these patients and ultimately reducing relapse,” Dr Perrow said.

The molecules, called N-alkylisatins, killed 100% of drug resistant cancer cells in the lab in just 48 hours. In comparison, a chemotherapy drug commonly used to treat breast cancer killed only 10% of cells in the same time.

Multidrug resistance, whereby cancers develop resistance to chemotherapy drugs, is a major limitation to the current management of the disease.

Dr Perrow and her team are now working to optimise the properties of N-alkylisatins so that they are safe for use. This involves packaging the drug into small lipid-based nanoparticles so they become non-toxic and safe for injection.

“In the future, these drugs could be used as the next-in-line therapy after the first round of chemotherapy fails, as a completely new therapy to replace the current standard of care, or used in combination with a number of anti-cancer drugs to reduce the chance of multidrug resistance arising,” she said.

Dr Perrow said N-alkylisatins, which proved particularly potent against colorectal, prostate and breast cancers, work by targeting the skeleton of the cell.

“These targets are called microtubules and our compounds interfere with the assembly and disassembly of these structures—essentially disassociating them so that the cell cannot undergo any further division and at that point, it dies,” she said.

Currently in the pre-clinical trial phase, Dr Perrow said it could be 5-10 years before the drugs are available for use, but it would depend on funding and the success of the drugs in animal tests and eventually human trials.

FUNDDED BY: The National Breast Cancer Foundation.

Dr Kara Perrow is an IHMRI researcher, who worked with her UOW colleagues and IHMRI Researchers, Emeritus Professor John Bremner and Associate Professor Danielle Skropeta to boost the cancer fighting properties of the original chemical, discovered by Southern Cross University’s Dr Kirsten Benkendorff in 2002.
“In the future, these drugs could be used as the next-in-line therapy after the first round of chemotherapy fails or as a completely new therapy to replace the current standard of care”

Dr Kara Perrow
IHMRI researchers are working on a new treatment for often incurable brain tumours.

Gliomas are among the most frequently-found brain tumours in adults, and early diagnosis has been made possible by new imaging techniques.

The trouble with gliomas is that they are resistant to radiotherapy, and chemotherapy often fails because of inadequate delivery of drugs within the tumour itself.

To overcome these problems, researchers are attempting to optimise chemo-radiotherapy treatments by increasing both the chemotherapeutic drug concentration and the radiation dose while trying to minimise the effect on healthy tissue.

A team of IHMRI researchers within the Centre for Medical Radiation Physics’ Targeted Nano-Therapies group recently reported on the importance of linking drug activation to precise targeting of optimised energy x-ray beams.

Under the supervision of Dr Moeava Tehei, a team, including Dr Sianne Oktaria, pre-treated gliosarcoma cells with MTX, a commonly used chemotherapy drug and a radiosensitiser drug.

They then irradiated the cells with x-rays and found the surviving fraction of the gliosarcoma cell was significantly reduced when the drugs were combined together with photon irradiation, compared to irradiation alone, or either drug and irradiation.

“This combination led to a highly effective chemo-radiation therapy,” Dr Oktaria said.

“This was achieved with a significant decrease in the dosage of both the required drug and the radiation dosage otherwise required for the same treatment outcome.”

“The improved targeting reduces the toxicity applied to surrounding healthy tissue.”

FUNDED BY: The National Health and Medical Research Council.
These brain tumours are resistant to radiotherapy, and chemotherapy often fails because of inadequate delivery of drugs within the tumour itself.
MENTAL HEALTH AND THE AGEING BRAIN

Led by Senior Professor Brin Grenyer (scientific) and Associate Professor Vida Bliokas (clinical).

Investigating the molecular and genetic underpinnings of psychiatric disorders and neurodegenerative diseases to find new treatments. Here, we also look at the effect of electromagnetic radiation (from Wi-Fi and mobile phones) on the brain as well as aim to provide better front line services to manage dementia and treat people with drug and alcohol addiction.
SLOWLY EVOLVING PROTEINS MAY CAUSE ALZHEIMER’S

Current treatments for Alzheimer’s may be called into question following a new IHMRI finding.

IHMRI researchers Professor Roger Truscott and Dr Michael Friedrich authored a paper suggesting Alzheimer’s disease is caused by slow changes to plaque in the brain.

While scientists know that Alzheimer’s involves progressive brain cell failure, the cause is not yet clear. Current treatments are aimed at controlling behavioural symptoms, reducing anxiety and boosting brain cell communication via drugs that target two very specific rouge proteins that clump together to form toxic plaque.

However, Professor Truscott and his team have shown that these plaque-causing proteins mutate over time, which calls in to question the efficacy of current drugs that target the proteins in their original state.

The discovery could help explain why many people past middle age have plaque in the brain but seem to suffer no cognitive ill health.

Professor Truscott said researchers now need to investigate the composition of plaque as a function of age in normal human donors as well as in Alzheimer’s patients.

“The majority of Alzheimer’s studies underway are animal studies. What we really need to do is look at how the peptides that make up plaque alter with age and ask if they are different in normal elderly people compared to Alzheimer’s patients, and also if they are different in different regions of the brain.”

As part of the research, Professor Truscott partnered with the Save Sight Institute at the Sydney Eye Hospital to apply their knowledge and expertise of other diseases of ageing, such as cataracts, to examine changes to the composition of proteins in the human brain.

The human lens contains the highest concentration of proteins of any tissue in the body and altered proteins are associated with a range of age-related pathologies including Alzheimer’s.

This research was published in the Journal of Analytical Chemistry.

Funded by: The National Health and Medical Research Council.
NEW GENE LINK PROVIDES HOPE TO FAMILIES WITH MOTOR NEURONE DISEASE

Researchers have found a new gene link for Motor Neurone Disease (MND) that will lead to the development of a new genetic test for the fatal disorder.

IHMRI MND expert Dr Justin Yerbury, along with a 70-strong research team led by Macquarie University’s Associate Professor Ian Blair, has, for the first time, linked a gene called CCNF to MND and another disease, frontotemporal dementia.

The discovery of the link is vital to 30% of patients who have a family history but who don’t have the mutations in the genes already linked to MND—it means that individuals and family members can now be tested for the mutation.

“As a result, new genetic testing will be developed and specialist clinicians may soon be able to screen embryos for these mutations,” Dr Yerbury said.

The discovery is also another piece of the MND puzzle and adds to a body of evidence suggesting that protein degradation will be an important drug target.

“One of the functions of CCNF is to identify and tag old, worn-out and potentially dangerous proteins with ubiquitin (a regulatory protein) to signal their degradation and prevent a dangerous build-up of these proteins within cells,” Dr Yerbury said.

“We liken this process to a garbage disposal unit which chops up household waste for easier disposal. If that unit breaks down, the waste builds up. That’s exactly what we found in our cellular experiments, that mutations in CCNF caused junk protein to accumulate in cells.”

Dr Yerbury is already using the information to design preclinical gene therapy trials in collaboration with IHMRI drug delivery expert Dr Kara Perrow, to boost the cell’s degradation system to combat the disease.

FUNDED BY: Dr Yerbury’s research is funded by the National Health and Medical Research Council including a Career Development Fellowship and a Dementia Research Teams Grants The Motor Neurone Disease Research Institute of Australia, the US Department of Defense (in recognition that US veterans are twice more likely than the general public to develop the disease).
“The discovery is vital to the 30% of MND patients who have a family history but who don’t have the mutations in the genes already linked to MND”

Dr Justin Yerbury
Early exposure to antipsychotics, to such potent drugs in a period of time where critical neurodevelopmental changes are occurring, might have long-term effects on adult behaviour.

Michael De Santis
New research has highlighted the potential long-term consequences of taking commonly prescribed anti-psychotic drugs for young people.

IHMRI’s Head of the Antipsychotic Research Laboratory, Professor Chao Deng, said the study fills a critical knowledge gap in medical circles, and may lead to a more conservative approach when it comes to prescribing these medications.

“This study revealed that early exposure to antipsychotics, to such potent drugs in a period of time where critical neurodevelopmental changes are occurring, might have long-term effects on adult behaviour,” he said.

The study, led by PhD Student, Michael De Santis, looked at the enduring impacts of three commonly prescribed antipsychotic drugs—Aripiprazole, Olanzapine and Risperidone—on the brains of young healthy rats and found long-term alterations to a number of adult behaviours, including changes to activity levels, depressive-like behaviours and anxiety levels. The effects were more pronounced in males.

The results come at a time when the prescription of antipsychotics to children has increased exponentially, many of which are ‘off-label’, meaning they are prescribed to those who do not fit the recommended guidelines.

Professor Deng said while it may be appropriate that antipsychotics are prescribed to those with severe mental illnesses such as schizophrenia and bipolar disorder, they are also prescribed for conditions such as autism, obsessive compulsive disorder, and to control some of the symptoms of ADHD, which has not been approved under Australian Government regulations.

“We hope this study will help fill the critical knowledge gap in this area and assist paediatricians and psychiatrists weigh-up the risks verses the benefits of prescribing antipsychotics during such a critical time period,” he said.

The study was published in the Journal of Psychopharmacology

**FUNDED BY:** The National Health and Medical Research Council. Michael De Santis is an Australian Rotary Health Scholarship recipient
CHRONIC CONDITIONS AND LIFESTYLE

Led by Professor Tony Okely (scientific), Professor Andrew Bonney (clinical until January 2016) and Professor Peter McLennan (from January 2016).

Chronic disease is responsible for up to 80% of disease burden in Australia, with the World Health Organisation predicting by 2020, it will account for almost 75% of all deaths globally. Here, we seek to address growing regional and national trends towards obesity, diabetes and cardiovascular disease by looking at causes and preventions as well as improving the treatment of these chronic diseases.
AUSTRALIAN-GROWN GRAIN COULD HELP YOU LOSE WEIGHT

Research has helped to unlock a new market for sorghum after a clinical trial showed that the grain increases the feeling of fullness between meals, and a further study found that with the right diet, it may contribute to weight loss.

Dietician Anita Stefoska-Needham made the discovery as part of her IHMRI PhD investigating the potential of sorghum based food to prevent chronic disease.

“Findings from two trials indicate that sorghum whole grain is a promising novel ingredient in foods targeting satiety as an adjunct for weight control,” Anita said.

Anita’s interest in sorghum was piqued when she realised that the gluten free grain was regularly consumed in other cultures, but was not a big feature on supermarket shelves in Australia.

A number of factors led her to see the grain’s potential as a human food source in Australia and other developed countries with existing ‘health food’ markets:

• the grain can grow in arid regions;
• it is already the third largest crop in Australia (used to feed animals); and
• it provides vitamins, dietary fibre, antioxidant compounds and slowly-digestible starches which can enhance satiety between meals.

An Australian Research Council Linkage Project Grant enabled Anita to work with industry partner, Sanitarium Health and Wellbeing Australia, as well as collaborators at Curtin University, to formulate sorghum-based, flaked breakfast cereal biscuits.

They were used in an acute feeding study investigating subjective satiety, changes to glucose, insulin and several appetite-regulating gut hormones, and later, a randomised controlled trial to determine the grain’s impact on food consumption, and thereby weight.

“The findings not only provide new knowledge that may improve health outcomes for consumers, they also contribute to developing and growing the sorghum industry globally,” Anita said.

Supported by this published body of work, a sorghum-based food product has been launched into the market by Sanitarium Health and Wellbeing Australia.

Funded by: The Australian Research Council – Linkage project Grant.
“This treatment not only prevented obesity, it also prevented the development of obesity-induced complications such as insulin resistance, and organ damage to the liver, kidneys and heart”
A new drug derived from a chemical found in olive oil appears to reduce the adverse effects of a high fat diet in mice, IHMRI scientists say.

The discovery could lead to new treatments that prevent diabetes and limit the weight gain side effects of anti-psychotic medication.

The drug, Bardoxolone methyl, is derived from a naturally occurring chemical called oleanolic acid, which is found in olive oil, garlic, Java apples and a number of different weeds and flowering plants.

Dr Danielle Camer completed the research as part of her PhD under the supervision of Professor Xu-Feng Huang and Dr Yinghua Yu at the IHMRI-based Centre for Translational Neuroscience.

Dr Camer fed mice either a high fat diet or low fat diet for 21 weeks. One group of mice on the high fat diet were also given a daily dose of Bardoxolone methyl.

The results showed mice fed a high fat diet and given the drug weighed half as much at the end of the experiment (and a similar weight to mice on a low fat diet) as those fed a high fat diet with no drug.

“This treatment not only prevented obesity, it also prevented the development of obesity-induced complications such as insulin resistance, and organ damage to the liver, kidneys and heart,” Dr Camer said, adding that in her study, the mice experienced no negative side effects.

“We weren’t really expecting a result like this. It’s really exciting.”

Professor Huang and his team are continuing to progress this research and hope to receive funding to conduct human trials; however, he noted that there has been some concern about the cardiovascular impact of the drug in a phase III clinical trial of patients with end stage renal disease.

“We hope to conduct more research into the safety of this drug and whether and how it could be used as a novel therapeutic for preventing diet-induced obesity.”

With almost two in three Australian adults and one in four Australian children now overweight or obese, and rates are continuing to rise, Professor Huang said a treatment to prevent the adverse effects of obesity, such as diabetes, is desperately needed.
YOU'RE THREE TIMES MORE LIKELY TO HAVE DIABETES IF YOU LIVE IN SYDNEY’S WEST, BUT WHY?

Around 280 Australians develop diabetes every day. In Sydney’s western suburbs, diabetes effects 6-8% of the population, compared with 2% in the eastern suburbs and north shore.

IHMRI researchers led by Associate Professor Thomas Astell-Burt from the Western Sydney Diabetes Prevention and Management Initiative, are working on one of the world’s largest studies into environmental factors that may contribute to successful management of the disease.

“We have researched this since 2012, with incredible support from Western Sydney Local Health District (WSLHD) and WentWest Primary Health Network, and found we have this wide inequity within our city which we think may be driven by the environments we live in,” Dr Astell-Burt said.

“In western suburbs like Blacktown and Mount Druitt, between 10-20% of residents live within a kilometre of a takeaway but do not have a supermarket or green grocer within the same distance.

“This circumstance is likely to influence decision making in terms of what people eat and, therefore, the success of diabetes prevention and management efforts.”

Dr Feng, a senior lecturer in epidemiology at the University of Wollongong, who also received a postdoctoral fellowship from the National Heart Foundation of Australia to conduct related research on diabetes prevention with WSLHD, says the National Health and Medical Research Council and Heart Foundation-funded projects are focused on exploring environmental relationships.

“We are looking at the relationship between the characteristics of where people with diabetes live, such as green spaces, walkability, public transport availability and provision of food environment, and how these factors modify the success of diabetes management for preventing avoidable hospitalisations and emergency department presentations,” Dr Feng said.

The project aims to bolster collaborations with health policymakers and urban planners to improve the quality of neighbourhoods. “That will, in turn, support longer, healthier and happier lives for everyone living with diabetes in western Sydney and across Australia,” Dr Astell-Burt says.

FUNDED BY: A/Prof Astell-Burt and Dr Feng’s research is funded by the National Health and Medical Research Council, Horticulture Innovation Australia (HIA) Ltd, the National Heart Foundation and an IHMRI Collaborative Grant.
“In western suburbs like Blacktown and Mount Druitt, between 10-20% of residents live within a kilometre of a takeaway but do not have a supermarket or green grocer within the same distance”
IHMRI disseminates research findings not only to the scientific community, through papers and conferences, but also to the general public.

To this end, we have built a strong relationship with the media and special interest publications, opening a door, if you will, for the community to discover how research is informing the way clinicians treat illnesses and deliver services.

This year, a number of stories piqued the interest of the community.

Locally, the Illawarra community tuned into a regular column, HealthTrack, written by IHMRI researchers and published weekly in the Illawarra Mercury. The column supports a trial of the same name, which developed a personalised health program to help participating locals lose weight and develop a healthier lifestyle. Researchers involved in the trial penned columns in a bid to help other people in the community, who missed out on the trial, improve their health.

Almost 40 columns have been published to date, 11 this year, with topics including butter vs margarine, dietary fibre and diabetes prevention.

Our reach extended beyond the region, with projects that have the potential to impact many lives capturing the attention of a public looking for answers.

Dr Sarah Loughran’s world first study investigating the effects of mobile phone emissions on the sleeping patterns, brain activity and cognitive performance of children and adolescents received significant coverage including in The Huffington Post, on ABC radio, international sites and The Conversation. More than 450 people shared The Conversation’s piece on Facebook—155 on Twitter.

Developments in potential cancer treatments, progress toward a cure for Motor Neurone Disease (MND) and mental health research also generated wide interest:

- Dr Kara Perrow’s discovery of a new class of molecules that have shown promising results against multi-resistant drug cancers was covered by ABC TV, ABC Online, ABC Local and WIN News.

- Dr Justin Yerbury’s involvement in a collaboration linking a gene to MND received coverage on ABC News, WIN TV, Health Canal and ALS News in the United States.

- Professor Chao Deng’s finding that antipsychotic medication in childhood and teenage years could have significant long-term impacts on behaviours later in life (particularly in males) was covered on ABC TV.
Our reach extends beyond the region, with projects that have the potential to impact many lives capturing the attention of a public looking for answers.
GOVERNANCE

The IHMRI Board convened six times during the 2015-16 financial year to conduct usual business. The Board comprises three independent Directors, three Directors nominated by its key stakeholders, the University of Wollongong and the Illawarra Shoalhaven Local Health District, and the Executive Director.

BOARD OF DIRECTORS

The following were Directors during whole or part of the financial year:

- Professor Alan Pettigrew, BSc, PhD, FAICD (Chair) Consultant and adviser on higher education and research
- Professor John Rostas, BSc (Hons), PhD Emeritus Professor, Faculty of Health and Medicine, University of Newcastle
- Mr Michael Bassingthwaighte AM, FAICD Chief Executive Officer, Lysaght Peoplecare
- Professor Paul Wellings CBE, BSc, MSc, PhD, DSc(Hon), FAICD, Vice-Chancellor and Principal, University of Wollongong
- Professor Judy Raper, BE (Hons), PhD, FAICD, FTSE Deputy Vice-Chancellor (Research and Innovation), University of Wollongong
- Mr Damien Israel, BBus, MAcc, CPA, Chief Finance Officer, University of Wollongong
- Professor Margaret Rose, BVSc, PhD Director of Research Governance, South Eastern Sydney and Illawarra Shoalhaven Local Health Districts to 02/11/2015
- Clinical Professor Jan Potter, MBChB Glasgow, MRCP, CCST, FRCP, FRACP Clinical Director of Aged Care, Rehabilitation and Palliative Care, Illawarra Shoalhaven Local Health District
- Ms Margot Mains, LLB, RGON, DipNG Chief Executive, Illawarra Shoalhaven Local Health District
- Dr Patricia (Pim) Allen, MA (Cantab), MB, MChir., MBA, MD, FRCS (England), FRACMA from 09/11/2015
- Professor David J Adams, BSc (Hons), PhD, Executive Director, Illawarra Health and Medical Research Institute.

The following were Company Secretary during part of the financial year:

- Ms Sue Baker-Finch, BSc (Hons), MBA, MBC, GAICD to 26/02/2016
- Ms Susan Basa from 26/02/2016

IHMRI PATRON

Dame Bridget Ogilvie AC, DBE, ScD, FRS, FAA
Australian and British scientist

IHMRI EXECUTIVE TEAM

During the reporting period, IHMRI’s executive management team comprised:

- Interim Executive Director – to 07/12/2015 Professor Alan Pettigrew, consultant and advisor on higher education and research
- Executive Director – from 08/12/2015 Professor David J Adams, BSc (Hons), PhD
- Deputy Executive Director – from 11/01/2016 Professor Leonard Arnolda, MBBS (Hons), FRACP, PhD
- Chief Operating Officer Ms Sue Baker-Finch to 26/02/2016
## INCOME STATEMENT

For the year ended 30 June 2016

<table>
<thead>
<tr>
<th>Income Description</th>
<th>2016 ($’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Agreements</td>
<td>6,166</td>
</tr>
<tr>
<td>Government Grants</td>
<td>949</td>
</tr>
<tr>
<td>Donations and Fundraising</td>
<td>12</td>
</tr>
<tr>
<td>Other Income</td>
<td>320</td>
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<tr>
<td><strong>TOTAL INCOME</strong></td>
<td><strong>7,447</strong></td>
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</table>

<table>
<thead>
<tr>
<th>Expenditure Description</th>
<th>2016 ($’000)</th>
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<tbody>
<tr>
<td>Employee Related</td>
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<tr>
<td>Building Lease</td>
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<tr>
<td>Fundraising</td>
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</tr>
<tr>
<td>Research Development</td>
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<tr>
<td>Research Infrastructure</td>
<td>161</td>
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<tr>
<td>Governance Project</td>
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<tr>
<td>Other Operating Expenses</td>
<td>809</td>
</tr>
<tr>
<td><strong>TOTAL EXPENDITURE</strong></td>
<td><strong>6,840</strong></td>
</tr>
<tr>
<td><strong>SURPLUS</strong></td>
<td><strong>607</strong></td>
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</tbody>
</table>

## BALANCE SHEET

For the year ended 30 June 2016

<table>
<thead>
<tr>
<th>Balance Description</th>
<th>2016 ($’000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Assets</td>
<td>3,975</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td><strong>3,975</strong></td>
</tr>
<tr>
<td>Current Liabilities</td>
<td>1,554</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES</strong></td>
<td><strong>1,554</strong></td>
</tr>
<tr>
<td><strong>NET ASSETS</strong></td>
<td><strong>2,421</strong></td>
</tr>
<tr>
<td>Retained Surplus</td>
<td>2,421</td>
</tr>
</tbody>
</table>
In 2015 IHMRI affiliated researchers were active researchers in 102 externally-funded research projects including:

- **32** projects funded by the National Health and Medical Research Council
- **21** projects funded by the Australian Research Council
- **16** projects funded by other Category 1 funding schemes
- **37** new projects were funded in 2015-16

### TOTAL FUNDING AWARDED TO IHMRI RESEARCHERS IN 2015-16

- **$2,744,741** Category 2 and 3
- **$2,065,356** Other Category 1
- **$6,831,907** Category 1 - NHMRC

Category 1 Funding includes all research grant schemes listed on the Australian Competitive Grant Register. These schemes are available to Australian national Universities only. Agencies with grant schemes listed on the ACGR include both commonwealth (e.g. NHMRC, ARC and Cancer Australia) and non-commonwealth agencies (e.g. Motor Neurone Disease Research Institute of Australia, National Breast Cancer Foundation and The Movember Group).

Category 2 listed grant schemes include all other public sector income including other national and state government agencies (e.g. Cancer Institute of NSW and NSW Health).

Category 3 listed grant schemes include Australian foundations and International peer-reviewed research grants (e.g. Department of Defense, IRT Foundation, Cystic Fibrosis Foundation).

### AUSTRALIAN COMPETITIVE GRANTS

In the 2015 funding round, IHMRI researchers were awarded over $6.8M from the National Health and Medical Research Council (NHMRC) and Australian Research Council (ARC) for projects commencing in 2016.

A further $2M was awarded from other Category 1 listed funding schemes.

### OTHER GRANT SCHEMES

Other grants awarded to IHMRI researchers in 2015-16 totalled almost $2.8M, including three clinician-led projects funded from the new NSW Health Translational Research Scheme totalling over $1.3M as well as a highly competitive $700K grant from the NSW Department of Defense (NB: travel grants awarded by the Australian Synchrotron Research Program totalling $10K are not listed in the table).

### IHMRI GRANTS

In 2015-16 IHMRI’s executive team reviewed the internal grants program and adopted a new scheme that aligns with the Institute’s strategic goals of fostering research.
in health service contexts, incentivising and rewarding interdisciplinary collaborations, building on existing capabilities to develop signature areas of medical innovation and producing research of national and international standing.

The new grant scheme includes:

**Career Development Grants**

Awarded to early career researchers to help them develop skills and build a research track record through direct involvement with active research projects and mentoring/training with successful researchers on those projects.

**Collaborative Project Grants**

Provided annually to support projects co-led by clinicians and academic researchers. Projects that address regional health issues and involve hospital-based studies, investigations or evaluations of new models of patient care, translation of evidence into new tools and population health intervention trials will be considered. Recipients will be expected to undertake pilot projects leading to applications to external funding agencies.

**Near Miss Funding**

Awarded to researchers who closely miss out on receiving NHMRC and ARC grants, with the amount of funding awarded determined by the researchers’ plans on how they intend to develop their projects to a competitive standard.

In 2015-16 IHMRI awarded funding to 1 Career Development Grant, 4 Collaborative Grants and 5 Near Miss Projects totalling over $150K.

---

**MILLER FAMILY BRIDGEPATRICE**

**IHMRI SUMMER SCHOLARSHIP PROGRAM**

Two scholarships were awarded under this program last summer to students supervised by IHMRI researchers:

Under the supervision of Illawarra Shoalhaven Local Health District (ISLHD) neurologist, Associate Professor John Carmody, and ISLHD Consultation Liaison Psychiatrist, Dr Mathew MacFarlane, final year medical student David Jakabek focused on frontotemporal dementia, a common cause of younger onset dementia.

After completing a Master of Public Health (Advanced), Kara Cappetta worked as a Research Officer with one of Australia’s leading dementia researchers, National Health and Medical Research Centre and Australian Research Council Dementia Fellow Dr Lyn Phillipson (an IHMRI researcher). Kara used her scholarship to investigate and identify common barriers to appropriate dementia care and treatment in acute settings, with the findings informing the design of a Dementia Friendly Hospital pilot study—the first in Australia to focus specifically on the experience of patients and carers.
# Australian Competitive Grants

NB: Chief Investigator in Bold, * denotes IHMRI researcher and * indicates external researcher

## National Health and Medical Research Council (NHMRC) and Australian Research Council (ARC)

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Agency</th>
<th>Scheme Name</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Directed Care: Understanding and promoting participation and care</td>
<td>NHMRC</td>
<td>Dementia Research</td>
<td><strong>Dr Lyn Phillipson</strong>*</td>
</tr>
<tr>
<td>outcomes for people living with dementia in receipt of a Home Care Package</td>
<td></td>
<td>Development Fellowship</td>
<td></td>
</tr>
</tbody>
</table>
| Developing insight into the molecular origins of familial and sporadic      | NHMRC         | Dementia Research Team Grants | **A/Prof Ian Blair** (Macq)  
**A/Prof Julie Atkin**  
**Prof Roger Chung**  
**Prof Gilles Guillemin**  
**Dr Lezanne Ooi**  
**Dr William Wilson**  
**A/Prof Mark Molloy**  
**Dr Justin Yerbury**                                                       |
| frontotemporal dementia and amyotrophic lateral sclerosis                    |               |                      |                                                                            |
| 3D-BrachyView: a 3D real-time virtual reality intra-operative Quality        | NHMRC         | Development Grant    | **Dr Marco Petasecca***                                                       |
| Assurance system for brachytherapy                                           |               |                      | **Dist Prof Anatoly Rozenfeld**  
**Prof Michael Lerch**  
**Dr Joseph Bucci**  
**Prof Marco Favoino**  
**Prof Francesco Carriero**                                                   |
| Does Omega-3 Supplementation Attenuate Aggressive Behaviour: A Multi-Centre | NHMRC         | Partnership Projects | **A/Prof Barbara Meyer***                                                     |
| Randomised Controlled Trial of a Broadly Disseminable Strategy               |               |                      | **A/Prof Mitchell Byrne**  
Dr Natalie Parletta  
**Prof Alison Jones**  
Prof Simon Eckermann  
Prof Tony Butler  
Prof David Greenberg  
**Dr Francesca Fernandez-Enright**  
**A/Prof Marijka Batterham**  
A/Prof Peter Schofield                                                        |
<p>| The effect of hypochlorite on the toxicity and clearance of the Alzheimer’s | NHMRC         | Project Grant        | <strong>Dr Amy Wyatt</strong>*                                                            |
| disease-associated amyloid beta peptide                                      |               |                      |                                                                            |</p>
<table>
<thead>
<tr>
<th>Research Area</th>
<th>Grant Body</th>
<th>Fellowship Type</th>
<th>Principal Investigators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding the mechanisms for ameliorating/preventing antipsychotic-induced obesity in early life</td>
<td>NHMRC</td>
<td>Project Grant</td>
<td>PROF CHAO DENG*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Jiamei Lian*</td>
</tr>
<tr>
<td>Improving breathing support for newborn infants in non-tertiary centres: The HUNTER Trial</td>
<td>NHMRC</td>
<td>Project Grant</td>
<td>DR BRETT MANLEY (UMelb)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A/Prof Adam Buckmaster *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Peter Davis *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Ian Wright*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Louise Owen *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Gaston Arnolda *</td>
</tr>
<tr>
<td>The role of mutant cyclin F in amyotrophic lateral sclerosis</td>
<td>NHMRC</td>
<td>Project Grant</td>
<td>A/PROF IAN BLAIR (Macq)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A/Prof Julie Atkin *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Roger Chung *</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Justin Yerbury*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Lezanne Ooi*</td>
</tr>
<tr>
<td>Repurposing Amiloride into Breast Cancer Drugs with a Dual-Targeting Mechanism</td>
<td>NHMRC</td>
<td>Project Grant</td>
<td>A/PROF MICHAEL KELSO*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Marie Ranson*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Mingdong Huang *</td>
</tr>
<tr>
<td>What types of local built environment synergise with, or antagonise the benefits of clinical management for the prevention of cardiovascular events among people with type 2 diabetes mellitus? Longitudinal analysis of a cohort of 20,765 Australians</td>
<td>NHMRC</td>
<td>Project Grant</td>
<td>A/PROF THOMAS ASTELL-BURT*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr Xiaoqui Feng*</td>
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<tr>
<td>Defining the mechanisms by which ABCA7 and apoE control Alzheimer’s disease risk. Functional characterisation of new therapeutic targets for dementia prevention and treatment</td>
<td>NHMRC</td>
<td>Research Fellowships</td>
<td>PROF BRETT GARNER*</td>
</tr>
<tr>
<td>Defining systems that clear dangerous misfolded proteins from body fluids</td>
<td>ARC</td>
<td>Discovery Projects</td>
<td>SNR PROF MARK WILSON*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A/Prof Heath Ecroyd*</td>
</tr>
</tbody>
</table>
## Other Australian Competitive Grant Programs

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Agency</th>
<th>Scheme Name</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of the six minute walk test to predict recovery and complications in morbidly obese patients undergoing elective surgery</td>
<td>ANZCA</td>
<td></td>
<td>Dr Natalie Smith*</td>
</tr>
<tr>
<td>A longitudinal analysis of the relationship between participation in organised sport and cardiometabolic health during childhood</td>
<td>Heart Foundation</td>
<td>Postdoctoral Fellowship</td>
<td>Dr Stewart Vella*</td>
</tr>
<tr>
<td>Are small-sided games a sustainable form of exercise that can reduce the prevalence of cardiovascular disease in an indigenous male population</td>
<td>Heart Foundation</td>
<td>Vanguard Grant</td>
<td>Dr John Sampson*</td>
</tr>
<tr>
<td>Greener Cities Healthier Lives: Measuring the wider social benefits</td>
<td>Horticulture Innovation Australia (HIA) Ltd</td>
<td>Strategic Co-investment Pool</td>
<td>A/Prof Thomas Astell-Burt*</td>
</tr>
<tr>
<td>Development of a biocompatible functionalised liposome drug delivery system to increase efficiency of delivery to motor neurons</td>
<td>Motor Neurone Disease Research Institute</td>
<td>Grants-in-Aid</td>
<td>Dr Justin Yerbury*</td>
</tr>
<tr>
<td>Specific targeting of Treg cells using immunomodulatory nanoparticles as adjunct therapy for triple negative breast cancer</td>
<td>National Breast Cancer Research Foundation</td>
<td>Innovator Grant</td>
<td>A/Prof Phillip Darcy (UMelb)</td>
</tr>
<tr>
<td>Use of Smart Polymers in a 3D printed upper airway model of obstructive sleep apnoea</td>
<td>The Garnett Passe and Rodney Williams Memorial Foundation</td>
<td>Conjoint Grant</td>
<td>Dist Prof Gordon Wallace*</td>
</tr>
</tbody>
</table>

## Other Grant Schemes

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Agency</th>
<th>Scheme Name</th>
<th>Researchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Protection - are our standards protecting worker health or providing a false sense of security?</td>
<td>Coal Services Health and Safety Trust</td>
<td>Research Grant</td>
<td>Jane Whitelaw*</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Prof Alison Jones*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kerrie Burton*</td>
</tr>
<tr>
<td>Project Description</td>
<td>Funding Body/Research Group</td>
<td>Lead Investigator(s)</td>
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</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>Fatigue, substance use, and mental health in coal workers: Implications for safety and performance</td>
<td>Coal Services Research Grant</td>
<td>DR CHRISTOPHER MAGEE*</td>
<td></td>
</tr>
<tr>
<td>Mapping food environment policy implementation in three South-East Asian countries</td>
<td>International Development Research Centre (IRDC) Grants to Institutions</td>
<td>TILAKAVATI KARUPAIAH</td>
<td></td>
</tr>
<tr>
<td>Improving older persons’ involvement in decisions concerning their health care</td>
<td>IRT Research Foundation Grant</td>
<td>PROF ANDREW BONNEY*</td>
<td></td>
</tr>
<tr>
<td>Improving health and safety outcomes in Chilean miners: a lifestyle intervention program to improve wellbeing and decrease musculoskeletal injuries</td>
<td>Mutual de Seguridad Research Funding</td>
<td>DR VINODKUMAR GOPALDASANI*</td>
<td></td>
</tr>
<tr>
<td>Repurposing Amiloride Derivatives as New Agents for Drug-Resistant Tuberculosis</td>
<td>New Zealand Health Research Council (HRC) Grant</td>
<td>PROF GREGORY COOK</td>
<td></td>
</tr>
<tr>
<td>Materials Node - Australian National Fabrication Facility (ANFF)</td>
<td>NSW Government Research Attraction and Acceleration Program (RAAP) Grant</td>
<td>DIST PROF GORDON WALLACE*</td>
<td></td>
</tr>
<tr>
<td>SMS SOS: Effectiveness of SMS text messages in improving survival and rehabilitation rates of deliberate self harm patients and reducing re-presentation of DSH patients to hospital.</td>
<td>NSW Health Translational Research Grants Scheme</td>
<td>DR GREGORY CARTER</td>
<td></td>
</tr>
<tr>
<td>Investigation of two interventions for tapering large doses of prescribed opioids in patients with non-cancer pain</td>
<td>NSW Health Translational Research Grants Scheme</td>
<td>DR GEOFF MURRAY*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prof Wilf Yeo*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prof Jan Potter*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kik Eng Khor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suzanne Neilsen</td>
<td></td>
</tr>
</tbody>
</table>
Integration of the DTEXT program: text messaged on lifestyle risk factor modification and diabetes self-management for people with type 2 diabetes, into the NSW Get Healthy Information and Coaching Service

**NSW Health Translational Research Grants Scheme**

**DR SUSAN FURBUR**
Adrian Bauman
Stephen Colagiuri
Margaret Allman-Farinelli
Alison Hayes
**Prof Robert Moses**
Alison Web
**Dr Paul Van den Dolder**
Franca Facci
Lisa Franco
Karen Waller

**U.S. Department of Defense Congressionally Directed Medical Research Program**

**DR JUSTIN YERBURY**
Dr Kara Perrow
Dr Darren Saunders

**IHMRI GRANT SCHEMES: COLLABORATIVE PROJECT GRANTS**

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>CLINICIAN CHIEF INVESTIGATOR</th>
<th>ACADEMIC CHIEF INVESTIGATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can the B-Type natriuretic hormone be used to predict recovery and complications in morbidly obese surgical patients?</td>
<td><strong>DR NATALIE SMITH</strong></td>
<td><strong>PROF LEONARD ARNOLDA</strong></td>
</tr>
<tr>
<td>Addressing problematic drinking of people living with severe mental illness: Feasibility of a peer delivered telephone intervention for people engaged with non-government or government funded health services (ISLHD)</td>
<td><strong>DR KEREN WOLSTONCROFT</strong></td>
<td><strong>DR PETE KELLY</strong></td>
</tr>
<tr>
<td>Social and spatial determinants of primary care and medication use among people with cardiovascular disease and type 2 diabetes mellitus</td>
<td><strong>PROF LEONARD ARNOLDA</strong></td>
<td><strong>A/PROF THOMAS ASTELL-BURT</strong></td>
</tr>
<tr>
<td>Using retinal imaging as a marker to evaluate cardiovascular risk in pre-schoolers</td>
<td><strong>PROF IAN WRIGHT</strong></td>
<td><strong>DR DYLAN CLIFF</strong></td>
</tr>
</tbody>
</table>
## CAREER DEVELOPMENT GRANTS

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>RESEARCHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do modified school classroom environments increase physical activity and reduce sedentary behaviour in high school children? A pilot group-RCT</td>
<td><strong>DR ANNE-MAREE PARRISH</strong></td>
</tr>
</tbody>
</table>

## NEAR MISS GRANTS

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>INVESTIGATORS</th>
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<td>Understanding the function of ABCA7 in Alzheimer’s disease</td>
<td><strong>PROF BRETT GARNER</strong></td>
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<td>Reducing Total and Prolonged Sitting in Adolescents: The Stand-Up for Health multisite randomised controlled trial</td>
<td><strong>PROF ANTHONY OKELY</strong></td>
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<td>Dr Dylan Cliff*</td>
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<td>A/Prof Marijka Batterham*</td>
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<td>Prof Simon Eckermann</td>
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<td><strong>Dr Anne-Maree Parrish</strong></td>
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<td>Complex changes in the membrane: lipid dyshomeostasis in Alzheimer’s disease</td>
<td><strong>DR LEZANNE OOI</strong></td>
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<td>Prof Todd Mitchell*</td>
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<td>Prof Brett Garner*</td>
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<td>Changing the treatment paradigm: Preclinical assessment of 3D dual-drug-eluting degradable polymeric structures for the neoadjuvant treatment of pancreatic cancer</td>
<td><strong>DR KARA PERROW</strong></td>
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<td>Prof Simon Moulton*</td>
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<td>Dr Javad Foroughi*</td>
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<td>Dr Morteza Aghmesheh*</td>
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<td>Fast and efficient verification in contemporary radiotherapy for movable and small stationary targets: clinical implementation</td>
<td><strong>DIST PROF ANATOLY ROZENFELD</strong></td>
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<td>Dr Wolfgang Tome</td>
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<td><strong>Dr Marco Petasecca</strong></td>
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<td>Prof Michael Lerch*</td>
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<td>Dr Stephanie Corde Tehei*</td>
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<td>Dr Michael Jackson</td>
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The following health and medical research book chapters and publications in peer-reviewed journals were published by IHMRI-affiliated researchers in the 2015 calendar year.

The top ten publications (determined by JCR Impact Factor) are highlighted for each theme. The remaining publications for each theme are listed in alphabetical order.

### RANK DIAGNOSTICS AND THERAPEUTICS

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<tr>
<th>Rank</th>
<th>Author(s)</th>
<th>Title</th>
<th>Journal</th>
<th>Year</th>
<th>Pages</th>
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**RANK**


Fleming, R., Kelly, F. & Stiffeld, G. (2015). ‘I want to feel at home’: establishing what aspects of environmental design are important to people with dementia nearing the end of life palliative care in other conditions. BMC Palliative Care, 14:26


Liersch-Sumskis, S., Moxham, L. & Curtis, J. (2015). Choosing to use compared to taking medication: the meaning of medication as described by people who experience schizophrenia. *Perspectives in Psychiatric Care, 51* (2), 114-120.


THANK YOU TO ALL OF OUR VOLUNTEERS, SUPPORTERS AND DONORS THROUGHOUT THE YEAR. YOUR ONGOING SUPPORT IS VITAL TO OUR CONTINUED SUCCESS.

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