



Bringing research to life
ANNUAL REPORT 2018



ACKNOWLEDGEMENT

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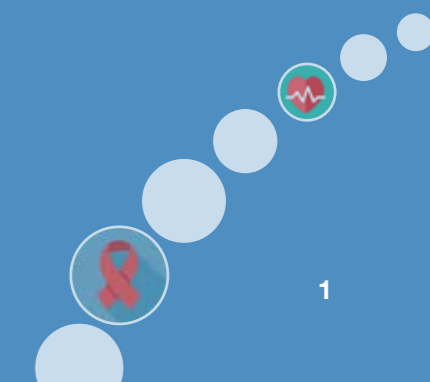
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We would also like to acknowledge the generous support of all of our donors and volunteers: those who donate to HMRI or help us run appeals and events, our benefactors and corporate partners. The work outlined in this report is due in no small part to your contributions.

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“The Federal Government talks of shooting for the moon with health and science, and that’s our mission too.”



SINCE joining HMRI in 2018 from my previous role at the University of Liverpool in the UK, I’ve been struck by the extraordinary pride that the Hunter community has in HMRI — a regionally based institute excelling in a broad range of disease areas and disciplines.

It didn’t come as a total surprise, I must say, because my connection to HMRI actually began in 2014 when I served on an international panel for Australia’s National Health and Medical Research Council, reviewing Advanced Health Research and Translation Centre applications.

HMRI was, and still is, part of a health-care alliance called NSW Regional Health Partners (NRHP) that ultimately became one of the first Centres for Innovation in Regional Health. It was pleasing to see, as I was impressed by the NRHP’s collaborative spirit and the potential benefits for rural and regional communities.

With health and medical research being undertaken in labs, clinics, clinical trial centres and across the suburbs and towns, our over-arching objective in this region is to ensure the work is not just world-class but also clinically relevant — to repay the community’s faith and support, and ensure we continue to meet their expectations.

Of course, we also rely on support from federal and state funding bodies, foundations and industry, so we must simultaneously endeavour to align our research priorities and standards with theirs.

The Federal Government, in particular, talks of shooting for the moon with health and science, and that’s our mission too.

If I was to highlight one example from the past 20 years, it would be the biotech firm Viralytics, whose opening chapter began at HMRI’s first Gala Dinner in 1998. Scientist Darren Shafren was named Young Medical Researcher of the Year that night and serendipitously gained a \$25,000 pilot grant after impressing a donor — the Greater Bank.

Darren’s idea to use the cold virus to attack melanoma led to the formation of Viralytics and yielded an experimental drug called Cavatak. And this year, Viralytics was acquired by US pharmaceutical giant Merck for \$502 million — the largest acquisition of a biotech company in Australia. More importantly, cancer patients now have a potent new therapy in the pipeline.

We have to continue aiming high and delivering more outcomes like this - translating great ideas into healthcare solutions.



With that in mind, I’ll be spending a good part of 2019 developing and executing a new strategic plan for HMRI, building on our current platforms, fortifying our core strengths and expanding clinical capacity.

I’ve begun consulting with researchers from the University of Newcastle and Hunter New England Health, along with community, industry and government representatives and our own staff, with a view to meeting health-care needs now and well into the future.

HMRI has already introduced patient advocates to our selection panel for scientific appointments. In 2019, we also plan to upgrade our clinical trials facilities and services to improve recruitment efficiencies and increase our capabilities and capacity.

As we look to the future, I’m really excited about what I see, and envisage an even stronger HMRI.

“The lights lit a path for our shared goal of creating a brighter, healthier future over the next two decades.”



FOR a week in May this year, a number of Newcastle’s landmark buildings were bathed in green light to celebrate HMRI’s 20th anniversary.

Included were the Newcastle City Hall clock, Greater Bank’s headquarters and two harbour-

front icons – the silos and coal loaders. It was a fitting reflection of the Institute’s close ties with community, business and industry respectively.

Green is intrinsic to HMRI’s logo, of course, yet also symbolic of giving the green light to world-leading medical research, from bench to bedside. And the lights lit a path for our shared goal of creating a brighter, healthier future over the next two decades.

We couldn’t imagine this kind of engagement back in 1998 as the city braced for its steel industry demise, nor could HMRI’s founders have foreseen that a regional and ‘virtual’ institute would evolve into a world-class entity, one of the biggest and best in NSW.

From one staff member and fewer than 100 researchers, to more than 1600 in total, it has been a period of extraordinary growth, endeavour, entrepreneurship and achievement.

The University of Newcastle, Hunter New England Health and the community have each nurtured the venture from infancy to maturity, befitting a region passionate about its people.

State and federal governments were compelled to do likewise.

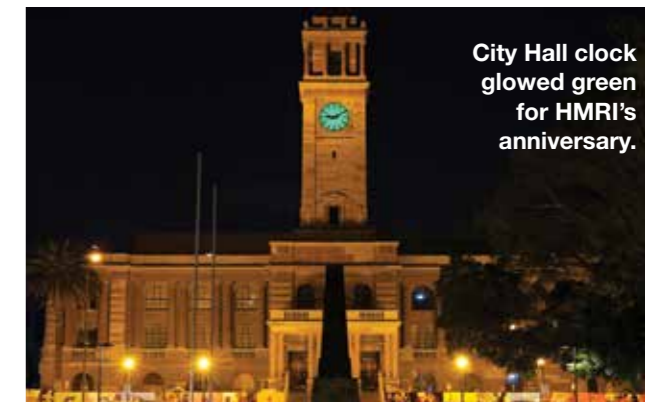
Dial the clock forward to the 2018 Awards Night, and it featured the largest funding pool for any HMRI grants round, totalling over \$1 million. A further 56 previously-awarded grants and scholarships, collectively worth almost \$10 million, were also recognised. With such support, who knows what future success stories will be written?

The evening included the very special announcement of a \$1.7 million bequest from a Hunter family, the largest unspecified donation in HMRI’s 20-year history.

The donors, who sought anonymity, requested that the funds remained endowed to support future Director’s Priorities.

Another remarkable gift this year was bequeathed by the late Margaret (Peggy) Crawley, with the first instalment of \$1.3 million being allocated from a total pledge of \$3.6 million to be received in 2019.

The commitment to a bequest, or any major donation for that matter, shows extraordinary foresight, trust and a sense of community, for which HMRI is most grateful.



Finally, it was a great pleasure for us this year to welcome Professor Tom Walley as new Director, following a global search to replace Professor Michael Nilsson. As Chair, I would like to thank Michael for his seven years of service and also acknowledge Laureate Professor Paul Foster for his three-month stint as interim Director.

No one understands better than Tom that HMRI’s purpose is to improve clinical outcomes for our community, country and the world, while building investment and employment in the region.

It has been that way for 20 years and Tom will be implementing strategies to ensure it continues and thrives.

THE Hunter Medical Research Institute (HMRI) works in partnership with University of Newcastle and Hunter New England Local Health District to enable the translation of world-class medical research into clinical best practice and policy to improve community health and well-being.

As one of NSW's largest independent research institutions, HMRI helps Hunter researchers, health-care professionals, policymakers, industry and the community to work together in solving a multitude of health issues.

It supports and accelerates the translation of research from bench to bedside – from basic molecular science, pre-clinical trials, and human clinical trials through to evidence-based medical treatments, protocols and health policy.

Across multiple campuses, the Institute provides essential funding, facilities, equipment and research support to over 1600 researchers, research students and support staff.

Research is coordinated through six key Programs: Brain & Mental Health, Cancer, Cardiovascular Health, Pregnancy & Reproduction, Public Health, and Viruses, Infections/Immunity, Vaccines & Asthma (VIVA).

In 2018, the former Information Based Medicine [Genomics and Precision Medicine] Program was assimilated into the remaining groups, signifying that its work is integral to many diseases.

HMRI also supports inter-program collaborations in shared research focus areas, in Child & Adolescent Health, Indigenous Health, Rural & Telehealth, and Healthy Ageing.

This multidisciplinary model recognises that families are burdened by a raft of medical conditions, including asthma, cancer, diabetes, heart disease, stroke and more. Optimum treatment requires a holistic approach from experts across different research fields.

HMRI attracts significant philanthropic and government funding for affiliated researchers, which supports essential research infrastructure.

The Health Research Economics (HRE) team, for example, is leading the way nationally for research impact assessment, while HMRI's Clinical Research Design and Statistical Services teams provide advice for project design and grant proposals.

A Clinical Trials Unit is also located in the HMRI Building and HMRI runs a Volunteer Register to assist with recruitment.



Excellence in Research for Australia 2018

Australia's national research evaluation framework

HMRI affiliates have earned "well-above world standard" status, scoring 5/5, in 10 of our 13 categories in the Excellence in Research For Australia (ERA) results, 2018. In our areas of strength in "Medical and Health Sciences" we equal or out-perform our nation's top 3 research universities.

	Cardiorespiratory Medicine and Haematology	Human Movement and Sport Science	Immunology	Neurosciences	Nursing	Nutrition and Dietetics	Oncology and Carcinogenesis	Paediatrics and Reproductive Medicine	Pharmacology and Pharma. Sciences	Medical Physiology
University of Newcastle	5	5	5	5	5	5	5	5	5	5
Australian National University	4	-	5	4	-	-	4	-	-	-
University of Sydney	5	5	4	4	5	5	5	4	5	5
University of Melbourne	4	5	5	5	5	4	5	5	4	4



- HMRI Research Programs
- HMRI Support Services
- Target Patient Groups

TIMELINE: 1998-2018

HMRI began with one staff member and fewer than 100 researchers. Today, there are more than 1600 affiliates from our partners, the University of Newcastle and Hunter New England Health




1998
12 February Hunter Medical Research Ltd becomes a registered company.
1 November Darren Shafren wins HMRI's first Early Career Research Award at gala dinner.

1999
1 September Professor John Rostas appointed as inaugural Director.



2000
13 March NSW Government awards HMRI funding as a "special case".
1 May Clot therapy availed to stroke patients at John Hunter Hospital three years before becoming routine.

2001
6 February 30 research programs are consolidated into 10 groups (later to become six).



2002
19 December HMRI Clinical Research Centre officially opened in John Hunter Hospital.
2 September Newcastle Bioinformatics Initiative is launched.

2008
14 February Researchers begin exploring cooling of the brain after stroke.
26 March NHMRC funding of \$14.8 million sets a record at that time.


2007
2 March Bob Kennedy accepts the role of HMRI Board Chair.



2006
19 February The NSW Government allocates land at the John Hunter campus for HMRI Building.
20 November Professor Maree Gleeson appointed as HMRI Director.

2005
16 December Adult stem cell technology is used to treat patients with heart disease.
1 September HMRI launches the Research Volunteer Register for clinical trials.

2004
17 June Bob Baldwin MP helps secure first \$5 million in federal funding for proposed HMRI Building.



2003
5 February Newcastle businessman Richard Owens appointed Chair of Board.
1 March Australian Schizophrenia Research Biobank established.

2009
6 April Rural trial of the Pre-hospital Acute Stroke Triage (PAST) Protocol improves treatment response times.
27 August Researchers begin the national AMAZES trial, using an antibiotic that reduces asthma attacks by 40%.

2010
8 March Internationally renowned Healthy Dads, Healthy Kids program is launched.
20 April Researchers gain access to the world's best CT scanner in a new global partnership.

2011
9 September Managing Asthma in Pregnancy (MAP) study halves attacks for expectant mums.



2012
22 March TASTE trial shows efficacy of new clot-dissolving drug Tenecteplase over standard therapy.
10 April Professor Michael Nilsson becomes HMRI's first international Director.


2013
15 October Study develops clearer picture of MS by almost doubling number of known genes.
13 December Anastrozole found to halve breast cancer recurrence in high risk women.

2018
2 July Hunter biotech firm Viralytics acquired by Merck in record \$502 million buyout.
1 November Formerly of University of Liverpool UK, Professor Tom Walley takes over as HMRI Director.

2017
14 September Pregnancy researchers discover that stillbirths can be triggered by placental ageing.
28 June NHMRC approves Centre for Innovation in Regional Health – NSW Regional Health Partners.

2016
15 September The Hunter is chosen as the international test site for Stroke Finder helmet.
13 December Kyle Loades replaces Glenn Turner as HMRI Chair.

2015
3 February World-leading physical activity study for daughters, DADEE, launched.



2014
14 March State-of-the-art MRI imaging centre opens at HMRI Building.
15 August RADAR trial gives men with prostate cancer a 30-40% better chance of survival.



Program Leaders

Professor Neil Spratt
Professor Alan Brichta

Program affiliates: 243

Burden: Someone has a stroke in Australia every 9 minutes

45% of Australians experience a mental illness in their lifetime

Economic impact: \$12.8 billion is attributed to depression, anxiety and substance-use; stroke is \$5 billion

THE brain is arguably the human body's most complex and critical organ, underpinning our central nervous system, cognition and balance while being vulnerable to a raft of mental health issues, traumas such as concussion, and diseases including stroke, cancer and dementia.

Brian and Mental Health Program affiliates span the research gamut of these degenerative illnesses and disorders, with a goal of relieving the long-term impacts on patients, carers and families in the community. Included are clinical psychology, ageing, neurobiology, and stroke treatment and rehabilitation, across the bench-to-bedside spectrum.

Reflecting diversity, two University of Newcastle Priority Research Centres are represented in the Program – the Centre for Brain and Mental Health Research, co-directed by Professor Alan Brichta and Brian Kelly, and the Centre for Stroke and Brain Injury, co-directed by Professors Spratt and Christopher Levi.

The Program's stroke team is globally renowned for advancements in acute care and rehabilitation, starting with finely tuned triage protocols and the trialling of clot-busting therapies. The catchcry is "Time is brain". In other words, every minute counts when it comes to diagnosing stroke and administering therapies.

Stimulating stroke rehabilitation with exercise

AS accountant Paul can attest, stroke survivors face a mountain of challenges and stresses every day. The 61 year old would happily return to work, if only his slow recovery would allow.

"If someone could give me a helping hand I'd be back there tomorrow. I'm not happy with how I am. I want to get better, I want to do more and I'm frustrated by my recovery progress."

Because fatigue and a lack of mobility are major impediments, Paul's wife Katrina has become his carer and driver, taking him to appointments between her work and family commitments. Now, however, his participation in the HMRI-led pilot study Aerobic Exercise and Consecutive Task-specific Training has helped Paul regain strength in his arm and hand.

The study explored whether aerobic exercise, performed before task-specific arm and hand movement training, could boost brain activity and its ability to relearn motor skills.



With his home becoming a healing place, Paul spent time on an exercise bike and has since become less sedentary. Efforts to regain strength in his right hand are rewarded by an earnest grip when shaking hands.

And since participating in this trial, Paul has signed on to the Hunter Stroke Research Volunteer Register based at HMRI, hoping to help others in his situation.



Program co-leader Professor Neil Spratt is at the clinical forefront of stroke triage and imaging.

"These research modules ... form a foundation for developing tools and techniques that offer hope for the future"

In 2018, HMRI began working with Swedish collaborators to develop a revolutionary diagnostic tool called the Stroke Finder. The helmet-like device is compact and portable, enabling it to be evaluated in the John Hunter Hospital Emergency Department ahead of planned field trials with NSW Ambulance.

Innovation in rehabilitation

The benefits of physical and social activity after a stroke is another important research consideration as 500,000 Australians are living with a stroke-induced disability. That number is set to increase to 1 million by 2050. Hospitals often can't sustain long-term costs, forcing patients to recuperate in their homes.

This year, former HMRI Director Professor Michael Nilsson helped establish a new Centre for Rehab Innovations to create more enriching environments for more rapid recovery.

The neurobiology team is investigating the fundamental ways the nervous system works to overcome neural problems such as addiction, dementia, and chronic pain. They are also studying the effects of ageing on the nervous system, and why ageing can often result in degenerative disorders that affect thought processes, our ability to move, and our hearing and balance.

All of these projects involve collaborators who regularly visit our researchers in Newcastle and from countries such as Canada, USA, UK, Netherlands, Germany and France. These global partnerships ensure the essential scientific work being done within the Brain and Mental Health Program is world-class quality and has international impact.

Under the banner of Clinical Mental Health are prevention-based and treatment models for palliative care, psycho-oncology, rural mental health, social determinants of mental health, psychotic disorders, depression, suicide, personality disorders, and alcohol/drug use. Modelling and advanced neuroimaging are used extensively to inform clinical outcomes.

A major achievement in the schizophrenia sphere has been the growth of the Australian Schizophrenia Research Bank, which collects biomedical samples and brain imaging data on schizophrenic and healthy patients to allow easier detection of patterns and trends in patient samples.

In all, these various research modules come together like building blocks to form a strong foundation for developing tools and techniques that offer hope for the future.

Patients benefiting from better nutrition



A first-of-its-kind trial has demonstrated the significance of psychological strategies to improve malnutrition in patients with head and neck cancer.

Patients who participated in the Eating As Treatment (EAT) trial lost less weight, had fewer radiotherapy interruptions, had lower depression scores and reported a higher quality of life.

Dr Ben Britton, pictured above, says that patients with head and neck cancer undergoing radiation therapy suffer malnutrition at very high rates. Patients who become malnourished during treatment have significantly poorer outcomes, including survival.

“The Eating As Treatment (EAT) trial taught oncology dietitians to change the behaviour of their head and neck cancer patients, and get them to follow dietetic advice. Often that was increased intake, but it also included things like use of analgesia or appropriate enteral (tube) feeding. It was a real privilege to work with such dedicated clinicians around the country and exciting to get such a positive result,” he said.

Six Australian hospitals were enlisted to participate in the trial. Of the 156 patients recruited, most had significantly lower rates of malnutrition, lower percentage weight loss and were less likely to lose >10% weight over the course of treatment than the controls.

Dr Britton, a member of HMRI’s Cancer Research Program, and his team have shown the EAT Trial is an effective and achievable intervention. The team is now looking at the long-term effects on mortality, the cost effectiveness of the trial, and piloting the implementation of EAT in other Australian hospitals.

AT A GLANCE

Program Leaders

Professor Stephen Ackland
Professor Xu Dong Zhang

Program affiliates: 160

Burden: Almost 50,000 Australians died from cancer this year

1 in 2 men and women will be diagnosed by the age of 85

Diagnosis rates are rising

Economic impact: \$6.3 billion

EVERY day, researchers in the HMRI Cancer Program are working to improve diagnostic pathways, enhance treatment options and provide better clinical care and support for people living with cancer, and their families.

It’s an interdisciplinary and integrative group, working collaboratively across other HMRI Research Programs and Priority Research Centres. There is also a strong affiliation with the Hunter Cancer Research Alliance, one of seven Translational Cancer Research Centres funded by Cancer Institute NSW.

In 2017/18, researchers were successful in leveraging around \$15.7 million in funding, including substantial external grants from Cancer Council NSW, NSW Health Pathology and philanthropic donations.

The Program concentrated its efforts on supporting the next generation of cancer research, with a Future Leaders Group (FLG) developed to provide targeted support for early and mid-career cancer researchers in the Hunter.

The FLG program is a collaborative knowledge exchange platform, providing an avenue for emerging research leaders to develop networking and leadership skills and access unique funding opportunities.

In 2018, three FLG members were successful in receiving Cancer Institute NSW Fellowships.

In recent years, these competitive Fellowships have proven to be a promising stepping-stone for recipients towards further success in national funding schemes, such as NHMRC Fellowships.

Another program highlight for 2018 was the establishment of a world-class diagnostic and research platform – the Hunter Genomics Facility, housed at the HMRI Building.



Dr Craig Gedye works in melanoma, brain, prostate, bladder and kidney cancers.

“Local experts can liaise with the patient’s treating clinician to deliver the most appropriate treatment options available”

The facility provides HMRI cancer researchers with equipment and expertise for examining the genetic make-up of patient samples.

Close and personal

This facility means that Hunter cancer patients no longer have to travel to Sydney for expensive genomic analysis. Instead, local experts can liaise with the patient’s treating clinician to deliver the most appropriate treatment options available.

The HMRI Building also houses the Hunter Cancer Biobank, one of the nation’s most comprehensive repositories of cancer tissue. Included is the Mark Hughes Foundation brain cancer biobank.

The tissue is catalogued and organised so that cancer researchers and clinicians from across the nation can efficiently explore their particular focus without the need to recruit a new sample of patients.

Between 2016 and 2018, approximately 65 research groups have accessed biobank resources. In 2018, over 1280 tissue cases were requested for use in projects to develop new diagnosis and treatment methods.

HEART attack rates are generally declining in urban centres of the Western world, yet they remain on the rise in many regional areas within the Hunter New England health district.

Patients, on average, are also 15 years younger than their city counterparts when they experience coronary disease, with Indigenous communities being the most profoundly impacted.

This has implications not only for regional planners but the research focus of HMRI's Cardiovascular Program.

Their cutting-edge work ranges from disease prevention studies using physical activity and nutrition, through to laboratory-based cellular studies, pre-clinical models, clinical trials and established therapies.

Success was seen on all these fronts in 2018.

Among the highlights were large grants received to improve the management of acute coronary syndromes in small country towns, with a goal to prevent undiagnosed heart attacks.

AT A GLANCE

Program Leaders

Professor Andrew Boyle
Professor Ron Plotnikoff
Professor Dirk Van Helden

Program affiliates: 116

Burden: Coronary disease affects around 18% of Australians and is the leading cause of death.

Economic impact: \$7.3 billion

The NSW Government also supported a clinical trial looking at better management of heart failure in these communities.

Led by Associate Professor Aaron Sverdlov, Director of Heart Failure for Hunter New England Health, it aims to upskill general practitioners in dealing with more advanced heart failure.

“Unlocking the heart’s repair processes and reversing scarring is the Holy Grail of cardiology research”

Associate Professor Sverdlov and Associate Professor Doan Ngo also founded a cardio-oncology program — the first in Australia to be a dual clinical and research enterprise. The Centre addresses a clinical conundrum where therapies used to treat cancer potentially damage the heart [see below].

Fail-safe mechanisms

In 2018, cellular scientists within the program discovered a new link between immune-related inflammation and scarring of the heart, which is a cause of heart failure. It has become a new treatment paradigm for patients who have previously had heart disease.

Once a patient is admitted to hospital with established heart failure, the likelihood of it being fatal is 25% over the following year. Readmission rates are also high at 50%, so unlocking the heart’s repair processes and reversing scarring is the Holy Grail of cardiology.

The physical activity and nutrition team, meanwhile, is forging a closer alignment between prevention and treatment, with collaborations designed to reduce recurrent heart attacks, using technologies like telehealth.

The world-first Dads and Daughters program, created by Professor Phil Morgan, is now being replicated in England to help low-income families in London get active with their children. Sport England provided a \$A1 million grant to deliver the program in partnership with the Fatherhood Institute, Fulham Football Premier League Club and English Football League Trust.

Despite these advancements, heart disease remains the number 1 killer of Australians, and the number 1 cost to the health budget. The ageing population, obesity epidemic and type 2 diabetes remain ongoing issues for our nation.



Professor Andrew Boyle combines his work as clinical specialist and scientist.

Protecting the heart from a ‘double whammy’

A potential ‘double whammy’ facing cancer patients is that therapies used to treat their malignancy can be harmful for the heart. It becomes an intricate balancing act for oncologists, cardiologists and researchers alike. To find answers, HMRI’s Associate Professor Aaron Sverdlov and his wife Associate Professor Doan Ngo have established a district-wide cardio-oncology clinical service with a cutting-edge research component.

“Chemotherapy is more effective than ever at treating cancer but, tragically, a third of survivors will die of heart disease within seven years,” Associate Professor Sverdlov explains. “Our research aims to find early biomarkers of heart disease, to allow cancer patients to receive their treatments while protecting their heart.

“Early detection can reverse the effect but, if it’s delayed, the reversibility drops very low very fast – to zero, in fact.”

The cardio-oncology program is already having impact at the coalface. Medowie mother Kirsty, for example, was diagnosed three years ago with Multiple Myeloma – a blood cancer.



While under chemotherapy, her heart function fell to just 25%.

With Associate Professor Sverdlov’s assistance, however, her cancer remains under control and her heart function is slowly improving.

Kirsty says she’s now greatly comforted by the personalised approach to her ongoing care.

“They understand me. They know why my heart has been affected and what to do about it, to get me back on the healthy road,” she says.

“Hopefully that’s a smoother road from here on, both for me and other cancer patients.”



ASKED to explain the importance of the Pregnancy and Reproduction program, co-leader Laureate Professor Roger Smith AM draws on the simple analogy of buying a new car.

“A car comes with a warranty because engineers realise that quality control is important,” he says. “Humans are similar. We’re complex machines. When made well, though, we can run for years with minimal investment or intervention.”

In the case of a baby, the role and goal of pregnancy researchers at HMRI is to help families around the world have children born at the right weight and at the right time.

When that happens, the offspring is far more likely to have a long, healthy and productive life, including greater educational and economic attainment. The trajectory of their future life often hinges on the critical final weeks of pregnancy and early years of life.

Sadly, too many children are still being born too small and too early, with pre-term birth remaining the most common reason for the loss of a newborn baby. And stillbirth rates – currently six per day in Australia – have also changed little in 20 years.

Breaking the cycle means gaining a more thorough understanding of biological and environmental processes affecting fertility, reproduction and pregnancy, to then enable new diagnostics and interventions to be developed.

AT A GLANCE

Program Leaders

Laureate Professor Roger Smith AM

Laureate Professor John Aitken

Program affiliates: 100

Burden: Infertility affects 1 in 6 couples
30,000 babies (9% of pregnancies) are born pre-term in Australia

Stillbirth claims six lives a day, with a burden of \$681 million; risk is doubled for Indigenous women

As world leaders in this field, Hunter-based researchers are providing their expertise to the planet.

They are working extensively with Indigenous communities in the local health district, along with North Queensland and the Northern Territory. Their reach also extends to Nepal and Ethiopia, while others are studying stillbirths caused by malaria in Kenya.

Research teams in the US, Canada and Denmark regularly send biological samples to Laureate Professor Smith’s laboratory for hormone analysis.

A newly formed Borne HMRI collaboration, supported by Dean and Sarah Mumm, aligns obstetrics researchers in both London and the Hunter, looking to deliver solutions to premature birth.

Slowing the ‘egg timer’ for older mothers

WOMEN who fall pregnant at an older age, either by circumstance or choice, are set to benefit from pre-clinical fertility researchers that can potentially halt the ageing process in female eggs.

Lead researcher Bettina Mihalas, along with colleagues from the University of Newcastle’s Reproductive Science Group, identified an antioxidant by applying a laboratory model more commonly used in sperm research.

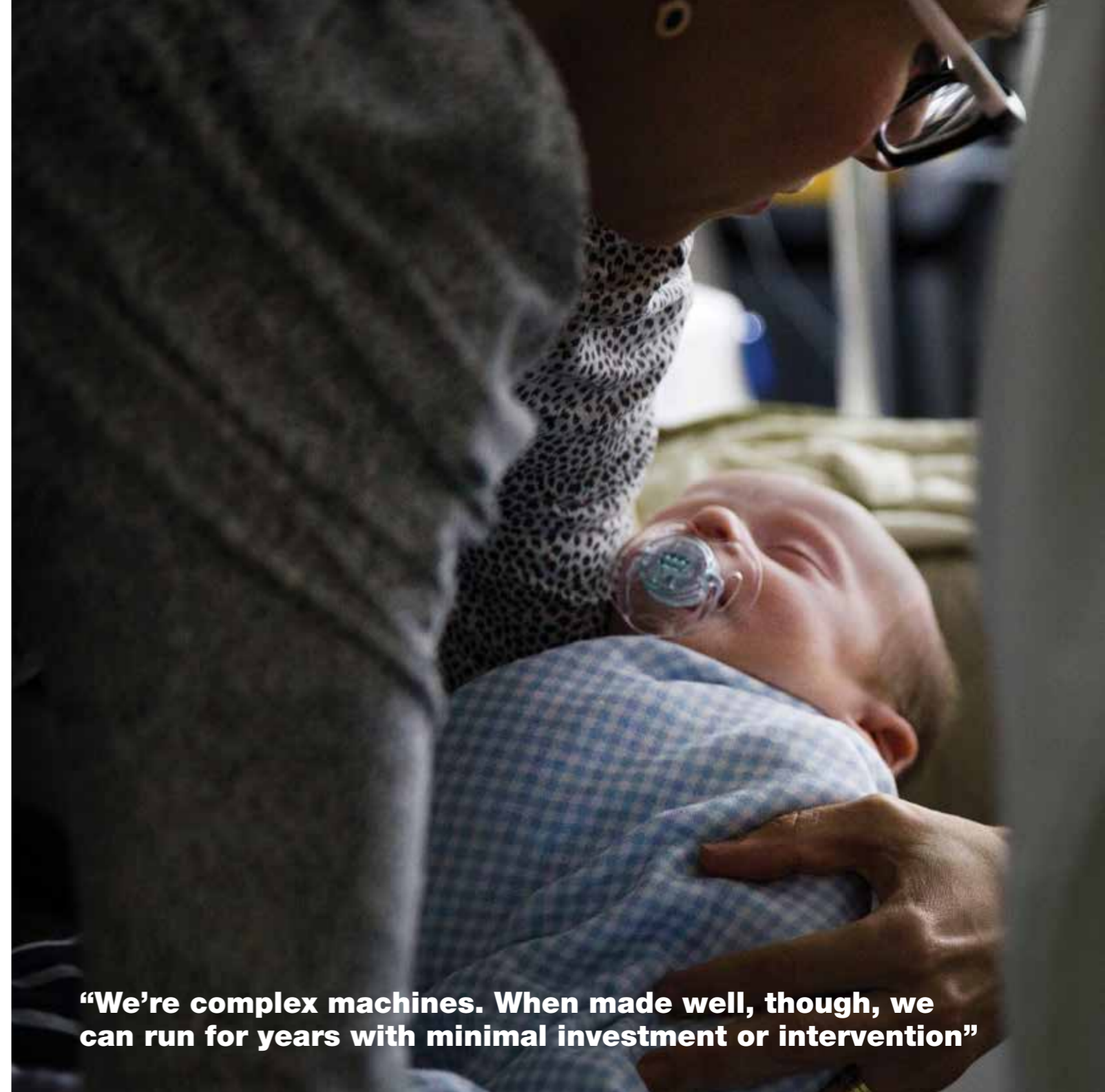
“We found a link between the deterioration of a certain protein in the female egg, which worsens with age, and its subsequent effect on the ability of chromosomes to separate,” Ms Mihalas said.

“Further to this, we investigated the application of an antioxidant, which we found to be successful in restoring the integrity of chromosome separation.”

The percentage of first-time mothers aged 35-39 has almost tripled in the past 20 years in Australia. As maternal age rises, women present with decreased fertility due to an increase in what’s known as intra-ovarian ROS (reactive oxygen species).

Pregnancy risk also increases. The incidence of chromosome disorders, for example, is approximately 2% for women in their 20s but 35% for those in their 40s and 50% in their 50s.

“Women in developed countries are delaying child-bearing to pursue their professional aspirations or ensure they have met the right partner,” Ms Mihalas said. “I’m hopeful that our results will help women who are starting a family later in life.”



“We’re complex machines. When made well, though, we can run for years with minimal investment or intervention”

Locally, the team has developed targeted nanoparticles that, in pre-clinical models, can carry drugs specifically to the uterus to stop muscle cells from contracting.

Having also identified that placental ageing is a significant cause of stillbirth, a new collaboration with medicinal chemists from Shanghai, China, is fostering drug development aimed at slowing this process.

Starting at the beginning

Meanwhile, the Reproductive Science team is focused on even earlier events in life, such as the formation of healthy sperm and oocyte, and the intrauterine environment provided by the mother during foetal development.

Led by Laureate Professor John Aitken, projects range from how bacteria, toxins and genetics can affect fertility, through to the development of new contraceptive agents.

Current research is focused on identifying lifestyle factors behind a decline in sperm count and quality. These factors may also lead to DNA damage and therefore affect the offspring produced.

Together, there are strong synergies between the two teams and a shared goal of producing healthy babies – addressing one of the Australian Government’s national research priorities titled *A Healthy Start to Life*.



AT A GLANCE

Program Leaders

Professor Julie Byles
Professor John Wiggers

Program affiliates: 330

Burden: Almost half of all Australians have a chronic disease. Chronic diseases are the leading cause of premature death.

Economic impact: The net cost of smoking, as an example, is \$318.4 million. Cost of avoidable hospitalisations is \$320 million a year in total.

WITH almost half of all Australians having a chronic disease, and rates continuing to rise, the health-care sector is potentially facing a tsunami of community need, with implications for our economy as a whole.

A huge task, therefore, faces HMRI's Public Health program. However, there's also unlimited potential for researchers to instil change at a population level.

With 330 affiliated researchers, it's the largest program at HMRI, brimming with talent. It's also the most diverse, encompassing everything from epidemiology, psychology and clinical pharmacology to biostatistics, dietetics and economics. There are also crossovers to HMRI's Cancer, Cardiovascular, Reproductive and Brain and Mental Health programs.

Co-leader Professor John Wiggers describes it as a "multi-disciplinary program that works together with a common purpose and common methods".

"Research is fuelled by, and closely aligned with, the burden of suffering"

Research is fuelled by, and closely aligned with, the burden of suffering in communities, along with health system priorities and government policy.

Australia's ageing population, for example, has fostered major sub-groups within Public Health for Professor Julie Byles and Laureate Professor Rob Sanson-Fisher, among others.

The University of Newcastle's Priority Research Centre for Generational Health and Ageing, which is embedded with the Program, tackles individual health-care and societal factors that affect the health of men and women across their life course.

Meanwhile, the affiliated Priority Research Centre for Health Behaviour aims to promote healthy behaviours, both physical and mental, and high quality health-care. As an example, Professor Wiggers' group is working with children and parents to implement long-term preventative health measures, potentially saving a lifetime of elevated risk for diabetes, stroke, early heart attack, cancer and other illnesses.

Higher risks in rural areas

Almost every health risk behaviour is escalated in rural areas, particularly for Indigenous communities, due to socio-economic disadvantage, culture, and health service access.

Other teams are making national strides into alcohol and tobacco consumption among vulnerable populations, along with obesity prevention and treatment.

Smoking rates, for example, have dropped dramatically in recent decades, yet half of all tobacco products sold today are consumed by people with mental health issues or a drug and alcohol disorder.

Researchers are dedicated to addressing the imbalance, with a strength of the Public Health Program being the ability to host and explore large datasets from both clinical trials and real-world clinical scenarios, along with health economic evaluation.

Fare SWAP for kids' lunches

PARENTS and carers of Hunter school children have a helping hand in the kitchen to create healthier lunchboxes, with the support of a HMRI Public Health research project.



Funded through a \$500,000 grant from nib Foundation, researchers have developed *Swap What's Packed in the lunchbox: SWAP-It*, a support program delivered through an app.

Associate Professor Luke Wolfenden said SWAP-It aimed to address the nutritional intake of children to align with dietary guidelines and prevent unhealthy weight gain in childhood.

"Good nutrition is one of the most important determinants of children's health and well-being," he said. "Within the Hunter New England region, more than 135,000 lunchboxes are packed for primary-aged school children every day. These lunchboxes provide the fuel for young growing minds, containing a third of their daily intake.

"However, packed within these lunchboxes, are more than 270,000 items of junk food, cleverly packaged and presented to children to be consumed each day.

"The consumption of these foods is contributing to excessive energy intake, unhealthy weight gain, diabetes and other health issues that impact on children's physical and mental health and can lead to chronic health conditions in adulthood," he added.

Research shows dietary behaviours in childhood track into adulthood and are predictive of weight gain and future chronic disease.

The research team established a partnership with the leading national provider of a school-parent communication app — 'Skoolbag' — to develop and integrate the lunchbox program within the app.

The SWAP-It program is a technological solution to the challenge of reaching, engaging and changing the behaviours of parents.

"We see the SWAP-It program as a means to support parents to pack healthy nutritious foods in their child's lunchbox on a daily basis, and therefore supporting children to play, learn and thrive at school," Associate Professor Wolfenden added.



Associate Professor Luke Wolfenden, from SWAP-It, is working to improve nutrition among school children.



IT'S a worrying statistic, and escalating health priority, that 1 in 4 Australians now suffer a form of respiratory disease — asthma, Chronic Obstructive Pulmonary Disorder (COPD) and cystic fibrosis, among others.

Asthma rates are rising, especially among young children, as viruses, allergies or fickle weather can trigger an attack at any time. The disease is relentlessly debilitating and can be fatal if managed poorly.

Fewer than 10% of asthma sufferers have severe disease, yet they account for over 60% of related health-care costs due to hospitalisations.

COPD, a blanket term for a raft of diseases including emphysema and bronchitis, impacts 1 in 7 Australians older than 40, while for those over 75 the rate is 1 in 3.

Responding to this need, HMRI's VIVA Program integrates a multi-disciplinary respiratory team that consistently ranks among the world's best. In both labs and clinics, dedicated researchers are striving to understand the mechanisms of immune response in airway disease, and to minimise infections and complications that progressively damage the lungs.

Collaborations also exist with researchers in immunology, genomics, dietetics, exercise physiology and pregnancy as part of a holistic approach to discovering and delivering new therapeutic solutions. An example is the connection between gut health, allergic reactions and airway inflammation.

Peace of mind

Also, this year, a clinical trial was initiated to determine whether yoga and mindfulness classes can serve as a natural, non-pharmaceutical approach.

Program co-leader Professor Peter Gibson has outlined an ambitious goal for asthma, which is to intervene at two crucial stages of life: pregnancy and adolescence. By doing so, they hope to break the disease cycle and halt its progression.

Peer-reviewed results from the long-running Managing Asthma in Pregnancy (MAP) trial, announced this year, confirmed that when a woman's asthma medication is optimally controlled during pregnancy, the rate of asthma in her offspring is nearly halved.

Another highlight for 2018 was the release of a new clinical 'toolkit' developed by the Centre of Excellence in Severe Asthma, based at HMRI Building.

The resource gives clinicians the latest evidence-

AT A GLANCE

Program Leaders

Laureate Professor Paul Foster
Professor Peter Gibson

Program affiliates: 205

Burden: At 1 in 9 adults, Australia has one of the world's highest asthma rates

COPD is our fifth most common cause of death

1 in 5 Australians develop Irritable Bowel Syndrome

Economic impact: \$24.7 billion per annum for asthma, \$929 million for COPD. Crohn's disease and ulcerative colitis cost \$2.7 billion

based advice to optimise care for patients with severe asthma, while helping to translate the emerging targeted therapies into the clinical setting.

The gastrointestinal tract is another focus area, given the prevalence of chronic conditions such as inflammatory bowel diseases (IBD), Crohn's disease and ulcerative colitis.

Laureate Professor Nicholas Talley AC was named the 2018 NSW Scientist of the Year for his world-leading work in the field of neurogastroenterology.

Professor Talley specialises in unexplained gut disorders affecting nerves and muscles of the gut, such as irritable bowel syndrome (IBS), functional dyspepsia (indigestion), oesophageal reflux and gastroparesis (stomach pump failure).

He is credited with a number of ground-breaking contributions to the understanding of these diseases, that affect 1 in 5 Australians.

The VIVA group also researches the biology of viruses with a view to developing new vaccines.

This year, work by VIVA-affiliated researchers was rewarded with over \$4 million in project grant and fellowship success in the highly competitive national funding arena.

"The toolkit gives clinicians the latest resources to optimise care for patients with severe asthma"



Professor Peter Gibson won the European Respiratory Society's prestigious Gold Medal in 2018.

CASE STUDY

Targeted patient selection breathes life into drug



EXHAUSTED after a long day at work, Greg Archbold left the warmth of his lounge-room and moved to a cooler bedroom. Within minutes he was gasping for air, the temperature change having triggered a severe asthma attack.

Greg likens the ordeal to "drowning in reverse" and his one chilling fear was, "My God this is it ... this is the end of me". Fortunately, his wife called an ambulance and Greg recovered after two nights in John Hunter Hospital.

As Professor Peter Gibson, co-leader of HMRI's asthma research program and a John Hunter Hospital clinician explains, Greg has eosinophilic asthma, where white blood cells known as eosinophils constrict the airway.

Professor Gibson happened to be collaborating in a global trial of Mepolizumab, a drug engineered to block the protein IL-5 that fuels eosinophilic asthma. Personalised testing showed that Greg was a suitable candidate.

Little did Greg know, his participation in the trial would also help breathe new life into a drug destined for the commercial scrapheap.

"Some years ago my colleague at HMRI, Laureate Professor Paul Foster, proved that blocking IL-5 can fix eosinophilic asthma," Professor Gibson explains. "Mepolizumab was created to do just that ... but the twist to the story is that the drug appeared to be ineffective when first tested. That's because it hadn't been targeted to the right patients."

Professor Gibson and others worked on refining the patient selection criteria for the therapy. "Both studies were spectacularly positive. They were the most severe asthma patients possible, they had lots of side-effects from steroid treatments and they weren't getting any better, yet they had dramatic responses to Mepolizumab," Professor Gibson adds.

Greg now describes the treatment as an "absolute game-changer".

"It has given my life back because I've been able to resume all the activities I was engaged in. It's the perfect result for me."

The drug has now been added to Australia's Pharmaceutical Benefits Scheme (PBS) as targeted use of therapies like Mepolizumab can lead to estimated savings of \$3.7 billion a year through reduced hospitalisations and productivity loss.



Thanks to the many donors and supporters throughout 2018, HMRI awarded a record \$7.09 million in philanthropic funding to affiliated health and medical researchers.

* Figures for 12 months to 31 December 2018:

Philanthropic Income

\$10.85 million

Government Funding

\$9.35 million

Philanthropic Funding

Distributed * Increase of \$1.6m on 2017

\$7.09 million

Research Infrastructure Funding Distributed

\$3.31 million

Research Fellowships

Vanessa McGuigan HMRI Research Fellowship in Ovarian Cancer

Associate Professor Nikola Bowden

Haggarty Foundation Fellowship

Dr Kaushik Maiti

Dalara Foundation Fellowship

Dr Kirsten Coupland

HCRF Early Career Fellowship

Dr Megan Jensen

Scholarships

MM Sawyer Estate

Felicity and Michael Thomson

Jennie Thomas

Equal Futures

Greaves Family

Research Excellence Awards

Award for Research Excellence

Professor Jennifer Martin

Award for Mid-Career Research

Professor Lisa Wood

Award for Early-Career Research

Dr Serene Yoong



HUNTER researchers were successful in leveraging highly competitive national and state funding throughout 2018.

It highlighted the power of leveraging for donors who had seed-funded and supported many of the projects, while reflecting HMRI's strong translational focus.

In November, the National Health and Medical Research Council (NHMRC) awarded 14 grants worth more than \$12.4 million.

Four of the projects will investigate pregnancy or birth-related health issues. Among them, Dr Yogavijayan Kandasamy, who received \$1.5 million in funding, will study the relationship between maternal health and infant kidney development and function.

Professor Billie Bonevski received \$1.8 million to run a trial of vaporised nicotine products for smoking cessation, targeting people who have been discharged from drug and alcohol residential withdrawal services.

Other recipients included Laureate Professor Paul Foster and Dr Hock Tay who were awarded \$1.2 million to understand how the immune system is involved in regulating asthma attacks; and Professor Adam McCluskey, who received \$1.5 million to investigate immunotherapy resistance in head and neck cancer.

Earlier in the year, the NHMRC provided a \$5.8 million injection, including \$2.5 million for a new Centre for Research Excellence in Implementation for Community Chronic Disease Prevention to be led by the Associate Professor Luke Wolfenden.

In the same instalment, career development fellowships went to Professors Peter Gibson, Geoff Isbister and David Lubans, Dr Gerard Kaiko, Dr Caitlin Gillis and Rebecca Hodder.

Laureate Professor Robert Sanson-Fisher AO received more than \$3 million to improve the outcomes of Indigenous Australians living with dementia. A further \$500,000 will help his team to combat the rates of depression and anxiety among elderly Australians living in rural areas.

Researchers also received more than \$1.4 million to support the Australian Government's new male and female health strategies, including \$650,000 for male infertility researcher Professor Brett Nixon and \$480,000 for Associate Professor Pradeep Tanwar's work in gynaecological cancers.

In March, NSW Regional Health Partners was granted \$6.1 million over three years from the Medical Research Future Fund, adding to \$570,000 awarded to Conjoint Professor Chris Levi for stroke therapies.



Professor Billie Bonevski is a leader in curbing smoking rates via nicotine replacement trials.

Four researchers also shared in \$1.8 million from the Australian Research Council for three Discovery Projects and a Early Career Researcher Award.

Conjoint Professor David Durrheim received \$1.48 million in funding from the Department of Foreign Affairs and Trade to strengthen health security throughout Southeast Asia and the Pacific.

NSW FUNDING

Professor Jennifer Martin received \$1.96 million in Cancer Council NSW research funding to develop a personalised chemotherapy dosing system for cancer patients to improve quality of life, reduce side effects and increase chance of survival.

Communities across the Hunter New England Health region will benefit from \$2.35 million received in the NSW Health Translational Research Grant Scheme. Recipients include Professors Andrew Boyle and John Attia, along with Associate Professors Aaron Sverdlov and Luke Wolfenden for a children's health project.

More than \$1.16 million was secured by Associate Professor Doan Ngo and Dr Adjanie Patabendige for projects in cardio-oncology and stroke respectively.

The NSW Government also invested \$2.4 million in a State-wide rollout of the program Dads And Daughters Exercising and Empowered (DADEE).

Sport England also awarded DADEE \$1 million over three years to deliver the program in partnership with the Fatherhood Institute, Fulham Football Premier League Club and the English Football League Trust.



Laureate Professor Nick Talley AC was heralded as NSW Scientist of the Year.

Prestigious awards recognise world-class contributions



IN the Australia Day honours list, Laureate Professor Nicholas Talley was bestowed a Companion in the Order of Australia (AC).

The neurogastroenterology leader was also named 2018 NSW Scientist of the Year and received the NSW Government's

Peter Wills Medal for his pioneering work into unexplained gut disorders.

Hunter asthma researchers Professors Peter Gibson and Jodie Simpson (inset) scooped two of the European Respiratory Society's (ERS) most prestigious awards – the ERS Gold Medal and Romain Pauwels Research Award respectively, each collecting €50,000 (\$A77,000).

Professor Simpson was subsequently named a Fellow of the Thoracic Society of Australia and New Zealand.

Cancer researcher Dr Heather Lee received a \$50,000 Metcalf Prize from the National Stem Cell Foundation of Australia in recognition of her early-career leadership in stem cell research.

Associate Professor Aaron Sverdlov, Director of Heart Failure at the University of Newcastle, was recognised with the 2018 NSW Ministerial Award for Rising Stars in Cardiovascular Research.

Clinical psychologist Professor Amanda Baker and public health advocate Professor David Durrheim were among 37 new Fellows elected to the Australian Academy of Health and Medical Sciences (AAHMS) in recognition for their outstanding contributions to medical research.

In the prestigious 2018 NSW Young Tall Poppy Science Awards, concussion specialist Dr Andrew Gardner and Public Health nutritionist Dr Serene Yoong were honoured for outstanding contributions to their fields.

At the Dietitians Association of Australia's National conference, Professor Clare Collins was awarded the President's Award for Innovation for her work developing the Healthy Eating Quiz, while Associate Professor Tracy Burrows became a DAA Fellow – one of only 12 to have been recognised from 60 000 members.

YOUNGER researchers scooped the pool at the 2018 HMRI Awards Night in November as over 30 new grants exceeding \$1 million in total, along with three major annual awards, were announced for vital health and medical research projects.

It was a record tally in the award's 20-year history, with early and mid-career researchers receiving up to \$100,000 to seed-fund their projects. A further 56 previously-awarded grants and scholarships, worth almost \$10 million, were also recognised on the night.

HMRI Director Professor Tom Walley said the funding was intentionally targeted at those researchers within 15 years post-PhD to encourage them to continue working in the region.

In 2018, HMRI awarded funding for 67 Project Grants along with PhD scholarship top-ups, equipment grants and other top-up grants — all thanks to our generous donors.

Funding came from over 11,000 individual supporters, many of whom have repeated their gifts over numerous years.

Those who contributed more than \$20,000 in a financial year are invited to select a specific project grant. This funding enables vital pilot data to be collected and analysed in readiness for larger studies and clinical trials.



From left: Dr Serene Yoong, Professor Lisa Wood and Professor Jennifer Martin.

Award for Research Excellence

Professor Jennifer Martin

PROFESSOR Jennifer Martin is a dual-trained clinical pharmacologist and practising general physician who initially studied politics and health economics at Oxford University as a Rhodes Scholar.

She used this experience to serve on the Pharmaceutical Benefits Advisory Committee and other government and state committees examining appropriate allocation, regulation, safety and efficacy in pharmaceuticals.

Currently, Professor Martin is employed as Chair of Clinical Pharmacology at the University of Newcastle and Senior Staff Specialist in Internal Medicine and Clinical Pharmacology at John Hunter Hospital, in addition to being director of the Australian Centre for Cannabinoid Clinical and Research Excellence, based at the HMRI Building.

Her research examines the clinical usage of both new and existing drugs, focusing on dosing and repurposing – particularly in cardiovascular disease, cancer and medicinal cannabis. That's because many therapies have side effects that outweigh benefits for the patient and negatively impact the health budget.

Professor Martin is quick to point out that the Pharmacology team is working toward the improvement of patients' lives, not just on the cannabis trial, but on a range of research and community leadership roles in medicines' use.

Under her supervision, postgraduate students are developing a mass spectroscopy library and clinical validation for synthetic drugs of abuse, and developing programs to optimise dose and timing of cancer therapies.



The HMRI Award for Research Excellence is HMRI's premier award and recognises the achievements of an outstanding researcher who has made a sustained contribution to research in the Hunter.

Recipients have contributed to enhancing the research environment in the Hunter Region through team building, mentorship, establishment of major research initiatives or research capacity.

The award is supported by Walkom Real Estate.



The Grey Race, by Justin Lees, was the title of the 2018 HMRI Art Series embodying the research vision of Professor Jennifer Martin.

Director's Award for Mid-Career Research

Professor Lisa Wood

A nutritional biochemist affiliated with HMRI's VIVA Program, Professor Lisa Wood is investigating dietary approaches to managing inflammatory airways diseases such as asthma. In particular, she is a pioneer in identifying the negative impact of obesity and fatty acids, along with the therapeutic benefits of antioxidants and fibre.

The perspectives she places on patient-focused research, together with her skills, energy and creativity, has enabled Professor Wood to develop an international reputation in the respiratory community.

She is currently Professor in Biomedical Science and leads the nutrition research team in the Priority Research Centre (PRC) for Healthy Lungs and the Grow Up Well PRC.

A key example of Professor Wood's significant impact is demonstrating that saturated fatty acids reduce bronchodilator effectiveness in asthma. With clear translational relevance, it led to two publications in the highest impact clinical immunology journal.

In 2018 she also launched a new clinical trial to help optimise the anti-inflammatory benefits of soluble fibre supplements, having previously found a significant improvement in asthma symptoms.

Professor Wood has over 130 peer-reviewed manuscripts, including 62 as first or last author, while being awarded over \$4.6 million in research funding. She holds both nationally-competitive grant income from the NHMRC and industry funding.

Highlighting her consistency, she was also the recipient of HMRI's Award for Early Career Research in 2009.



Outgoing HMRI Director Professor Michael Nilsson recognised a gap in recognition for mid-career researchers – those within 15 years since completing a PhD.

The Director's Award for Mid-Career Research recognises and rewards the dedication and achievements of one of the Hunter's most gifted mid-career researchers.

This award is supported by HMRI Community Donors.

Award for Early-Career Research

Dr Serene Yoong

Dr Yoong may have a relatively short research career as a behavioural scientist and dietitian but she has developed an exceptional track record and international reputation as an expert in the field of non-communicable disease prevention.

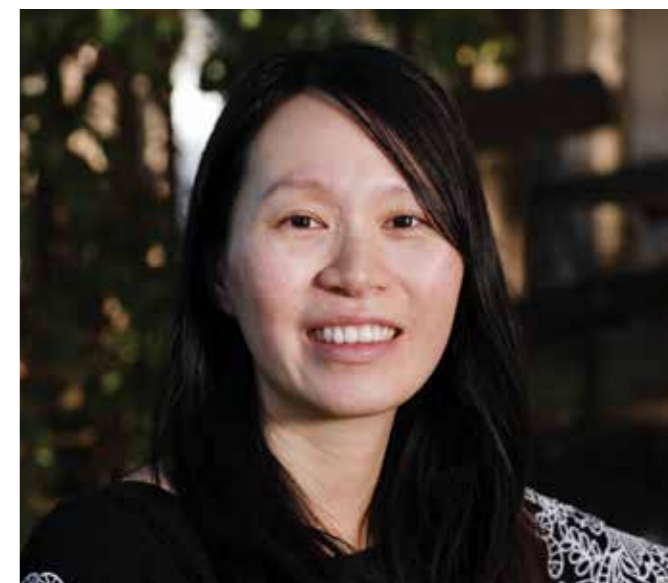
The quality and impact of Dr Yoong's work was acknowledged with a prestigious NSW Tall Poppy Award in 2018, along with a highly competitive ARC Discovery Early Career Researcher Award (DECRA) fellowship in 2017 and numerous grants from the NHMRC.

Dr Yoong is committed to conducting research that can be rapidly translated to benefit the community, engaging with policy makers, practitioners and community groups to develop programs that meet health needs and can be rapidly deployed.

Internationally, she has served as a visiting Fellow to the World Health Organisation (WHO), which included leading the publication of the first WHO report internationally to identify an association between e-cigarette and tobacco use.

More recently, Dr Yoong developed an online menu-planning program as part of a Heart Foundation Fellowship to improve the provision of healthier foods in childcare centres. The first of its kind, the program was designed to empower child-care cooks to provide healthier foods by removing the complexity of interpreting and applying nutrition guidelines.

The Federal Government subsequently funded a national roll-out. Since being made available in March 2018, over 1800 childcare services have provided healthier food to over 200,000 children across Australia.



Providing funds for early career researchers – those within five years since completing their PhD – helps retain the best research talent in the Hunter.

The HMRI Award for Early Career Medical Research supports professional development, raise awareness and acknowledge the work of talented early career researchers at a critical time in their career.

This awarded is supported by the HMRI Seaspray Cafe.



MAJOR BENEFACTORS

HMRI receives extraordinary support from trusts, foundations, businesses and individuals over many years. HMRI gratefully recognises the ongoing generosity of its Major Benefactors:

Anonymous Donor

Supporting the education of paramedics to increase competency.

Anonymous Family Bequest

A Hunter family chose HMRI to receive their family member's significant bequest.

Gastronomic Lunch of the Year

Organised annually by Neil and Donna Slater, from Scratchleys on the Wharf.

Greater Bank

Along with the Greater Charitable Foundation, provides support for stroke research.

Haggarty Foundation

Tony and Karen Haggarty fund stillbirth research and fellowships.

Jennie Thomas AM

HMRI's Life Governor Invests in the career development of young researchers.

Kiriwina Investment Company

HMRI supporters since 2000, including a grant this year to Dr Matt Dun for brain cancer.

McGuigan Family

Jointly funding a 10-year fellowship dedicated to ovarian cancer research.

Mark Hughes Foundation (MHF)

Led by Mark and Kirralee Hughes since 2014 to raise funds for brain cancer research.

nib foundation

Maintains its connection with Professor Clare Collins and Nutrition Connect.

Port Waratah Coal Services

Supporters of two multi-year projects, including the renowned DADEE study.

Rainbow Foundation

Enthusiastic supporters of asthma and nutritional research since 2010.

Thyne Reid Foundation

Supporter of the Mothers & Babies research group since 2001.



\$5.2 million gift to transform out-of-hospital care



AN alliance between HMRI, NSW Ambulance and Hunter New England Local Health District took its first steps to advancing emergency out-of-hospital paramedical treatment and telehealth care for patients across NSW.

It follows the announcement in late 2017 of an anonymous \$5.2

million gift to the HMRI, the largest single donation in the Institute's history.

The project aims to improve delivery of patient care by maintaining the confidence and competence of paramedics when treating both complex emergencies, such as cardiac arrest, and less critical issues that may reduce preventable hospitalisations.

With this gift, NSW Ambulance is upgrading its training facilities and buying new equipment, including advanced simulation mannikins. They are also employing extra resources to develop new education modules.

The donor was motivated to help vulnerable rural communities. As such, it represents a transformational step towards delivering world-leading, out-of-hospital care to those living outside metropolitan areas, by mobilising medicine and employing more sophisticated telehealth technologies.

NSW Ambulance Commissioner Dominic Morgan welcomed the gift, saying it will assist the emergency service to enhance and maintain optimum currency and capability.

"Through this, our paramedics will be able to maintain their advanced clinical skills and knowledge and practice closer team-building in an advanced simulation environment, ensuring the best possible patient outcomes."

The project also builds on Hunter New England Health's long-term goals of keeping people healthy and in their communities. A constant challenge has been to deliver consistent, quality health-care for people living in the furthest reaches of the district.

HMRI Health Research Economist, Professor Andrew Searles, is measuring the program's impact on the health-care system, using Health Technology Assessment modelling developed at HMRI.

"We will measure the return on investment, or cost savings, gained by increasing the clinical capability of paramedics and integrating care with the GP network, mental health facilities, aged-care facilities and hospitals," he said.

PICTURED: Project partners Michael DiRienzo, Scott Walkom, Jane Gray, Professor Michael Nilsson, Taylor Martin MLC, Allan Loudfoot and Rebecca Palser attending the launch.



We acknowledge and thank the three auspiced fundraising groups in the HMRI family who are dedicated to supporting specific research areas.

FORMER Wallabies player Dean Mumm and wife Sarah linked with HMRI and UK-based Borne in 2018 to raise funds and awareness for research into pre-term birth, having personally experienced the tragic consequences.

The Borne HMRI collaboration is uniting world-leading researchers in the quest to identify the causes of premature birth, and the Mumms have commenced a multi-year effort to fund a Borne Research Fellow in Australia who will work with HMRI to perform pioneering research into the prevention of preterm birth.

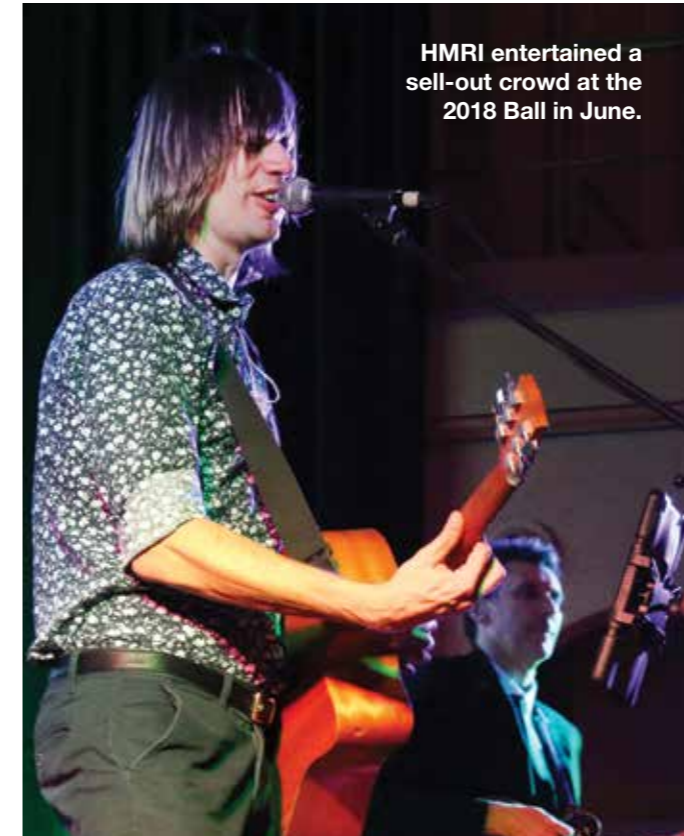
In Dean's case, as Borne's Australian ambassador, his fundraising efforts included personally undertaking a North Pole expedition in April.

The Hunter Children's Research Foundation (HCRF) passed the \$2 million fundraising milestone in 2018, 22 years after it was formed to support research for babies, children and adolescents across a range of medical conditions – asthma, cancer, diabetes, cystic fibrosis, anaphylactic reaction and heart disease among them.

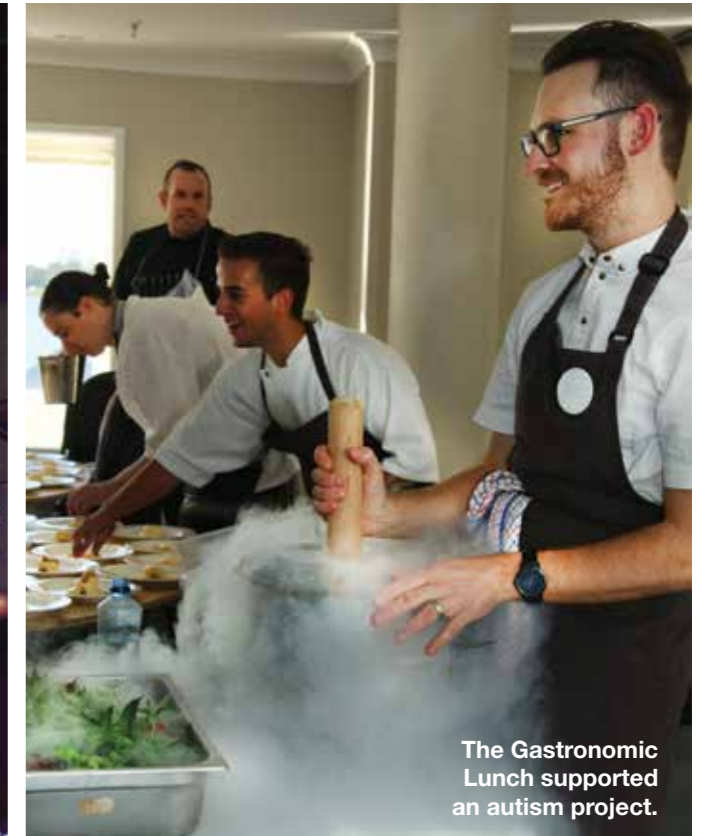
In February, the HCRF awarded its first Early-Career Fellowship, valued at \$450,000, from the Estate of the late Peggy Lang. Dr Megan Jensen, a nutrition researcher working in respiratory health, was the recipient.

Meanwhile, the Hunter Transplant Research Foundation (HTRF) was established to address problems in transplant clinical practice, by integrating research in transplant immunology with practice. The vision for HTRF is to create a dynamic alliance between the laboratory and clinic; and other national and international transplant research centres.

Its major annual fundraising event is the Newcastle Glow Walk.



HMRI entertained a sell-out crowd at the 2018 Ball in June.



The Gastronomic Lunch supported an autism project.

Opening hearts and minds to home-spun research

ON HMRI Open Day 2018, we welcomed over 4000 community members to meet, and be inspired by, our affiliated researchers at the HMRI Building.

From kid-friendly science activities, to lab tours and research seminars, the event has educated and engaged people of all ages since 2013.

Researchers also relish the chance to share and showcase their work with the public.

Two other major events on the HMRI social calendar, the HMRI Ball and Gastronomic Lunch, were both sold out and raised well over \$100,000 each.

ASX Thomson Reuters Charity Foundation also supports HMRI with a Sydney Race Day and art union.

We thank all those community groups and charities who kindly conduct events on HMRI's behalf.





HMRI BOARD

Community

Mr Kyle Loades
Chair, HMRI Board
Dr Kirsten Molloy
Mr Don Magin
Ms Kirsten Mulley

Hunter New England Local Health District

Dr Martin Cohen
Board Director and Consultant,
Hunter New England Local Health District
Mr Michael DiRienzo
Chief Executive,
Hunter New England Local Health District,
Professor Chris Levi
Director, Clinical Research and Translation,
Hunter New England Local Health District
Professor John Wiggers

The University of Newcastle

Laureate Professor John Aitken
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The University of Newcastle
Professor Kevin Hall
Deputy Vice-Chancellor
(Research and Innovation),
The University of Newcastle
Professor Caroline McMillen
Vice-Chancellor and President,
The University of Newcastle
Professor Alex Zelinsky AO

HMRI Institute Director

Professor Michael Nilsson
Laureate Professor Paul Foster (interim)
Professor Tom Walley CBE, MD, FRCP (Lon)

HMRI Foundation Chair

Mr Scott Walkom

Company Secretary

Mr Richard Howard
HMRI General Manager Corporate Services

THE HMRI Board comprises three independent directors from each of HMRI's principal partners – Hunter New England Local Health District, the University of Newcastle and the Community. The Chair of the Board is always a community appointment. The Chair of the HMRI Foundation and the Director of HMRI are also offered a position on the HMRI Board.

RESEARCH COUNCIL

THE HMRI Research Council advises management and the Director of HMRI on research needs. It includes the Program Leaders or nominated representatives from each of HMRI's Research Programs, as well as representatives from the Hunter Children's Research Executive, Hunter New England Local Health District, the University of Newcastle Priority Research Centres, Gender Equity, EMCRs and the HMRI Clinical Trials Support Unit. The Research Council reports to the HMRI Board.



Laureate Professor Paul Foster – Chair
 Professor Stephen Ackland
 Associate Professor Tracy Burrows
 Professor Billie Bonevski
 Professor Andrew Boyle
 Professor Julie Byles
 Professor Robert Callister
 Associate Professor Mariko Carey
 Professor Clare Collins
 Professor Peter Gibson
 Professor Brian Kelly
 Professor Deborah Loxton
 Professor Joerg Mattes
 Professor Michael Nilsson
 Dr Andrew Reid
 Dr Jennette Sakoff
 Laureate Professor Rodney Scott
 Laureate Professor Roger Smith AM
 Professor Neil Spratt
 Laureate Professor Nick Talley
 Professor Dirk van Helden
 Professor Tom Walley
 Professor John Wiggers

HMRI FOUNDATION

THE HMRI Foundation is a group of highly qualified community leaders, who volunteer their time and expertise to assist with HMRI's fundraising activities. The Foundation reports to the HMRI Board, and the Chair of the Foundation is invited to be a member of the HMRI Board.

Mr Scott Walkom – Chair	Ms Cathrine Long
Ms Kristie Atkins	Mrs Lynn Mangovski
Mr Steve Burgess	Mrs Simone Markey
Mrs Jan Bynon	Mr Graeme McDonald
Mr Adrian Collins	Mr Chad Nean
Mr Michael Griffiths	Ms Kim Sweetman
Mr Mark Heanly	Ms Ciara Wasley
Ms Susan Ivens	Mrs Vicki Woods
Mr Brett Lewis	

HMRI SYDNEY FOUNDATION

THE HMRI Sydney Foundation mostly comprises passionate and professional expatriate Novocastrians who now live and/or work in Sydney. They volunteer their time and expertise to assist with HMRI's fundraising activities.

Their major 2018 event was hosted by Andrew Gray, Partner, King Wood & Mallets, overlooking Sydney Harbour. New and current supporters of HMRI gathered to learn more about HMRI's achievements in the past 20 years and the future of medical research and the development of new treatments and preventative medicines.

Ms Kristie Atkins – Chair	Ms Jodi McKay MP
Mr Michael Adie	Ms Lisa Montgomery
Mr Stephen Crowe	Mr Warren Moore
Ms Swati Dave	Ms Kirsten Mulley
Mr Andrew Gray	Ms Angela Scrymgour
Mr Kyle Loades	Mr Robert Scrymgour
Ms Lisa McGuigan	Mr Glenn Turner

	12 months to 31 December 2018	6 months to 31 December 2017
	\$000*	\$000*
Income Statement		
Revenue		
Fundraising and philanthropic funding	10,852	4,789
Government grants	9347	200
Clinical research centre income	6465	2828
Investment income	418	307
Total Revenue	27,082	8124
Expenditure		
Fundraising expenses	1824	1028
Research grant expenses	10,323	5218
Operations expenses	7979	4176
Facility expenses	5526	2615
Other expenses	1915	
Total Expenditure **	27,566	13,036
Retained Surplus	(484)	4,912
	as at	as at
	31 December 2018	31 December 2017
Balance Sheet		
	\$000	\$000
Current Assets	10,908	7,857
Financial Assets	18,276	15,052
Property, plant and equipment	78,855	82,148
Total Assets	108,040	105,057
Current Liabilities	7812	5994
Provisions	2019	421
Total Liabilities	9832	6364
Net Assets	98,208	98,692
ACCUMULATED SURPLUS	98,208	98,692

Change of accounting balance date

*HMRI has changed its year end from 30 June to 31 December to align reporting and budgeting periods within that of its stakeholders and to improve the efficiency and quality of internal budgeting and management accounting functions.

**Total expenditure includes depreciation of \$3.73m for the 6 months to Dec 2018 (\$1.93m 12 months to Dec 17)



Hunter Medical Research Institute ABN 27 081 436 919

Phone 1300 993 822

Donation Hotline (02) 4042 1000

hmri.org.au



In partnership with our community



Health
Hunter New England
Local Health District

