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# Annual Report 2019

GIVING HOPE  
FINDING ANSWERS

In partnership with our community



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**OUR MISSION**

To improve the health and well-being of our communities by undertaking world-class research, from discovery to applied, in collaboration with our partners.



# Executive Summary

## A YEAR OF ACCOMPLISHMENTS

### Giving hope. Finding answers.

These four, concise words are what matter to our community, and what motivate HMRI's 1,700+ affiliated health researchers across our partner organisations, the University of Newcastle and Hunter New England Health.

One person, one family, one community at a time, we fight the illnesses affecting lives throughout the region, nation and world.

An example in late 2019 was the bushfire crisis that ravaged Australia. HMRI assembled a rapid response group comprising cross-disciplinary experts in respiratory disease, mental health, public health and more. Their goal was to implement long-term solutions while also working quickly to help people regain their mental and physical wellbeing.

Our 21st year has also been one of numerical growth, with increased research staff numbers and success in both philanthropic fundraising and leveraged support from the Federal Government's competitive grant schemes.

We had extensive engagement with the community, through our annual Open Day, which attracted over 2,500 people, and through our public seminars.

The year has also been a time of consultation, as we developed a new 5-year Strategy.

HMRI, with the support of its community, has done very well over its first 21 years, but we have to recognise that the nature of health problems and healthcare is changing.

We have been successful at increasing life expectancy, and one consequence is that many people are now living with many illnesses – the challenge is to help them live well.

Healthcare costs are also escalating. So the nature of research has to change too – funders, industry and the community all want to see impact and delivery of change, not just an academic paper.

The major public research funder, the National Health and Medical Research Council (NHMRC) has been supplemented with a new federal funding body, the Medical Research Futures Fund (MRFF), to reflect these changes.

So HMRI needs to evolve as well. Our translational research focus will embrace more clinical trialling and delivery, while building on our excellence in discovery science.

As examples of what we are doing, a new Clinical Trials Unit was launched, with Conjoint Associate Professor Craig Gedye as its Director. It allows us to support our colleagues by providing experienced staff who help set up and deliver new trials.

We're also bolstering capacity in bioinformatics, histology, clinical data collection and commercial engagement. HMRI is providing funding, mentoring, grant-writing and logistical support to help researchers strengthen their MRFF bids.

Our region is changing as well. The University of Newcastle has a new STEMM precinct in the works, and the John Hunter Hospital site is also planning for a multimillion-dollar expansion. HMRI will be part of conversations and projects surrounding these developments.

This annual report outlines the strides we've taken over the past 12 months. The great challenge for the coming year will be to deliver on these strategies – to give hope and to find answers for those who need it most.

# At a Glance



**\$22 MILLION**  
IN NHMRC FUNDING SECURED ACROSS  
OUR RESEARCH NETWORK

**\$10 MILLION**  
IN FUNDS ANNOUNCED AT OUR  
AWARDS NIGHT

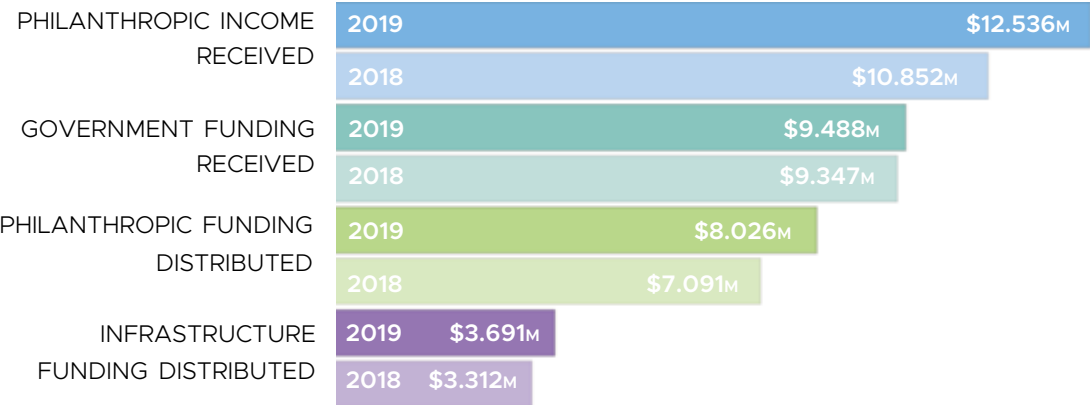
**24,000+** INDIVIDUAL GIFTS  
RANGING FROM \$2 TO \$2 MILLION



**2 NEW FELLOWSHIPS**  
AWARDED FOR STILLBIRTH  
AND STROKE REHABILITATION ALONG  
WITH 2 SCHOLARSHIPS



\* A further 145 affiliates work outside these Programs



**2,500** HMRI OPEN DAY  
**500+** PUBLIC SEMINARS  
**25+** FUNDRAISING EVENTS  
HELD AND SUPPORTED



**1,586**  
RESEARCH REGISTER MEMBERS  
**87** VOLUNTEERS DONATED  
**480+** HOURS OF SERVICE

**19,000**  
SAMPLES PROCESSED BY HISTOLOGY  
AND BIOBANKING SERVICES AT THE  
**HMRI BUILDING**

**293** INDIVIDUAL RESEARCHERS  
ASSISTED BY HMRI'S **CREDITSS** TEAM

OUR **HEALTH RESEARCH ECONOMISTS**  
DEVELOPED AND LAUNCHED THE  
"EMBEDDED ECONOMIST" PROJECT,  
PLACING A HEALTH ECONOMIST IN  
EACH OF OUR LOCAL HEALTH SERVICES

# About the Institute

## THE DIFFERENCE WE'RE MAKING

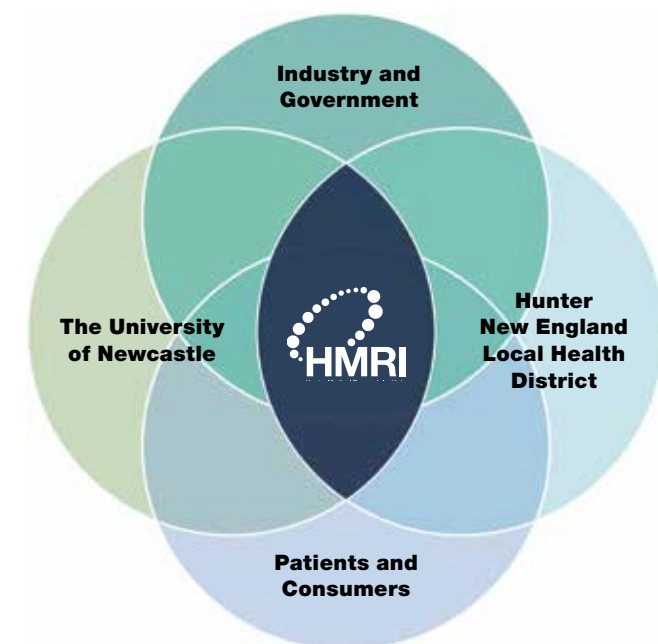
The Hunter Medical Research Institute (HMRI) partners with the University of Newcastle, Hunter New England Local Health District and the community to enable the translation of world-class medical research into clinical best practice and policy to improve health and well-being.

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

Our goal is to support and accelerate 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 1,700 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).

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

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 (CRDITSS) teams provide advice for project design and grant proposals.

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

**We acknowledge the NSW Government for funding in 2019.**

**NSW Ministry of Health for providing:**

**Infrastructure funding through the NSW Medical Research Support Program;**

**NSW Population Health and Health Services Research Support Program**



HMRI acknowledges the Awabakal and Worimi people, traditional owners of the land on which the HMRI Building, University of Newcastle and John Hunter Hospital are based, and pay our respects to Elders past, present and future.

## Strategic vision

1 INSTITUTE | 3 PARTNERS | 5 GOALS

01

**Build on strength in discovery science**



02

**Drive an effective and efficient health research ecosystem**



03

**Increase research that translates knowledge into health solutions**



04

**Become leaders that influence policy and practices**

05

**Create health and wealth for our region and nation**



# Director's Message

PROFESSOR TOM WALLEY CBE



For 21 years, HMRI has delivered world-class health and medical research outcomes to communities near and far, fuelled and fortified by a business model that unites three partners – a university, a health service and community members – with a common goal.

Growth in philanthropic support, grant funding, affiliate numbers, research output, community engagement and other key performance criteria has been quite extraordinary. But with this 'coming of age' and greater maturity comes an opportunity to take stock, survey the current research landscape, weigh our options and cement a future path.

Over the past year I've consulted extensively with the community, colleagues, supporters and researchers to draft a new 5-year Strategic Plan for HMRI – one that had to be relevant to stakeholders, consistent with the objectives of state and federal governments, and able to capitalise on core research strengths while further developing our clinical capacity in areas of healthcare need.

The five strategic goals outlined on the previous page set basic parameters for expediting the translation of research, and building profile and impetus.

However, the wider structure has many more complex parts because we work across multiple campuses and collaborate with many other institutes on a broad range of disease areas.

Our research also takes a great many forms – whether it's in labs, clinics, hospitals, online, out in the suburbs and rural towns, or a multidisciplinary mix of the above.

Above all though, community engagement is at the heart of this new Plan, as our main job, our *raison d'être*, is to address current health concerns and

develop solutions to future challenges.

Today, research can no longer simply be of academic interest, it must be consumer focused and driven. Accordingly, in 2019, we introduced patient advocates to our selection panel for scientific appointments and to our peer-review panels for HMRI seed grants.

With the approval of the Board, HMRI also launched a new Clinical Trials Unit (CTU) to help identify and implement more efficient and cost-effective therapies and models of care. Trials often challenge old dogmas and are a crucial step in taking scientific theory into clinical best practice.

The CTU will enable our region to grow the number of trials and recruitment rates, with a philosophy of treating patients as partners, not subjects. The team will also endeavour to streamline the pathways and processes, and avoid duplication of effort and inefficiencies across the Hunter research ecosystem.

We're excited about the prospect of embedding trials into routine healthcare, with minimal disturbance for patients and clinicians. And we're equally enthusiastic about executing the new strategies over the coming years.

Our 2020 vision, I must say, is looking incredibly bright.

Professor Tom Walley CBE

**“With this ‘coming of age’ comes an opportunity to take stock, weigh our options and cement a future path.”**

# Chair's Message

MR KYLE LOADES



There's no “I” in team, of course ... but there *is* one in Director, and the arrival of Professor Tom Walley from the UK in late 2018 set HMRI on a new direction, where clinical translation, collaboration and innovation are at the forefront.

As Chair, I've been delighted to see the progress made in developing the Strategic Plan. In health and medical research, as with most successful enterprises, we always need to keep our eyes on the end game, and look ahead at the challenges we may face.

Getting the balance right between discovery science, preclinical research, clinical trialling and implementation is a profound way of future-proofing our financial foundation and outcomes.

Supporting us each year are more than 11,000 individuals who gift HMRI anywhere from \$2 to over \$2 million. We also acknowledge the success of our teams in leveraging further funding from government and industry. This year, our affiliated health and medical researchers were awarded over \$22 million in NHMRC funding.

It included the excellent news that a Centre for Research Excellence in Digestive Health, led from the HMRI Building, will work to unlock the mysteries of gut health.

Much of this success can be attributed to early HMRI seed funding and, once again, our 2019 Awards Night was a celebration of research excellence. Some \$10 million in philanthropic support was acknowledged and awarded, with a strong accent on projects that benefit communities.

Once again, the focus was on early and mid-career researchers, as HMRI grants are key drivers in a burgeoning research career – recipients can then go on to develop larger scale projects that ultimately benefit patients.

**“Under the new translation-focused strategy we can be responsive to pressing health needs.”**

Under our new translation-focused strategy, we can also be more responsive to pressing health needs, such as the bushfire crisis that enveloped Australia's east coast from October onwards.

Moving into 2020, researchers from across our partnerships, with expertise in respiratory and mental health, will work on bushfire-related issues. HMRI's reigning Researcher of the Year, Professor Frances Kay-Lambkin, is representative of the world-class knowledge we can offer.

Seed funding will be provided to relevant research projects, along with assistance to our researchers applying to new government funding schemes.

We're also seeking donations from the public to help the nation breathe easier, and to address the ongoing hardship that so many face.

It is a time for leadership, and our goal is to improve both the quantity and quality of life for all people, through innovative, world-class patient-focused research

And on that note, it would be remiss not to congratulate two former HMRI chairs, Bob Kennedy and Glenn Turner, who were named a Member of the Order of Australia (AM) in June. Both played key roles in building HMRI's global reputation and financial standing while being leaders in their respective fields.

Kyle Loades

# HMRI Foundation Report

MR SCOTT WALKOM | CHAIR



The HMRI Foundation brings together community-minded business identities from throughout the region with the goal of improving health and well-being through philanthropy.

The Foundation was formed in 1998, coinciding with the Institute’s launch, and has continually sought to raise HMRI’s profile in the community and assist with fundraising endeavours. It also supports HMRI’s overall development strategy to enable staff to secure additional resources.

There are currently 16 members, all of whom bring strong corporate connections, a wealth of commercial experience and an intimate understanding of not-for-profit organisations.

In 2019 the Foundation was responsible for a number of successful events, including the HMRI Ball and a Newcastle Supercars function – securing sponsorships, hosting tables, bringing guests and providing auction prizes.

It’s all about raising money for the best possible cause while having fun.

Building on the success of the HMRI Foundation, the HMRI Sydney Foundation was established in early 2018 as a way for Sydney-based Hunter expats to engage and donate seed funding for research projects.

This year’s Sydney Foundation Cocktail Party was a fine introduction to HMRI, culminating in a number of people expanding their interest and investment by becoming major donors.

In this regard, the Foundation was instrumental in securing a donation of \$1 million from an anonymous donor. It’s for a project called New1000 that will see 1,000 babies a year, for 5 years, followed for 1,000 days (conception to age 2).

**“The Foundation has continually sought to raise HMRI’s profile in the community and assist with fundraising endeavours.”**

The trial will include breastfeeding assistance from lactation consultants, along with social and nutritional support.

Lead investigator Professor Craig Pennell says that optimising an infant’s earliest environment can improve their lifelong health outcomes.

The fact that we can attract renowned researchers like Craig to our world-class facilities and organisation in the Hunter is also something we can all be proud of.

I would like to thank the HMRI Foundation members and the HMRI staff for using all their skills and enthusiasm to advance the increase in philanthropy over the past couple of years, helping the HMRI organisation to grow in capacity.

I’d like to invite you to join us to help accelerate research and improve the health and wealth of the Hunter and beyond.

Scott Walkom

# Awards and Achievements

HIGHLIGHTS OF NATIONAL AND INTERNATIONAL HONOURS



Professor Clare Collins was among 40 new Fellows elected to the Australian Academy of Health and Medical Sciences (AAHMS). Professor Collins is breaking new ground in using technology to develop, deliver, and evaluate nutrition interventions



Laureate Professor Roger Smith AM was awarded the Distinguished Scientist Award at the Society for Reproductive Investigation 2019 Annual Meeting in Paris. He also received the Sharpey Schafer Prize from the British Physiology Society.



Conjoint Professor Peter Gibson was conferred a Doctor of Medicine from the University of Newcastle for his contribution to medicine through dissertations on Inflammation in Airways Disease.



Dr Myles Young was announced as the Bupa Health Foundation Emerging Health Researcher for 2019. He has a keen interest in improving men’s health through exercise interventions.



Dr Lucy Murtha was awarded the 2019 Ralph Reader Prize for Basic Science by the Cardiac Society of Australia and New Zealand (CSANZ). Dr Murtha’s work involves understanding the molecular mechanisms of cardiovascular health.



Professor Josh Davis received a Research Excellence Award at the National Health and Medical Research Council’s (NHMRC) annual dinner in Canberra for being the top-ranked Career Development Fellowships applicant in clinical health.



# Support Services

DEVELOPMENT | PROMOTION | RECRUITMENT

## PROJECT FUNDING & MANAGEMENT

Development and Philanthropy

Our Donor Relations team works alongside our researchers to reach out to our community, seeking support for research projects. Our Events and Community Partnerships program supports our auspice groups, researchers and research groups in their fundraising efforts for general and specific research areas.

### 2019 highlights

- \$1 million for Professor Craig Pennell's New1000 study from an anonymous donor
- A new Haggarty Early-Career Fellowship for Stillbirth Research to Dr Zakia Sultana
- A Women in Medical Research Fellowship awarded to Dr Heidi Janssen

### Grants Support & Management

HMRI secures and distributes funding from community and corporate donations to support our research network. Our funding is a catalyst for success in obtaining highly competitive government and industry funding to further the life-changing work of our talented researchers.

Our grant assessment process ensures that only research of the highest quality is supported.

### 2019 Highlights

- Adding community representatives to our grant application assessment panels
- Distributing a record amount in funding

## PROMOTION & STUDY RECRUITMENT

Our Marketing and Communications team share stories about research, working with researchers across all programs and research stages to support their work.



They do this across a variety of channels and activities – from media stories, funding proposals and application support, events, website and social media, study recruitment and supporter communications to tell the world about the amazing research that goes on throughout our network in collaboration with our partners.

### 2019 Highlights

- Open Day attracting 2,500 attendees to the HMRI Building
- Supporting over 20 successful proposals, events and campaigns to secure funding for research
- Delivering our Annual Awards Night to celebrate our researchers and supporters
- Welcoming over 500 people to our community seminar series throughout the year, sharing valuable information about health and the research our community supports

### HMRI Research Register

The HMRI Research Register makes recruitment of research participants faster and more economical. Even more importantly, it can help to improve the quality of research by providing access to a wider cross-section of the population than may otherwise be available.

# Support Services

FACILITIES | CREDITSS | HEALTH RESEARCH ECONOMICS

## CLINICAL TRIALS UNIT & FACILITIES

The HMRI Clinical Trials Unit was launched in October 2019 to support HMRI's strategic goal to increase translational research. Led by Conjoint Associate Professor Craig Gedye, it provides support to our clinical research colleagues to navigate the landscape of investigator-led trials in the set up and delivery stages of a trial.

They work, where needed, in concert with our HRE and CReDITSS teams and collaborate with our colleagues in the local health district in areas of governance and ethics.

HMRI Clinical Trials facilities are located in the HMRI Building. It allows researchers to conduct clinical trials with an exceptional ability to achieve accurate study results and track outcomes.

## RESEARCH DESIGN, DATA CAPTURE AND IMPACT ANALYSIS

### CReDITSS & Bioinformatics

The mission of the Clinical Research Design and Statistical Services and the Bioinformatics teams is to provide reliable, innovative, and collaborative data analysis for their clients.

Services include big data analysis to high-performance and cloud computing platforms consulting, configuration, management and setup.

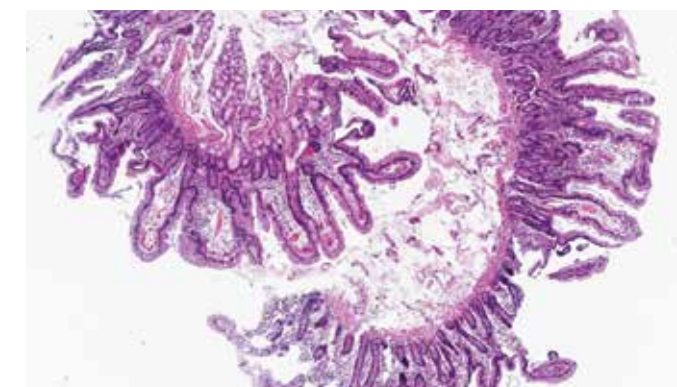
### 2019 Highlights

- Supporting 293 researchers from the University of Newcastle and HNE Health, including more than 40 PhD students and numerous fellows and post-doctoral researchers
- Contributing to the receipt of over \$9 million in NHMRC or ARC grant successes, and several NSW Ministry of Health Translational Research Grants
- Assisting in the co-authorship of over 90 publications

## Histology and Biobanking

### 2019 Highlights

- Processing over 19,000 samples in 2019 across nine research group clients and externally including the Hunter Cancer Biobank and HNEH
- Recruiting six new team members (equivalent to 2 x FTE)



## Health Research Economics

The HRE team directly supports HMRI's strategy, by contributing to the ecosystem that encourages and delivers research success. Their work supports the translation of cost-effective research outputs into clinical practices and health policy. The HRE team is building capacity, capability and reputation in applied health economics and impact assessment.

### 2019 Highlights

- Leading a national MRFF funded project on local level evaluation of healthcare
- With NSW Regional Health Partners, securing further funding to implement selected recommendations. One of these is the "Embedded Economist" project which places a health economist in each of our local health services

# PROGRAM

## Brain and Mental Health

### LEADERS:

PROFESSORS ALAN BRICHTA | NEIL SPRATT

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 and diseases including stroke, cancer and dementia.

Brain and Mental Health Program affiliates span the research gamut of these 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 discovery-to-delivery 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 new co-director, Associate Professor Carmel Loughland, and the Centre for Stroke and Brain Injury, co-directed by Professors Neil Spratt and Christopher Levi.

The Stroke Program's stroke team is globally renowned for advancements in acute care and rehabilitation, starting with newly tuned triage protocols and the trialling of clot-busting therapies.

The Program's Mental Health group is also internationally renowned. In October, the Centre for Rural and Remote Mental Health (CRRMH) was awarded the Mental Health Foundation Australia "2019 Organisation of the Year Award". This prestigious award was received at the launch of Mental Health Month at Parliament House.

Rural Adversity Mental Health Program, in a joint partnership with *The Land* newspaper, won The MHS Medal for Mental Health, a top Australasian award in mental health, for their 'Glove Box Guide to Mental Health'. The initiative, now in its eighth year, attempts to stem the increasing number of suicides in the bush.

In May the *Let's Talk Rural Mental Health* podcast was a finalist in the 2019 Australian Podcast Awards for the Diversity & Inclusion in Podcasting category.

#### Program Affiliates: 313

**Burden:** One in five Australians aged 16-85 will experience a mental illness in any year.

More than 80% of strokes can be prevented.

**Economic impact:** Australia faces rising costs in mental health – \$12.8 billion is attributed to depression, anxiety, and substance-use; stroke is \$5 billion.



Neurobiology team members achieved a quarter of all NHMRC funding awarded to the University of Newcastle in 2019. Projects included finding new drug targets to improve treatments for schizophrenia, new treatments for balance disorders, the causes of pathological pain, and the potential of nanoparticles as a new therapy for stroke.

Federal grants were also awarded to neuroscience researchers in Psychology, which included a \$1.2 million grant to boost dementia research.

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 and offer hope for the future.



#### CASE STUDY

A stroke in 2007 left Fiona Allen with considerable impairment in her left arm and leg. It cost Fiona her job in the freight industry, while her husband Brian eventually retired as a Sydney Airport fireman to become a full-time carer.

Her major obstacle was severe and persistent fatigue: "You learn how to live with your disabilities but the tiredness was just terrible. At around 2 o'clock every day I felt like I hit a wall," she says.

Fiona was accepted into a clinical trial of a wakefulness drug called Modafinil, which is aimed at improving quality of life for stroke survivors. Led by HMRI, the 'MIDAS2' study is being conducted at hospitals in Newcastle, Melbourne and Adelaide.

"In our initial trial we saw more than a 10 per cent improvement in self-reported fatigue, which also resulted in a quality-of-life increase that, to our knowledge, hasn't previously been achieved in a stroke survivor population," lead researcher Dr Andrew Bivard says.

While responses to the therapy will differ among stroke survivors, and further studies are needed, Fiona says she began to feel normal again for the first time in many years.

"I feel like I'm participating in life again, and contributing, because I've got more energy," she says. "I can't put into words the difference they've made," Fiona says.

#### HEAD INJURY STUDY FOR CONTACT SPORT

The National Rugby League (NRL) partnered with the University of Newcastle, Hunter Medical Research Institute and the Spaulding Research Institute at Harvard Medical School in one of the world's largest studies into head injuries and brain health in collision sport.

Led locally by Associate Professor Andrew Gardner, the Retired Professional Rugby League Players Brain Health Study is a multinational, multiyear program of research to transform the understanding of head injuries.

The NRL will provide initial funding for the research program of \$250,000.

#### CLINICAL TRAINING TECHNOLOGY

Virtual reality (VR) technology is being used in a world-first training program aimed at upskilling hospital staff and optimising workflows to get stroke patients treated or transferred faster.

VR headsets were distributed to seven primary stroke centres in the Hunter New England and Mid-North Coast health regions – John Hunter Hospital in Newcastle, Taree, Tamworth, Armidale, Moree, Port Macquarie and Coffs Harbour.

The software was developed as a part of a broader health systems intervention known as TACTICS (Trial of Advanced CT Imaging and Combined Education Support) supporting everyone from triage and emergency department nurses to radiographers and doctors.

#### ANTI-FATIGUE DRUG FOR STROKE SURVIVORS

The Greater Charitable Foundation has provided HMRI with over \$350,000 for three years to trial a drug design to help stroke survivors find much-needed relief from ongoing fatigue.

#### SKIN SIGNALS FOR MENTAL HEALTH

Tiny changes on the surface of skin may be the answer to early identification of stress, anxiety and depression before symptoms even present themselves.

The findings, led by the University of Newcastle and HMRI, could transform targeted prevention measures to improve mental well-being and help ease the pressure on our health system moving forward.

In collaboration with Defence Science and Technology, Australian Army and Leuven University, Newcastle researchers have honed the use of 'acoustic startle' as a marker of resilience. They utilised a skin conductance sensor attached to a fingertip, which picks up the activity of sweat glands – one of the fastest stress response systems in human body.



# PROGRAM Cancer

## LEADERS:

LAUREATE PROFESSOR RODNEY SCOTT | PROFESSOR XU DONG ZHANG



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 programs and with the University of Newcastle. There is also a strong affiliation with the Hunter Cancer Research Alliance.

In 2019, researchers were successful in leveraging substantial funding including external grants from NHMRC, Cancer Council NSW, Cancer Australia and philanthropic donations.

The Program concentrated its efforts on supporting the next generation of cancer researchers, with the Future Leaders Group (FLG) providing 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 2019, five researchers were awarded a Career Advancement Fellowship in Cancer Research which enabled them to continue their research with enhanced security and confidence. Two recipients



went on to receive competitive external fellowships.

The HMRI Building also houses the Hunter Cancer Biobank, one of the nation's most comprehensive repositories of cancer tissue.

2019 saw over 2,000 new tissue blocks banked, and more than 12,000 blood samples processed. More than 2,000 samples were distributed to researchers locally and nationally. The Mark Hughes Foundation Brain Cancer Biobank now includes post-mortem samples from 17 patients.

In 2019, the Hunter Cancer Biobank submitted a competitive tender for a partnership with the Breast Cancer Trials. Since the success of this tender, the BCT tissue bank has been relocated to the Hunter Cancer Biobank within HMRI, and the team is now playing a central role in coordinating the collection and processing samples from large multicentre studies.

### Program affiliates: 197

**Disease burden:** in 2019 an estimated 139 people died each day from cancer. One new case is diagnosed every four minutes, on average.

**Economic impact:** Cancer costs more than \$4.5 billion in direct health system costs.



### 'QUEEN BEE OF ENDOMETRIAL CANCER'

Associate Professor Pradeep Tanwar and team have pinpointed a cell (genetic signal Axin2) that sparks the rapid regeneration of the womb lining after menstruation.

They showed that the cell is also 'the queen bee' behind endometrial cancer.

"We found that inhibiting the cell stops the uterine regeneration process. If we inhibit it in cancer, the cancer also won't progress," Associate Professor Tanwar says.

### CASE STUDY

Hayden Brake looks so remarkably fit and well when he greets you at the door, it's hard to believe that doctors feared he had only weeks to live. That was over a year ago ...

The 78-year-old had been diagnosed with metastatic melanoma, a disease commonly called our "national cancer" as our incidence rates are the world's highest.

Fortunately, Associate Professor Nikola Bowden and Dr Andre Van der Westhuizen were trialling a new treatment regime as a last line of defence for stricken patients.

The Bowden team used a chemical reaction called methylation to alter the genetic profile of DNA, then combined it with a DNA-damaging chemotherapy agent.

The most crucial part of the 'PRIME' study came when an immunotherapy drug was added to the mix, at Dr Van der Westhuizen's suggestion.

Put simply, the tumours were being biologically altered and damaged to prevent them hiding beneath the body's radar. The immune system could then start fighting the cancer.

With more data needed, the team is now broadening the trial to 30 patients. This includes the Cairns Hospital oncology unit in North Queensland, with its own clinical team.

The end goal is to embed PRIME into clinical practice as a standard of care.

### MHF BEANIES SUPPORT INNOVATION GRANTS

The Mark Hughes Foundation awarded eight innovation grants to research teams from across the nation during HMRI's Awards Night, all funded by the annual NRL Beanie for Brain Cancer Round.

Recipients included Dr Mike Fay, Associate Professor Paul Tooney and Professor Frances Kay-Lambkin from the University of Newcastle, along with researchers from Chris O'Brien Lifecare, the University of NSW, the University of WA and University of Sydney. Eight previously awarded grants were also acknowledged.

### COUNTING THE COST OF CANCER

Professor Christine Paul's research has found that unexpected costs for cancer treatment can amount to tens of thousands of dollars, with more than a third of patients and carers having higher than expected out-of-pocket expenses.

Professor Paul worked with Dr Liz Fradgley and Cancer Council Australia to determine how out-of-pocket health costs associated with a cancer diagnosis impact on a person's health and well-being.

They found that people living in rural and remote regions faced an even heavier burden of cost than those in cities as their costs included travel and overnight stays, along with treatment and medications.

### EARLY BIOMARKER FOR PROSTATE CANCER

Early research findings have indicated that a blood test may provide a more accurate way of identifying aggressive prostate cancers.

Professor Hubert Hondermarck, Conjoint Professor Jim Denham and Associate Professor Phil Jobling received \$318,596 from the Cancer Council to investigate the new approach to testing for the disease.

"Our team discovered that neurotrophic growth factors are overproduced in prostate cancer cells, and their presence is increased in patients with aggressive prostate cancer" Professor Hondermarck said.



# PROGRAM

## Cardiovascular

### LEADERS:

PROFESSORS ANDREW BOYLE | DIRK VAN HELDEN | RON PLOTNIKOFF

Currently, over 55 per cent of Australian adults get insufficient exercise and only five per cent meet guidelines for fruit and vegetable consumption.

It's perhaps not surprising, then, that heart attack rates remain on the rise within the Hunter New England health district. Patients are considerably younger than those in cities, with the proliferation of fast-food outlets in regional areas shown to be among the contributing factors.

There is much that can, and needs, to be done in the "before, during and after" phases of a cardiac event, and the cardiovascular group at HMRI is aiming to better understand and prevent the causes, while optimising treatments and subsequent management.

Focus areas range from studying the structure and function of the heart, through to clinical interventions and stem cell therapy to potentially regenerate damaged heart muscle.

Clinical trials are underway assessing novel drug treatments for patients, surgical interventions including artificial heart valves and better frontline treatment in ambulances.

The team recently completed a clinical trial of centralised real-time decision support for rural GPs managing patients with heart attacks. Results of this world-first protocol will be available in 2020.

Researchers also began testing strategies to increase patient attendance for cardiac rehabilitation programs.

Nutritionists, physical activity specialists and behavioural scientists are developing key interventions to lower the community risk of cardiovascular disease.

Among the intervention strategies conducted in 2019 were SHED-IT Recharge (Self-Help, Exercise, Diet and Information Technology), and the 'ecofit' study that encourages the use of outdoor fitness equipment by using a dedicated smartphone app.

**Program affiliates:** 133

**Disease burden:** Heart disease claims more Australian lives than any other illness, accounting for almost a third of all deaths. It also represents the number 1 cost to the health budget, with obesity and type 2 diabetes being chronic issues for our ageing population.

**Economic impact:** Estimated to be approximately \$10.5b in Australia, almost 9% of total healthcare expenditure.



A website called *No Money, No Time* was launched to improve the eating habits of our unhealthiest age group, giving young adults free dietary advice to remove the barriers of money and time.



### CASE STUDY

Former Newcastle cab driver Jim can attest to the benefits of HMRI's original SHED-IT program.

He enrolled at 63 years of age, weighing 102kg. After six months he weighed just over 87kg and has remained within a kilogram of that figure for seven years.

"At my heaviest I was 116 kilograms and just couldn't get below 100," Jim says. "Then I saw a story about SHED-IT in the paper and thought it could be my saviour."

"I still drink full-cream milk and full-strength beer, but I have it in moderation. And if I don't get a walk in, I haven't fulfilled my day."

In 2019 the study was redeveloped with a renewed focus on helping men lift their mood, not just drop weight.

Now called SHED-IT Recharge, the new trial has recruited 120 men to receive strategies on feeling mentally well, along with resources designed to encourage more activity and improved diet

"SHED-IT was designed to engage and appeal to blokes, who are far outnumbered by women in weight loss projects," lead researcher Dr Myles Young says.

"Importantly, it's an online program, which makes it convenient and confidential. Our three-year results are comparable to studies where men attended up to 30 sessions with a trained health professional."

### CAN A VACCINE PROTECT ARTERIES?

Heart attack and stroke prevention moved a step closer after Laureate Professor John Attia received a Cardiovascular Clinician Scientist Grant announced by the NSW Government.

Professor Attia's work concentrates on finding a vaccine to protect against cardiovascular illness caused by the build-up of cholesterol (plaque) in the arteries.

Previous studies have shown that vaccination against the Pneumococcal bacterium reduces the size and number of plaques.

"Vaccination triggers the production of antibodies towards this cell wall fat, and these antibodies cross-react with the bad cholesterol, attacking and clearing the plaque," he says. "It essentially tricks the body into attacking the cholesterol build-up."

### PARK GYM APP-ROACH TO FITNESS

In partnership with Lake Macquarie City Council and Newcastle City Council, researchers began recruiting for a new, nationally-funded trial that blends smartphone technology with park-based fitness facilities to encourage community exercise in the great outdoors.

The study, ecofit, involves aerobic and resistance (weight-bearing) training for a full-body workout that's fast, fun and free for anyone aged 18-80.

A purpose-built app guides participants through correct usage of outdoor gym equipment located in seven public parks and trails. GPS tracking enables the app to know which exercise station is being used, and when.

### HONOUR FOR EMERGING RESEARCHER



Dr Myles Young was announced as the Bupa Health Foundation Emerging Health Researcher for 2019.

With five finalists selected from a field of over 140 nominations Dr Young was delighted to be shortlisted – and absolutely blown away when he was announced the winner in Melbourne in August.

"When the finalists were announced I was beyond inspired by the company I was in. An award like this means so much to an early career researcher," he said.



# PROGRAM

## Pregnancy and Reproduction

### LEADERS:

LAUREATE PROFESSORS ROGER SMITH AM and JOHN AITKEN

Many people consider a tribe of children and grandchildren to be their greatest ambition or achievement in life, yet difficulties in reproduction and pregnancy often threaten that dream.

HMRI's Pregnancy and Reproduction team is focused on the earliest events in life – the formation of healthy sperm and oocyte – as well as the intrauterine environment during foetal development.

Current research is delving into the causes of a steady decline in sperm count and quality, including factors that may also lead to DNA damage and therefore affect the offspring.

The team includes experts such as Laureate Professor John Aitken, Associate Professor Mark Baker, Professor Brett Nixon, Dr Tessa Lord, Dr Shaun Roman, Dr Geoffry De Iuliis and others, conducting projects exploring how bacteria, toxins and genetics can all affect fertility.

Sadly, too many children are also being born too small and too early, with pre-term birth remaining the most common reason for the loss of a newborn baby. Stillbirth rates have changed little in 20 years.

Researchers from the Mothers and Babies Research Centre are working to better understand the biological and environmental processes affecting pregnancy, to then enable new diagnostics and interventions to be developed.

The Centre received a \$5 million Synergy grant



with the University of Melbourne to develop novel diagnostics for stillbirth.

A new study, New1000, was developed by Professor Craig Pennell, aiming to optimise an infant's earliest life and potentially curb the most common causes of death and disability within a generation.

ARC Future Fellow Associate Professor Kirsty Pringle was awarded an NHMRC project grant (\$472,894) to investigate the role of a protein in the mother's blood called "soluble pro(renin) receptor" in the development of pre-eclampsia. Dr Pringle received HMRI seed funding for her work in 2012.

Dr Jonathan Paul is developing a nanoparticle system to deliver drugs directly to the uterus as a potential treatment for preterm birth. He also received NHMRC funding to continue this work.

**Program affiliates:** 124

**Disease burden:** Infertility affects one in six couples, while 30,000 babies (9% of pregnancies) are born pre-term in Australia. A new National Stillbirth Action Plan is now being developed to help reduce the rate of stillbirths.

**Economic impact:** Stillbirth claims six lives a day, with an estimated burden of \$681 million.



### CASE STUDY

A thank you card from a Sydney family is posted on the wall of HMRI's pregnancy laboratory. It shows the birth of a baby, Lorcan, and inside the card is an equally precious message from parents Katie and Luke:

*THANK YOU THANK YOU!*

*For giving us care and support.*

*For giving us answers.*

*For giving us hope.*

*For giving families miracles.*

The path to Lorcan's birth was tense, as the couple's first child, Eloise, had been under-weight at birth. Tragically, their second daughter, Evelyn, was stillborn at 38 weeks.

In both cases, there were indications that Katie's placentas had undergone premature ageing, compromising the delivery of oxygen and nutrients.

HMRI's pregnancy research team is exploring the triggers of this life-threatening placental process while also looking for early-detection signals in the blood.

They gave Katie vital answers to the devastating loss of Evelyn, while principal researcher Professor Craig Pennell, a clinical specialist at John Hunter Hospital, monitored Katie in the lead-up to Lorcan's birth.

"Katie is a perfect example of how evaluation allows you to uncover problems that can be treated proactively from the earliest time," Professor Pennell says.

### PLANNING AHEAD FOR YOUNG CANCER SURVIVORS

Fertility researcher Dr Tessa Lord is researching the fertility of childhood cancer survivors. Planning for the future is vital for boys who can be rendered infertile because of chemotherapy or radiotherapy. They're born with the potential for sperm, in stem cells, and that potential is only realised after puberty.

Dr Lord's work, funded by the NHMRC and a grant at the 2019 HMRI Awards Night, is exploring taking stem cells from the testes and cryogenically preserving them until the person's ready to start a family. These stem cells will then be placed into a petri dish (around 10 cells are typical from a biopsy) and expanded – before being placed back in the adult testes to grow into sperm.

This work has enormous potential – not just for those with childhood cancer related issues – but for men with fertility issues.

### STUDY OF PRETERM HEART DEVELOPMENT

Associate Professor Koert de Waal from John Hunter Children's Hospital received a \$25,000 grant from HMRI auspiced fundraising group Hunter Children's Research Foundation to investigate how blood flow patterns inside the cardiac chambers determine preterm heart development and future risk of heart failure.

### INDIGENOUS VIEWS PROVIDE FOOD FOR THOUGHT

Associate Professor Kym Rae received a \$1.1 million NHMRC grant to incorporate Indigenous worldviews of nutrition in the perinatal and early childhood periods. The information will be translated into changes to national policy related to nutrition. She will also develop and evaluate a mobile phone app to support women during this time in their child's life.

### FOCUS ON LOW FERTILITY DISEASE

Associate Professor Mark Baker is investigating treatments for men diagnosed with Oligoasthenoteratozoospermia (OAT), whose fertility is affected by the disease.

"Not only is there an absence of treatment for these men, but we're also unaware of the potential consequences of offspring conceived with OAT sperm via assisted reproductive technologies," Professor Baker says.

"We are exploring techniques that could enable them to conceive naturally, mitigating both the cost of IVF, as well as the physical burden typically taken on by the female partner."

# PROGRAM

## Public Health

### LEADERS:

PROFESSORS JULIE BYLES | JOHN WIGGERS

#### Program affiliates: 346

**Disease burden:** Chronic disease accounts for 37 per cent of hospitalisations.

**Economic impact:** Estimates for annual productivity loss are up to \$14.9b for obesity; up to \$10.5b for tobacco; up to \$6.8b for alcohol; up to \$15.6b due to physical inactivity and \$561m for diet risk.

With almost half of all Australians having a chronic disease, and rates continuing to rise, the healthcare sector is potentially facing a tsunami of community need, with broad implications for our economy.

A huge task, therefore, faces HMRI's Public Health program to instil change at a population level.

With 346 affiliated researchers, it's the largest program at HMRI. 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 five other programs.

The Program's research extends from methodological and descriptive research, through trials of strategies to improve health, to studies involving the translation and monitoring of proven programs, surveillance of health risks, and measurement of health system performance.

The University of Newcastle's Priority Research Centre for Generational Health and Ageing is embedded with the Program. Among other studies, the team works with the University of Queensland on the nation's largest women's health and lifestyle survey: *The Australian Longitudinal Study on Women's Health*.

The Priority Research Centre for Health Behaviour, is the other Centre within the Public Health Program. It undertakes research to promote



healthy behaviours, both physical and mental, and high quality health-care.

The Australian Community of Practice in Research in Dementia, led by Laureate Professor Rob Sanson-Fisher, aims to implement and evaluate strategies to improve the well-being and quality of care for people with dementia and their caregivers.

Public health teams are making national strides into alcohol and tobacco consumption among vulnerable populations, along with obesity prevention and treatment. Almost every health risk behaviour is escalated in rural areas, particularly for Indigenous communities.

Researchers are dedicated to addressing the imbalance by hosting and examining large datasets from both clinical trials and real-world clinical scenarios, along with health economic evaluation.

Responding to new risks, teams are also engaging in translational research to increase community protection from infectious diseases, including improving immunisation rates.

The research themes address the aim of the NSW State Health Plan: Towards 2021 – to provide “a whole of society approach to health promotion and prevention.” They are particularly focused on working with the health system and service providers to undertake research that is applied and can be translated into better healthcare practices.



### A NEW VIEW ON AGEING

Professor Julie Byles, co-director of HMRI's Public Health Program and Global Innovation Chair in Responsive Transitions in Health assisted the International Longevity Centre UK on their “Prevention in an ageing world” program.

Rather than looking at ageing as a problem, Professor Byles views it as a success – and that appropriate, accessible services should be provided when and where people need them.

Professor Byles has over 24 years' experience working on the *Australian Longitudinal Study on Women's Health*. “Most of the women in our study age very well. They are active, contribute to their families and enjoy life,” Professor Byles says. “I want to understand how we can help maintain that positive trajectory as we get older.”

Professor Byles' blog “If healthy ageing is the end point, how do we get there?” is featured on the ILC-UK website following her presentation at the Prevention in an Ageing World 2019 G20 side event in Okayayama, Japan.

### CASE STUDY

As a bushfire tore through the village of Bobin, near Taree, on a catastrophic day in late 2019, long-time resident Kim gathered her two dogs and fled her 110-year-old cottage, seeking refuge in a nearby creek.

“I couldn't see my house from the creek, but I could hear it burning down, with lots of explosions as every thing just went up in flames,” she recalls. “There's still lots of grief, not so much for material things, but for the community that will never be the same again.”

This is why HMRI launched a special public health initiative called ‘Beyond the Bushfires’ to provide leadership and to ease suffering.

HMRI's first step was to assemble a rapid response group comprising multidisciplinary research experts in respiratory disease, mental health, public health and more.

Online programs were adapted to give people the mental dexterity needed to understand and cope with the situation.

The goal is to diffuse the mental health impacts and monitor how people are going over time. Researchers can then work out what interventions are needed, and when they'll be needed.

Meanwhile, laboratory teams began investigating the bushfire-related airway responses, using modelling first developed for cigarette smoke.

### HELPING CANCER PATIENTS QUIT SMOKING

The National Health and Medical Research Council awarded \$1,408,506 to Professor Christine Paul and team to aid cancer patients in their efforts to quit smoking.

Although cancer patients can improve their quality and length of life by quitting smoking, few are provided with the kind of assistance needed to help them quit. The research trial involves working with doctors, nurses and allied health staff in cancer centres to help them to integrate smoking cessation care into their current practice.

### CLOSING THE GAP WITH INCREASED CHECK-UPS

An intervention designed to help Close the Gap, by increasing the number of Aboriginal and Torres Strait Islander people who receive an annual health check by their GP, is being implemented and evaluated in a new project.

Laureate Professor Rob Sanson-Fisher, who heads the team of expert Aboriginal and non-Aboriginal researchers in the five-year research project, said timely diagnosis and appropriate management was vital to improving health outcomes for Aboriginal and Torres Strait Islander people.

The intervention package comprises strategies such as continuing medical education, recall and reminder systems, and mailed invitations to patients. The project will also test whether the intervention increases doctors' adherence to best practice care and improves patient outcomes.



## PROGRAM

### VIVA [Viruses, Infections/Immunity, Vaccines, Asthma]

#### PROGRAM LEADERS:

CONJOINT PROFESSOR PETER GIBSON | LAUREATE PROFESSOR PAUL FOSTER

The bushfire haze that blanketed Australian cities and towns during summer triggered a significant rise in the number of people experiencing respiratory difficulties, including frequent asthma attacks.



#### Program affiliates: 205

**Disease burden:** Around 2.7 million Australians have asthma.

Nearly 85,000 Australians are living with inflammatory bowel disease.

**Economic impact:** Respiratory conditions costs the Australian health system over \$4 billion.

This new environmental phenomenon further reinforced the importance of the world-class respiratory research being undertaken at HMRI, both at the bench and clinic.

Teams here are uniquely placed to study the problem and find answers. They're using data from the Hunter Region's air monitoring network and overlaying that with patients on their asthma registries. They can then compare symptoms before, during and after the smoke exposure.

At the same time, they're working with laboratory scientists to better understand the intricate airway mechanisms, using modelling first developed and tested in cigarette smoke.

Among other significant achievements by the respiratory group was the introduction of a model of care called *Treatable Traits*, which has been adopted into national guidelines for COPD. It resulted from an international collaboration led from Newcastle by Professor Vanessa McDonald, which included two major conferences.

There were also successful meetings held on the subject of viral triggers for asthma, a notable strength of the research group.

In 2019, recruitment for the *Breathing For Life* trial was completed. It's examining the use of FeNO (exhaled nitric oxide) testing for asthma during pregnancy and, with 1,200 mothers and babies, it's the largest study of its kind in the world.

The gastrointestinal tract is another focus area of VIVA, exploring highly prevalent and impactful conditions such as inflammatory bowel diseases (IBD), Crohn's disease and ulcerative colitis.

With Laureate Professor Nicholas Talley AC at the helm, the group is conducting clinical trials of new treatments that can potentially translate rapidly into helping people.

The NHMRC also provided \$2.48m for a Centre of Excellence in Digestive Health to be established, with HMRI as the coordinating site.



#### CASE STUDY

For asthma patient Judith, even walking past a person smoking literally takes her breath away.

"It hits my lungs, and it's just awful," she explains. "I've learned to live with it over so many years, but I'm getting older now, and certainly don't want to be infirm in the future."

Judith joined a clinical trial of a soluble fibre supplement being led by Professor Lisa Wood, and her lung volume has since improved.

"Our first study looked at a single dose of soluble fibre and we saw that it effectively reduced inflammation and improved asthma control," Professor Wood says. "We're now looking at the optimum dosage and timing for fibre supplementation."

The findings were recently published in the high-ranking international journal *EBioMedicine*, published by *The Lancet*.

Soluble fibre is digested by gut bacteria, forming metabolites in the blood stream that, in turn, affect the fat cells responsible for airway inflammation.

It is a natural, non-pharmaceutical strategy that, as a bonus, helped Judith to lose over four kilograms since commencing the trial.

"I thought Ventolin was the best thing since sliced bread, but I'm feeling a lot better now after the fibre diet trial," she says.

#### BATTLE OF THE SEVERE ASTHMA DRUGS

Hunter researchers began conducting a head-to-head comparison of two new-generation drugs designed to help those with severe asthma.

Professor Peter Wark, a senior respiratory specialist at John Hunter Hospital, has received over \$600,000 for an investigator-led clinical trial of Omalizumab [Xolair] and the newer contender Mepolizumab [Nucala].

Both drugs treat inflammation caused by white blood cells known as eosinophils, but take different approaches.

"There's a group of patients who are candidates for both drugs, and a clinician could choose one or other as the first line of treatment," Professor Wark explained.

"Previous trials have clearly demonstrated efficacy of these therapies yet they don't discriminate between which drug is best for those who qualify for both. We're hoping for greater clarity in choosing the right treatment for the right person, first time around."

#### TRACKING SHOWS FLU OFF TO A FLIER

An early start to Australia's 2019 flu season, with rates two to three times above normal, prompted an early launch for the annual online surveillance system, FluTracking.

With more than 40,000 Australians reporting their flu symptoms every week, and its expansion to New Zealand, FluTracking is the world's largest crowd-sourcing influenza monitoring system.

Founder and co-ordinator, Dr Craig Dalton, said flu activity in March exceeded the previous winter's peak.

FluTracking is a joint initiative of the University of Newcastle, Hunter New England Population Health and HMRI. Participation in the self-reporting survey takes only 10-15 seconds each week.



#### WEBSITE SHARES PATIENT EXPERIENCES

Respiratory researchers helped develop a website, launched on HealthTalk Australia, that communicates the real-life experiences of people with severe asthma. The resource is another effective avenue to share new research knowledge with the community.

## 2019 HMRI Awards



Mental health trailblazer Professor Frances Kay-Lambkin was named Researcher of the Year at the 2019 HMRI Awards Night, joining an elite list of medical researchers to receive the region's top honour over the past 21 years.

It capped a stellar evening in which over \$10 million in grant funding was announced or acknowledged.

Also announced were the HMRI Institute Director's Award for Mid-Career Research and the HMRI Award for Early-Career Research – Associate Professors Luke Wolfenden and Stephen Smith respectively.

The evening heralded 16 new project grants and two scholarships, while also celebrating more

than 45 project and travel grants, fellowships and scholarships funded during the year.

For the first time, HMRI's peer-review panels had included external experts from a range of scientific fields, as well as community members and HMRI researchers.

It was a shining example of the collaboration between our partners, Hunter New England Health, the University of Newcastle, and the community, with a strong focus on early- and mid-career researchers.

## Award for Research Excellence

PROFESSOR FRANCES KAY-LAMBKIN

Professor Frances Kay-Lambkin leads a global team of researchers, clinicians and industry partners in supporting patients who have concurrent mental health, alcohol and drug problems.

Very few researchers in the mental health sphere, anywhere in the world, have such impressive credentials and a track record of achievements.

Professor Kay Lambkin is serving as Acting Pro Vice-Chancellor, Research and Innovation, at the University of Newcastle, while also serving as a board director for Orygen – the National Centre of Excellence in Youth Mental Health – to represent a voice for young people with poor mental health.

She is the President of the Society for Mental Health Research, an NHMRC Senior Research Fellow, Director of Translation at the NHMRC Centre for Research Excellence in Mental Health and Substance Use, and Co-Director of the Mental Health Hub of the University of Newcastle's Priority Research Centre in Brain and Mental Health.

Professor Kay-Lambkin has attracted over \$15.6 million in funding, half of that in the past five years. She has led the way in trialling and developing digital-based psychological treatments that benefit large numbers of patients and contribute to a global shift in the treatment of comorbidity.

As such, she is an exceptionally worthy winner of this year's award.

**The HMRI Award for Research Excellence highlights the achievements of an outstanding researcher and research leader who has made a substantial and sustained contribution to research in the Hunter and beyond.**





# Director's Award for Mid-Career Research

ASSOCIATE PROFESSOR LUKE WOLFENDEN

**The Director's Award for Mid-Career Research – presented to those within 15 years since completing a PhD – recognises and rewards the dedication and achievements of one of the Hunter's most gifted mid-career researchers.**



Seven years ago, Associate Professor Luke Wolfenden accepted the HMRI Early-Career Research Award. He has certainly justified the judges' faith since then.

As a member of the Hunter New England Population Health group, Associate Professor Wolfenden has attracted more than \$22 million in grant income from highly competitive national and international schemes while authoring more than 300 journal manuscripts – 40 in this year alone.

He has forged an international reputation in implementation science, with his work including the Lancet Commission Report on Obesity, Undernutrition and Climate Change and three large and highly cited global reports in tobacco control published by the World Health Organisation.

Among his health interventions are a menu planning program adopted by 2,000 childcare services across Australia, and a sports club intervention adopted by no less than 7,000 sporting clubs.

Luke's director and mentor, Professor John Wiggers, notes that this level of excellence is a rare if not unique achievement in this region and possibly in this country for a mid-career researcher in Luke's field.

# Award for Early-Career Research

ASSOCIATE PROFESSOR STEPHEN SMITH

Conjoint Associate Professor Smith is a highly regarded colorectal surgeon who serves as the Director of the Hunter Surgical Clinical Research Unit at John Hunter Hospital while maintaining an almost full clinical workload.

He has developed and led innovative and high-quality surgical projects in three broad areas – infection, pain, and delayed return of gastrointestinal function.

As an investigator on various projects under the Hunter Cancer Research Alliance umbrella, Associate Professor Smith has leveraged over \$10 million in research funding. This year he was awarded his first NHMRC Project grant as Chief Investigator with a team from HMRI and John Hunter Hospital.

That's not to mention the 30 papers he's had published in peer-reviewed, international surgical journals.

His current research includes an investigation of the immune system and anaesthesia effects on long-term cancer outcomes, along with the role of medicinal cannabis in colorectal surgery and pain.

To quote one of his referees, Professor Smith is a "rare combination of surgeon, researcher, teacher and mentor – a fertile source of ideas and inspiration for those with whom he collaborates".

**The HMRI Award for Early Career Medical Research – for those within five years since completion of their PhD – supports professional development and acknowledges the work of researchers at a critical time in their career.**





# Women in Medical Research Fellowship

DR HEIDI JANSSEN | STROKE REHABILITATION



Courtesy of an anonymous donor, stroke researcher Dr Heidi Janssen received HMRI's first Women in Medical Research Fellowship (WIMRF) this year to develop a community-based rehabilitation project using activities such as singing, dancing and art.

As a physiotherapist, Dr Janssen works closely with healthcare providers to help stroke survivors reconnect with their life prior to falling ill. Her research led to the creation of 'enriched environments' in a hospital setting, where patients could exercise and socialise.

This concept is now being taken into the community for the first time, courtesy of the \$285,000 fellowship. The project is titled *ESTEEM After Stroke\**.

"We're trying to fill the gap that exists after people finish their rehabilitation journey in the health system, which can be relatively short for some patients," Dr Janssen said.

"It can be difficult for people to live independently in the way they did before stroke. Often, they need more time to recover but they've got few places to go after returning home."

The study will unite stroke survivors and their carers, health services and community groups to translate the research into sustainable practice.

"I've wanted to do this project for a long time, so the Women in Medical Research Fellowship is hugely significant for me. It gives me more autonomy to build a research team and develop my skills as a researcher," Dr Janssen adds.

HMRI introduced the WIMRF program to stem the 'silent brain drain' impacting female researchers at their critical mid-career juncture.

*\* Other HMRI-affiliated researchers working on the project include Professors Michael Nilsson, John Wiggers and Frini Karayanidis, Associate Professor Coralie English, and Dr Bernadette Matthias.*



# Community engagement

OPEN DAY | SEMINARS | EVENTS

Community is at the heart of *everything* we do at HMRI, and we engage our supporters through multiple events during the year.

The annual Open Day is unique in Australia, both in its size and scope, giving over 2,500 people a fun and inspiring glimpse of science and research.



HMRI OPEN DAY

Public seminars, held throughout the year, attract over 500 people and a large social media 'virtual' audience.

HMRI also supports over 25 external fundraising events such as the Gastronomic Lunch, Dungog Bike Ride and more.



PUBLIC SEMINARS



AWARDS NIGHT



HMRI BALL



ROTARY DUNGOG RIDE



GASTRONOMIC LUNCH

# Volunteers

TEAM HMRI | RESEARCH REGISTER

Whether it's assisting with donation returns, data entry or helping out at events such as Open Day and public seminars, HMRI's team of volunteers have been a vital part of the behind-the-scenes success of HMRI throughout 2019.

Our 87 active volunteers collectively dedicated over 480 hours to the Institute this year, which is equivalent to 13 weeks of full-time, unpaid but invaluable work.

Attesting to their dedication, 18 volunteers have been part of Team HMRI for 10 years or more – this year, it was Marie Long who made that list – while 13 new faces joined us in 2019.



**“Learning more about the research and being able to share it has been my favourite part of volunteering.”**

Irene Lojszczyk is one of HMRI's longest-serving volunteers and, in the past two decades, she has performed numerous tasks.

“I started out stuffing envelopes, in a tiny room at the John Hunter Hospital,” Irene reflects with a smile. “Over the years I've taken on many roles at HMRI, using my skills teaching business at college for working on the HMRI database.”

Irene is most proud of her work raising the profile of HMRI through speaking to community groups:

“I was so proud to be selected to be a part of this. We met with researchers who told us about the work that they're doing and it's been amazing.

“Learning more about the research at HMRI, and being able to share it with others has been my favourite part of volunteering at HMRI.”

While a highly diverse skill set is required, most of all it's a passion for HMRI. Community Seminars and Open Day wouldn't be possible without them.

See [hmri.org.au/volunteer](http://hmri.org.au/volunteer) to learn more about Team HMRI

## HMRI RESEARCH REGISTER

Many of our volunteers also take part in clinical trials through the HMRI Research Register, which helps researchers build a better understanding of disease complexities.

The Register had 1,586 members in 2019, ranging in age from 18 to 81+. The biggest cohort are women aged 71 years to 80 years. In 2019, participants were enrolled in studies for asthma, stroke, gut health and the immune system, nutrition and healthy ageing.

People who are healthy are just as valuable to research outcomes as those with particular medical conditions and researchers are always looking for volunteers.

See [hmri.org.au/research-register](http://hmri.org.au/research-register).



# Auspiced Fundraisers

WE THANK THE THREE GROUPS WHO ARE DEDICATED TO  
SUPPORTING SPECIFIC RESEARCH AREAS

**BorneHMRI**



Former Wallabies rugby 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 **BorneHMRI** 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 2018.

Fundraising endeavours in 2019 included a dinner at Sydney's Ivy Ballroom, which was sold out, and planning for a trek across Costa Rica, set to be held in 2021.

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.

At its annual awards night in 2019, HCRF announced \$115,000 in grant funding and acknowledged the region's leading paediatric researchers.

In the Community Acknowledgement of Research Excellence section, world-leading nutritionist Professor Clare Collins was named Research Mentor of the Year – sponsored by Newcastle Permanent.

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.

# Major Benefactors

HMRI RECEIVES EXTRAORDINARY SUPPORT FROM TRUSTS,  
FOUNDATIONS, BUSINESSES AND INDIVIDUALS

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

**Greater Bank:** Greater Bank is an inaugural donor, having supported HMRI since 1998. Along with the Greater Charitable Foundation it provides funding for Stroke Research.

**Haggarty Foundation:** Tony and Karen Haggarty supported the HMRI Building Capital Campaign in 2011 and are funding stillbirth research and fellowships.

**Jennie Thomas AM:** HMRI's Life Governor Invests in the career development of young researchers.

**Kiriwina Investment Company:** Supporters of HMRI since 2000, including a grant this year to Dr Matt Dun for brain cancer research.

**McGuigan Family:** Jointly funding a 10-year fellowship dedicated to ovarian cancer research in honour of beloved daughter and sister, Vanessa McGuigan.

**Mark Hughes Foundation:** Mark and Kirralee Hughes founded the Mark Hughes Foundation in 2014 to raise funds for brain cancer research, to create awareness and support patients and their families.

**nib foundation:** First supported HMRI in 2010 and maintains its connection with Professor Clare Collins and her nutrition programs.

**Port Waratah Coal Services:** Supporters of two multi-year projects, the second of which is the Dads and Daughters Exercising and Empowered (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.

**Estate of the late Margaret (Peggy) Florence Crawley:** HMRI's largest bequest to date, the funds will support a second Women in Medical Research Fellowship and the HMRI Endowment Fund.





# Governance

## HMRI BOARD

### Community

Mr Kyle Loades  
Chair, HMRI Board

Mr Don Magin  
Audit and Risk Committee Chair

Dr Kirsten Molloy

Ms Kirsten Mulley

Mr Scott Walkom  
HMRI Foundation Chair

### Hunter New England Local Health District

Mr Michael DiRienzo  
Chief Executive,  
Hunter New England Local Health District

Conjoint Professor Martin Cohen  
Board Director and Consultant,  
Hunter New England Local Health District

Professor John Wiggers  
Director, Clinical Research and Translation,  
Hunter New England Local Health District

### The University of Newcastle

Professor Alex Zelinsky AO  
Vice-Chancellor and President,  
The University of Newcastle

Laureate Professor John Aitken  
Pro Vice-Chancellor (Health and Medicine),  
The University of Newcastle

Professor Kevin Hall  
Senior Deputy Vice-Chancellor  
(Research and Innovation),  
The University of Newcastle

### HMRI Institute Director

Professor Tom Walley CBE, MD, FRCP (Lon)

### Company Secretary

Ms Claire Drelincourt  
General Manager Corporate Services

The HMRI Board comprises three independent directors from HMRI's principal partners – Hunter New England Local Health District, the University of Newcastle – and five independent directors representing the Community. The Chair of the Board is always a community director.

AUDIT AND RISK COMMITTEE

Don Magin (Chair)  
Jason Murphy (UON)  
Cherie Williams (HNELHD)  
Darren Turner (Community)

HMRI CORPORATE

- General Manager Corporate Services**  
Claire Drelincourt
  - Associate Director Strategy & Partnership**  
Shanthi Herd
  - General Manager Marketing & Development**  
Rebecca Palser
  - Associate Director HRE**  
Professor Andrew Searles
  - Associate Director: Clinical Research Design and Statistical Services**  
Professor Chris Oldmeadow
  - Director Clinical Trials Unit**  
Conjoint Associate Professor Craig Gedye
- 
- Finance Manager**  
Tim Smith
  - Marketing Manager**  
Caroline Raper
  - Facilities Manager**  
Cameron Morton
  - HR Business Partner**  
Melanie Cowie
  - IT Services Manager**  
Greg Garland

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.

Laureate Professor Paul Foster (Chair)  
Professor Alan Brichta (Deputy Chair)  
Conjoint Professor Stephen Ackland (Jan-Jun)  
Laureate Professor Rodney Scott (Jul-Dec)  
Associate Professor Nikola Bowden  
Professor Andrew Boyle  
Associate Professor Tracy Burrows  
Professor Julie Byles  
Professor Mariko Carey  
Conjoint Professor Peter Gibson  
Professor Brian Kelly  
Professor Deborah Loxton  
Professor Joerg Mattes  
Professor Ron Plotnikoff  
Dr Andrew Reid (Jan-Feb)  
Dr Nicole Nathan (Mar-Dec)  
Professor Christopher Scarlett  
Professor Jodie Simpson (Jan-Sep)  
Laureate Professor John Attia (Oct-Dec)  
Laureate Professor Roger Smith  
Professor Neil Spratt  
Laureate Professor Nicholas Talley  
Professor Dirk Van Helden  
Professor Tom Walley  
Professor John Wiggers  
Professor Christine Jorm (by invitation)

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.

- |                      |                   |
|----------------------|-------------------|
| Scott Walkom (Chair) | Kristie Atkins    |
| Adrian Collins       | Lyn Mangovski     |
| Amy-Lea Pettigrew    | Mark Heanly       |
| Brett Lewis          | Michael Griffiths |
| Cathrine Long        | Simmone Markey    |
| Chad Nean            | Steve Burgess     |
| Ciara Wasley         | Susan Ivens       |
| Graeme McDonald      | Susan Michilis    |
| Kim Sweetnam         | Vicki Woods       |

HMRI SYDNEY FOUNDATION

The HMRI Sydney Foundation comprises passionate and professional Newcastle and Hunter expatriates who now live and/or work in Sydney. They volunteer their time and expertise to assist with HMRI’s fundraising activities.

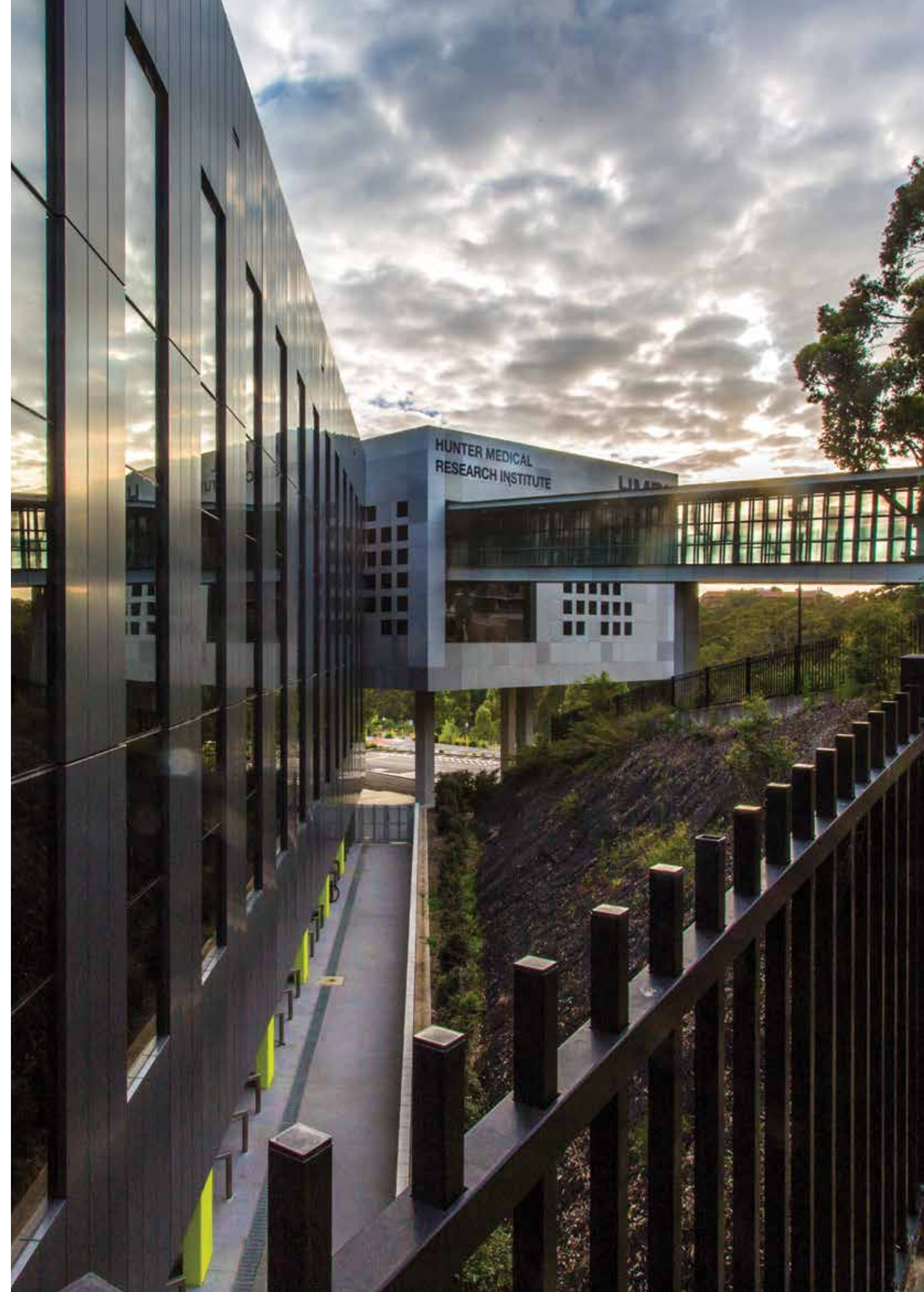
- |                        |                 |
|------------------------|-----------------|
| Kristie Atkins (Chair) | Supporters:     |
| Brent Ebert            | Andrew Gray     |
| Greg McDonald          | Glenn Turner    |
| Kirsten Mulley         | Jodi McKay      |
| Kyle Loades            | Lisa McGuigan   |
| Michael Adie           | Lisa Montgomery |
| Warren Moore           | Robert Scymgour |
|                        | Stephen Crowe   |
|                        | Swati Dave      |



# Financials

	31 December 2019	31 December 2018
	\$'000	\$'000
<b>Income Statement</b>		
Revenue		
Fundraising and philanthropic funding	12,536	10,852
Government grants	9,488	9,347
Clinical research centre income	7,057	6,465
Investment income	1,140	418
<b>Total Revenue</b>	<b>30,221</b>	<b>27,082</b>
Expenditure		
Fundraising expenses	2,263	1,714
Research grant expenses	8,026	7,091
Operations expenses	9,138	7,881
Facility expenses	5,349	5,234
Depreciation expenses	3,757	3,731
Other expenses		1,915
<b>Total Expenditure</b>	<b>28,533</b>	<b>27,566</b>
<b>Retained Surplus/(Deficit)</b>	<b>1,688</b>	<b>(484)</b>

	31 December 2019	31 December 2018
	\$'000	\$'000
<b>Balance Sheet</b>		
Current Assets	11,039	10,908
Financial Assets	24,563	18,276
Property, plant and equipment	75,678	78,855
<b>Total Assets</b>	<b>111,281</b>	<b>108,040</b>
Current Liabilities	10,730	7,812
Provisions	654	2,019
<b>Total Liabilities</b>	<b>11,385</b>	<b>9,832</b>
<b>Net Assets</b>	<b>99,896</b>	<b>98,208</b>
<b>ACCUMULATED SURPLUS</b>	<b>99,896</b>	<b>98,208</b>



## Thank you

WE ACKNOWLEDGE THE GENEROUS  
SUPPORT OF OUR DONORS,  
BENEFACTORS, CORPORATE  
PARTNERS, EVENT PARTICIPANTS AND  
VOLUNTEERS.

THANKS TO THEM, AND THE WORK OF  
OUR AFFILIATED RESEARCHERS, HMRI  
HAS TAKEN GREAT STRIDES IN 2019,  
HOWEVER THERE IS STILL MUCH TO DO.



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



THE UNIVERSITY OF  
NEWCASTLE  
AUSTRALIA



NSW  
GOVERNMENT

Health  
Hunter New England  
Local Health District