

# **RESEARCH TRANSLATION PREVENTION**

ANNUAL REPORT  
2014



# UNIQUELY POSITIONED TO ADDRESS THE CHANGING HEALTH LANDSCAPE

*An independent, Australian-based research institute, recognised internationally for its contributions to medical science.*

Baker IDI Heart and Diabetes Institute is an independent medical research facility, with a history spanning more than 89 years. The Institute's work extends from the laboratory to wide-scale community studies with a focus on diagnosis, prevention and treatment of diabetes and cardiovascular disease.

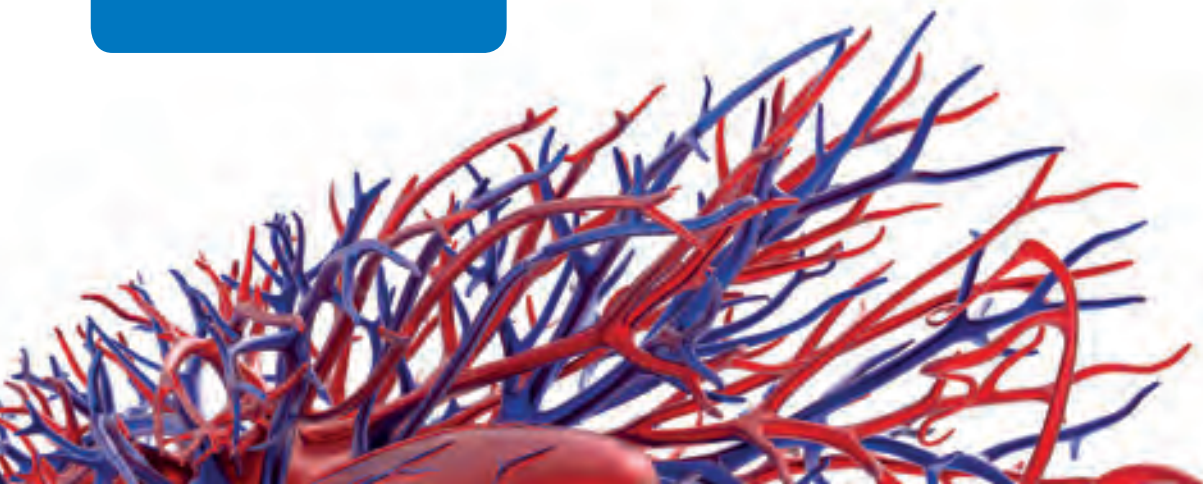
The Institute's mission is to reduce death and disability from cardiovascular disease, diabetes and related disorders – two prevalent and complex diseases responsible for the most deaths and the highest health costs in the world.

Baker IDI is well positioned to address these challenges. The Institute's highly diverse team includes cardiologists, diabetes physicians, bench-top scientists, epidemiologists, dietitians, psychologists, nurse educators, renal specialists and physical activity experts. Together, they are working to translate laboratory findings into new approaches to prevention, treatment and care.

The Institute's main laboratory facilities are located on the Alfred Medical Research and Education Precinct in Melbourne, Victoria. Baker IDI has a research facility in Alice Springs in the Northern Territory dedicated to Indigenous health. In keeping with a global research agenda, the Institute maintains international partnerships and collaborations in Europe, North America, the Middle East, South Africa and the Pacific.

*With Australia facing an ageing population and rapidly growing rates of chronic disease, Baker IDI's work has never been more important to Australian communities, as well as to the global communities in which we operate.*

*The comprehensive range of research undertaken to target these deadly diseases, combined with the flexibility and innovation to respond to changing health and community needs, is unique and sets Baker IDI apart from other health and research institutes.*





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**The Institute's recently installed MRI will provide new insights into diabetes, heart and metabolic disease**

# AUSTRALIA'S GREATEST HEALTH CHALLENGES

*The statistics opposite highlight why medical research is so important. More research is needed now, particularly in the area of chronic disease, to deliver better health outcomes for Australians.*

269

## 269 PEOPLE A DAY

Every day, approximately 269 adults in Australia aged over 25 develop diabetes<sup>1</sup>

x2

## DOUBLE THE RISK

Living in the most socially disadvantaged areas of Australia doubles the risk of developing diabetes<sup>2</sup>

3

## THREE MILLION AUSTRALIANS

If diabetes continues to rise at the current rate, up to three million Australians over the age of 25 will have diabetes by 2025<sup>3</sup>

4

## TOP FOUR RISK FACTORS

Australian data shows the top four disease risk factors are tobacco smoking; high blood pressure; overweight and obesity; and physical inactivity<sup>4</sup>

3/5

## THREE IN FIVE

Nearly three in five Australian adults (57 per cent) do not exercise enough to meet the recommended guidelines<sup>5</sup>

2/3

## TWO IN THREE ADULTS

Almost two in three Australian adults and more than one in four children are now overweight or obese<sup>6</sup>

1/10

## ONE IN TEN

Almost one in ten Australians aged over 65 years has dementia.<sup>7</sup> Dementia has links with other chronic diseases like cardiovascular disease and type 2 diabetes

12

## EVERY 12 MINUTES

Cardiovascular disease (heart, stroke and blood vessel disease) kills one Australian every 12 minutes<sup>8</sup>

1st

## WITHIN THE 1ST HOUR

One in four people who die from a heart attack die within the first hour of their first symptom<sup>9</sup>

1/6

## ONE IN SIX PEOPLE

One in six people will suffer a stroke in their lifetime<sup>10</sup>

54

## 54 PEOPLE A DAY

More than 54 people in Australia die every day with kidney-related disease<sup>11</sup>

8x

## EIGHT TIMES AS LIKELY

Indigenous people are eight times as likely to begin dialysis for kidney disease or to receive a kidney transplant<sup>12</sup>

5x

## FIVE TIMES THE RATE

Indigenous Australians had higher death rates than non-Indigenous Australians across all age groups during 2007–2011. In the 35–44 year-old age group, Indigenous people died at about five times the rate of non-Indigenous people<sup>13</sup>

<sup>1</sup> The Australian Diabetes, Obesity and Lifestyle Study (AusDiab 2012), Baker IDI Heart and Diabetes Institute. <sup>2</sup> Ibid. <sup>3</sup> Diabetes: The silent pandemic and its impact on Australia (2012), Baker IDI Heart and Diabetes Institute with input from Diabetes Australia and Juvenile Diabetes Research Foundation. <sup>4</sup> Australia's health 2012; in brief. Cat. no. AUS 157. Canberra. Australian Institute of Health and Welfare, 2012. <sup>5</sup> Australia's health 2014; in brief. Cat. no. AUS 181. Canberra. Australian Institute of Health and Welfare, 2014, p. 16. <sup>6</sup> Australian Health Survey: First Results, 2011–12 (cat. no. 4364.0.55.001). <sup>7</sup> Australia's health 2014; in brief. Cat. no. AUS 181. Canberra. Australian Institute of Health and Welfare, 2014, p. 20. <sup>8</sup> Heart Foundation – [www.heartfoundation.org.au/information-for-professionals/data-and-statistics/](http://www.heartfoundation.org.au/information-for-professionals/data-and-statistics/). <sup>9</sup> Heart Foundation – [www.heartattackfacts.org.au/heart-attack-facts/](http://www.heartattackfacts.org.au/heart-attack-facts/). <sup>10</sup> Stroke Foundation – [www.strokefoundation.com.au/health-professionals/tools-and-resources/facts-and-figures-about-stroke/](http://www.strokefoundation.com.au/health-professionals/tools-and-resources/facts-and-figures-about-stroke/). <sup>11</sup> Causes of death, 2010. Australian Bureau of Statistics, 2013. <sup>12</sup> Australia's health 2012; in brief. Cat. no. AUS 157. Canberra. Australian Institute of Health and Welfare, 2012. <sup>13</sup> Australia's health 2014. Australia's health series no. 14. Cat. no. AUS 178. Canberra. Australian Institute of Health and Welfare, 2014, p. 315.

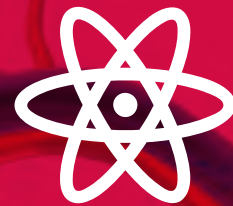
# SNAPSHOT OF THE INSTITUTE



**Collaborations with many leading international research groups**



**A long and distinguished history, spanning more than 89 years**



**\$70.7 million turnover, including commercial subsidiaries such as early-phase clinical-trials facility, Nucleus Network**



**Headquartered in Melbourne, with a research facility in Alice Springs. National program of Aboriginal Health also includes sites in Sydney and Melbourne**



**Key player in research, translation, education, advocacy and health promotion**



**A staff base of 676, including students, honorary staff, visiting academics and Nucleus Network staff**



**An independent medical research institute focused on cardiovascular disease (including stroke and hypertension), diabetes, obesity and their complications, such as kidney disease**



**Funded through a diverse range of sources, including competitive grants; Federal and State governments; service, commercial and clinical income; and philanthropic support**



**Research agenda spans birth to end-of-life health, including maternal health, Aboriginal and gestational health, risk factors, acute and chronic complications, heart failure and advanced disease**



# 2014 HIGHLIGHTS DISCOVERY

## NOVEL CLOT-BUSTING DRUG OFFERS CHANCE OF LIFE

A new clot-busting drug that overcomes the risk of bleeding – a complication that prevents thousands of stroke and heart-attack patients each year from receiving the potentially life-saving treatment – has been developed by Dr Xiaowei Wang in collaboration with Professors Karlheinz Peter and Christoph Hagemeyer. In a study published in *Circulation Research* in February 2014, they outlined the creation of a safer, more targeted clot-busting drug that demonstrated fewer side-effects in pre-clinical studies than those currently used. The new drug resulted from fusing an existing clot-busting drug with a human antibody that binds to platelets – cell fragments that help blood clot. The new drug targets the site of the clot, not the whole circulatory system, which allows the drug to be given at a low dose. It is also very effective at delivering a high concentration directly at the clot site, without increasing the side effects such as bleeding. The research, which was funded by the National Heart Foundation of Australia, National Health and Medical Research Council and the Australian Research Council, may have relevance for up to 20,000 people in Australia per year, and particularly those who are vulnerable to the bleeding side effects.

# 20k

THIS RESEARCH MAY HAVE  
RELEVANCE FOR UP TO  
20,000 PEOPLE IN AUSTRALIA

## A POTENTIAL THERAPEUTIC FOR HEART FAILURE & ATRIAL FIBRILLATION PATIENTS

A small molecule already in multicentre human clinical trials for type 2 diabetes may be beneficial in treating heart failure and atrial fibrillation, according to a study published in *Nature Communications* in December 2014 by Professor Mark Febbraio and Associate Professor Julie McMullen. The molecule, BGP-15, has been shown to improve cardiac function significantly and reduce arrhythmic episodes in pre-clinical trials, paving the way for a human trial to begin in 2015. Given that these cardiovascular conditions are associated with high mortality and that there are few therapeutic options available, this breakthrough is potentially good news for the thousands of Australians diagnosed with heart failure every year, as well as those who suffer the debilitating effects of atrial fibrillation (a rapid, irregular heart rhythm). An estimated 30,000 Australians are diagnosed with chronic heart failure every year, and recurrent hospitalisations cost the national economy more than \$1 billion each year. Atrial fibrillation is estimated to affect one to two per cent of the population and is growing in prevalence, particularly with the increasing age of the population.

# BGP-15

THE MOLECULE, BGP-15, HAS BEEN SHOWN TO  
IMPROVE CARDIAC FUNCTION SIGNIFICANTLY AND  
REDUCE ARRHYTHMIC EPISODES IN PRE-CLINICAL TRIALS

## NHMRC-JDRF DIABETES COMPLICATIONS CENTRE OF RESEARCH EXCELLENCE

Chief Scientific Officer, Professor Mark Cooper, will lead a new research centre to find better treatments and methods to prevent type 1 diabetes. The \$2.5 million funding for the NHMRC-JDRF Diabetes Complications Centre of Research Excellence was announced in October 2014. The Centre aims to translate new experimental findings into strategies for the prevention, treatment and management of type 1 diabetes and its complications, as well as training clinical investigators in the field. The Centre of Research Excellence is jointly funded by the NHMRC and the Juvenile Diabetes Research Foundation, the world's largest charitable supporter of type 1 diabetes research.

# 2.5m

\$2.5 MILLION FUNDING FOR THE NHMRC-JDRF DIABETES  
COMPLICATIONS CENTRE OF RESEARCH EXCELLENCE

## NEW ANGLES ON HOW TO DETECT AND TREAT INFLAMMATION

Three studies by head of the Institute's Atherothrombosis and Vascular Program, Professor Karlheinz Peter, demonstrate how inflammation is induced and localised in the body, and critically, provide new angles on how to detect and treat inflammation. The new knowledge gained through these studies, which featured in three articles published in *Circulation* in 2014, demonstrates how inflammation contributes to damage in the heart in patients who suffer a heart attack. It also explains how obesity contributes to generalised inflammation and thus increased cardiovascular risk in patients. In addition, new approaches to image inflammation using magnetic resonance imaging (MRI) were developed. The published findings are relevant for diagnosis and therapy for all types of inflammation. The publications are the result of collaborations between Baker IDI scientists, researchers at the University of Freiburg in Germany and Harvard Medical School in the US.

# 2014

**THIS RESEARCH DEMONSTRATES HOW INFLAMMATION CONTRIBUTES TO DAMAGE IN THE HEART IN PATIENTS WHO SUFFER A HEART ATTACK.**

## MIDDLE-AGED OBESITY LINKED TO ELDERLY DISABILITY

Being obese for longer during mid-life increases the risk of disability in later life, according to a study led by Dr Evelyn Wong and co-authored by Head of Obesity and Population Health, Associate Professor Anna Peeters. Published in *Obesity* in February 2015, the study is the first to demonstrate that duration of obesity, over and above Body Mass Index (BMI) attained, increases the risk of disability, such as the inability to participate independently in self-care activities such as bathing, dressing and eating. Based on the longitudinal Framingham Offspring study, the study found that each additional year lived with obesity added a further three per cent to the risk of disability for a given attained BMI. This has important implications when estimating the burden of obesity, where obesity prevalence in children and young adults has risen against a backdrop of an ageing population. It also supports the prevention of weight gain in young adults to avoid an increasing burden of physical disability in later life.

# BMI

**DURATION OF OBESITY, OVER AND ABOVE BODY MASS INDEX (BMI) ATTAINED, INCREASES THE RISK OF DISABILITY**

## OBESE FAT COMMUNICATES WITH STEM CELLS TO ENHANCE INFLAMMATION

Obesity is one of the most prevalent diseases globally, leading to metabolic syndrome, type 2 diabetes and increased risk of cardiovascular disease. Obesity-associated inflammation is widely regarded as one of the major factors driving insulin resistance and the onset of type 2 diabetes. It was previously unknown how fat communicated with the stem cells that reside in the bone marrow, which give rise to the blood cells that drive inflammation. In this study, an international team of investigators, led by Dr Andrew Murphy and his group, discovered that fat from obese mice and humans released a molecule called IL-1 that travelled to the bone-marrow stem cells to instruct them to increase the production of inflammatory cells. Using a drug under clinical evaluation to block IL-1, the investigators found that the obesity-associated inflammation was prevented. They also found that weight loss in mice and humans resulted in a decrease in inflammatory cell production. Published in *Cell Metabolism* in May 2014, the study identified new pathways to target obesity and provides a sound rationale to treat obese people with anti-inflammatory agents. In 2015, this work was cited in the top ten metabolism discoveries in the past decade by the highly prestigious journal, *Cell Metabolism*.

# IL-1

**DR ANDREW MURPHY AND HIS GROUP DISCOVERED THAT FAT FROM OBESSE MICE AND HUMANS RELEASED A MOLECULE CALLED IL-1**



# 2014 HIGHLIGHTS PEOPLE

## INTERNATIONAL HYPERTENSION AWARD

Baker IDI Director, Professor Garry Jennings AO, was the recipient of the prestigious Bjorn Folkow Award in Athens in June. This is the highest recognition from the European Society of Hypertension for original research in physiology that has contributed to understanding of the pathogenesis of hypertension.

## INAUGURAL PAUL KORNER AWARD

Professor Geoff Head, who leads six laboratories working to unravel the underlying mechanisms leading to heart disease, received the inaugural International Society of Hypertension Paul Korner Award in Athens. This award was supported by the High Blood Pressure Research Foundation of Australia to honour renowned hypertension expert, the late Professor Paul Korner AO.

## TOP-RANKED FEMALE RESEARCHER

Professor Bronwyn Kingwell, who oversees five laboratories seeking to slow ageing and prevent progression of obesity, diabetes and heart disease, was awarded the NHMRC Elizabeth Blackburn Fellowship in the clinical category in June. Professor Kingwell was recognised as the top-ranked female research fellowship applicant in Clinical Medicine and Science in 2013.

## CARDIOVASCULAR SCIENTIST ACKNOWLEDGED

Head of the Institute's Atherothrombosis and Vascular Program, Professor Karlheinz Peter, was awarded the 2014 RT Hall Prize by the Cardiac Society of Australia and New Zealand in May. This is the most esteemed research award by the Society and recognises the achievements of senior and established researchers.

## OTHER AWARDS

- Senior Director, Professor Paul Zimmet AO, was the recipient of Diabetes Australia-Vic's Outstanding Contribution Award in Diabetes
- OHS Chemical Specialist, Noel Tresider, received a Lifetime Achievement Award from the International Occupational Hygiene Association
- PhD candidate, Elyse Di Marco, was awarded the Australian Atherosclerosis Young Investigator Award
- Postdoctoral fellow, Dr Stephen Gray, was the recipient of the Australian Vascular Biology Society's Young Investigator Award
- Professor Paul Nestel, a senior director of the Institute, was honoured at the 50th Anniversary Congress of the European Atherosclerosis Society in Madrid for 'substantial contributions to science and the Society's interests'
- Dr Xiaowei Wang was the recipient of the International Society for Heart Research Postdoctoral Publication Prize 2014 and the National Association of Research Fellows Award 2014
- David White was the winner of the International Society for Heart Research Student Publication Prize

## OBESITY PREVENTION FELLOWSHIP

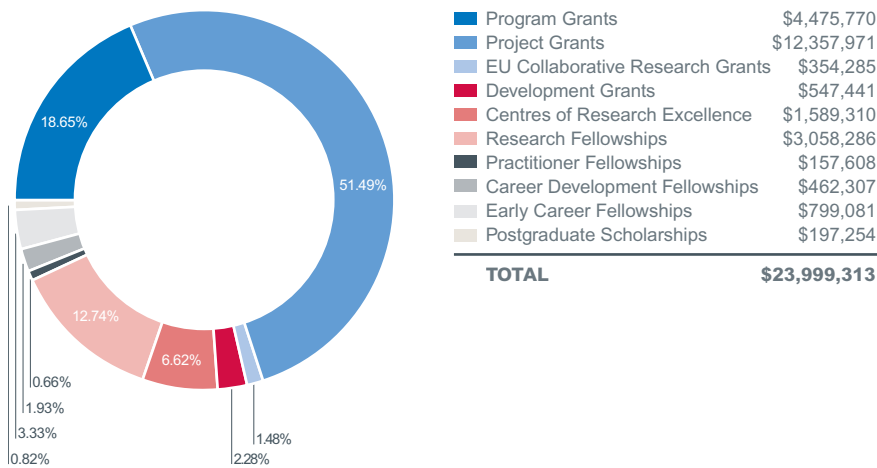
Head of the Obesity and Population Health unit, Associate Professor Anna Peeters, was the recipient of a 2014 Churchill Fellowship, which will enable her to travel to the UK, the Netherlands and the US to identify obesity-prevention policies most likely to improve social inequalities in obesity.



# RESEARCH OUTPUT: GRANTS & PUBLICATIONS

## NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL FUNDING RECEIVED IN 2014

**\$24m**  
NHMRC FUNDING IN 2014



## INTERNATIONAL FUNDING 2014

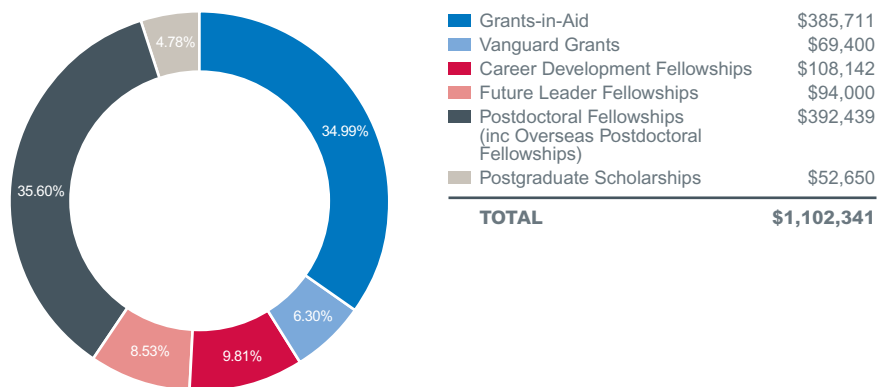
National Institutes of Health	\$206,035
Juvenile Diabetes Research Foundation	\$648,701
<b>Total</b>	<b>\$854,736</b>

**411**

2014 PUBLICATIONS

Publication type	Quantity
Original research articles	284
Reviews	61
Editorials & comments	36
Letters & author replies	14
Books & book chapters	10
Other	6
<b>Total</b>	<b>411</b>

## NATIONAL HEART FOUNDATION FUNDING RECEIVED IN 2014



## TOP 10 HIGHEST IMPACT FACTOR JOURNALS

IN 2014, THE ORIGINAL RESEARCH OF BAKER IDI RESEARCHERS WAS PUBLISHED IN A RANGE OF INTERNATIONAL PEER-REVIEWED JOURNALS, INCLUDING:

Publication name	2013 Impact factor
New England Journal of Medicine	54.420
Lancet	39.207
JAMA-Journal of the American Medical Association	30.387
Nature Genetics	29.648
Nature Immunology	24.973
Cell Metabolism	16.747
Journal of the American College of Cardiology	15.343
Circulation	14.948
European Heart Journal	14.723
Genome Research	13.852

A full list of publications can be found on Baker IDI's website at [http://www.bakeridi.edu.au/publications/2014\\_published\\_research/](http://www.bakeridi.edu.au/publications/2014_published_research/)

# CHAIRMAN'S REPORT

## LONG-TERM INVESTMENT WILL CEMENT AUSTRALIA'S LIFESAVING RESEARCH FOR FUTURE GENERATIONS

It is an exciting time for medical research in Australia with the impending introduction of a \$20 billion Medical Research Future Fund (MRFF). The fund promises greater opportunity for researchers in Australia, helping keep many of our best and brightest here and contributing to the development of cures and treatments for our most challenging diseases. Importantly, a perpetual endowment fund would allow Australia to maintain a thriving research and development sector, and also encourage medical research institutes (MRIs), including Baker IDI, to continue to play a global leadership role.

Australian researchers produce more per capita than researchers in most other nations and have impacts at or above world standard in most discipline areas<sup>1</sup>; however, the nation has fallen behind the rest of the world in spending on medical research. Australia's OECD ranking on health research funding as a percentage of Gross Domestic Product has declined of late, while emerging economies like China, India and Brazil are investing more in research than ever before.<sup>2</sup> This past year, the Project Grant success rate at Australia's peak body for funding medical research, the National Health and Medical Research Council, plummeted to its lowest on record (14.9 per cent).

That is why a perpetual endowment fund would be a game-changer for innovation in this country, and we will continue to campaign until the legislation to establish the MRFF is passed and the fund is endowed to its targeted level of \$20 billion. At this level, the MRFF will eventually double the government's

annual funding of medical research and thereby bring Australia back into line with comparable countries. The MRFF is vital, not just to health and medical research, but to the nation's economic prosperity.

I have been proud to chair the MRFF Action Group on behalf of the Australian health and medical research sector, which includes MRIs, major universities, peak bodies and private sector representatives. The health benefits of medical research are well understood. Australian medical research has extended lives and reduced suffering in Australia and globally. Importantly, it has also enabled Australia to develop a highly skilled health and medical research workforce and has underpinned well-known discoveries such as the 'bionic ear', a cervical cancer vaccine, a cure for stomach ulcers and 'spray-on skin'. The increase in medical research expenditure that would flow from the proposed MRFF would underpin Australia's future as a world leader in the healthcare industry.

The economic impact of world-leading medical research should also be emphasised. Australia now exports \$4 billion worth of products developed through medical research, making it Australia's largest high-technology export industry. With increased investment, the potential is enormous. The global pharmaceutical industry, which is currently worth US\$300 billion a year<sup>3</sup>, is expected to be worth US\$1.3 trillion by 2020.<sup>4</sup> With its growing population, rising living standards and increasing burden of chronic disease, Asia will be one of the main drivers of this growth. This represents a significant opportunity for Australia. Increased investment, such as the Victorian Government's Future Industries Fund, will help to further develop an already thriving export industry.

## A TRIBUTE TO GARRY JENNINGS

Amidst a backdrop of intense competition and fluctuations in scientific funding, strong leadership, commitment and strategic development have been the mainstays of many of the country's leading MRIs. Among Australia's largest MRIs, Baker IDI continues to nurture and grow its research strengths, delivering significant scientific advances to drive better health. The Institute has been very fortunate to have had an inspiring leader in Professor Garry Jennings, who will step down in January 2016 after 14 years at the helm. As a clinician-researcher, Garry has led by example. His commitment to excellence is acknowledged both at Baker IDI and within the global and national health and medical research sectors more broadly.

Garry's major achievements include the establishment of a nationally significant Aboriginal Health program, based in Central Australia. His passion to see this program succeed extended to personally mentoring several Aboriginal researchers, who are now leading figures in the country's health and medical research sector.

In 2008, Garry initiated and led the successful merger of the Baker Heart Research Institute and the International Diabetes Institute to form Baker IDI Heart & Diabetes Institute. The obesity epidemic created a strong rationale for Australia's first heart and diabetes institute. This strategic and unprecedented combination of expertise and resources is now paving the way for new avenues of scientific exploration. As a result, Baker IDI is now one of the leading MRIs in the country.



*Garry has led by example. His commitment to excellence is acknowledged both at Baker IDI and within the global and national health and medical research sectors more broadly.*



Garry's leadership role in the national and international scientific community should also be noted. Baker IDI has long been recognised as an internationally renowned medical research facility and, undoubtedly, one of the factors contributing to its success has been its ability to attract and retain inspiring scientific leaders who are committed both to scientific excellence and to developing talented scientists of the future. It is fitting, then, that Garry's service to medical research and the prevention and control of cardiovascular disease, obesity and diabetes was acknowledged when he was appointed an Officer of the Order of Australia in 2013.

## **WELCOME TO THOMAS MARWICK**

After an extensive global search, Professor Thomas Marwick has been appointed Director of Baker IDI and will take up this role in January 2016. Thomas is currently Director, Menzies Research Institute, University of Tasmania, and is a cardiologist at the Royal Hobart Hospital. He holds an MBBS from the University of Melbourne, a PhD from the University of Louvain and an MPH from Harvard School of Public Health. He has previously held the role of Head of the Cardiovascular Imaging, Heart and Vascular Institute and Imaging Institute at the Cleveland Clinic in the United States.

I look forward to welcoming Thomas to the Institute. The role of Director of Baker IDI is one of the most influential scientific roles in Australia, and Thomas epitomises the values of Baker IDI. He will lead the Institute into its next exciting chapter.

## **VOTE OF THANKS**

I would also like to acknowledge the many individuals and organisations who contribute to our success. As a not-for-profit organisation, Baker IDI is fortunate to enjoy the support of many in the community, and we are tremendously grateful for the goodwill that assists the Institute in its mission to be a global research leader.

We are sincerely grateful for the support of our donors; in particular, I would like to acknowledge the tireless work and dedication of The Baker Foundation in making our work possible. Since 1926, the Foundation has supported the Institute, and we are indebted to them for their commitment and generosity.

I would like to acknowledge the important contributions of the Federal and State governments in supporting the Institute's mission. Funding provided by Australian governments is crucial to the feasibility of our work, and we are very grateful for their support.

I consider it a great privilege to chair the Baker IDI Board and have found the role immensely rewarding. I am grateful for the support of my fellow directors and would like to thank them for their ongoing commitment to the Institute's mission, and to the sector more broadly.

Finally, I commend the leadership team and staff of the Institute for their hard work and dedication. Their professionalism, innovation and, above all, their passion, continue to inspire and reaffirm the future of Australia's medical research sector.

**Peter Scott**  
Chairman,  
Baker IDI Heart  
& Diabetes Institute

<sup>1</sup> Office of the Chief Scientist 2012, Health of Australian Science. Australian Government, Canberra.

<sup>2</sup> Research Australia, 2011, Shaping Up: Trends and Statistics in Funding Health and Medical Research, Occasional Paper Series: Two, Melbourne, pages 6-7.

<sup>3</sup> WHO website, viewed at <http://www.who.int/trade/glossary/story073/en/> in March 2015.

<sup>4</sup> PWC website, viewed at <http://www.pwc.com/gx/en/pharma-life-sciences/pharma-2020/pharma-2020-vision-path.jhtml> in March 2015.

# DIRECTOR'S REPORT

Many of you will be aware that I have decided to step aside from my role as Director by the end of 2015. It has been a great honour to serve as the sixth Director of one of Australia's leading medical research Institutes. Over the past 14 years, I have been privileged to lead an exceptional team of people at every level of the Institute. Together, we have undertaken a range of significant initiatives that I believe will help guarantee the organisation's success into the future.

During this time there have been major shifts in the scientific landscape as the medical research sector responds to, and shapes, the environment within which it operates. Big data set computing and the growth of omics science, including the genome project, have transformed health research and given rise to the growing field of personalised medicine. I am pleased that the Institute's scientists are well regarded in these fields and that our current program reflects a solid mix of proven scientific techniques combined with the latest in cutting-edge biology.

## A NEW APPROACH TO COLLABORATIVE SCIENCE

In 2014, the Institute embarked on an exciting new phase with the implementation of an innovative science strategy that aims to accelerate areas of research excellence, encourage greater collaboration and focus our work on translational outcomes.

The new strategy combines a firm organisational structure to accommodate funding and line management (Domains), as well as fluidity to pursue broad-based, multidisciplinary research (Programs). Broadly speaking, this approach aims to achieve more breakthroughs, across more areas of our research program with greater impact on the most urgent issues in human health.

Across the sector, science is moving away from silo-structured, self-contained research within disciplines to a more fluid environment where bigger, cross-disciplinary teams are pursuing large, long-term projects. I encourage the Institute to continue on this path and I hope that the funding mechanisms that support science will reflect this changing emphasis, making science less susceptible to the year-on-year project grant funding cycle that currently dogs the sector.

## INITIATIVES TO EMBED SCIENCE WITHIN HEALTHCARE

In April 2015, the Alfred Health and Monash Health and Partners Advanced Health Research and Translation Centre (of which Baker IDI is a partner) was successfully accredited by the NHMRC. This was one of only four centres to be recognised nationally, with the NHMRC seeking to promote stronger nodes of excellence in Australia's healthcare system. We are proud to partner in this exciting development.

There are a number of other initiatives in which we are participating with a view to greater integration with the health system, academia and training, including a proposal to develop a Victorian Heart Hospital. Given our standing in cardiovascular research and our national and international networks, we look forward to building on this collaboration in coming years.

These initiatives reflect major trends in science – a move to greater integration, shared resources and enhanced collaboration across borders, as well as across scientific disciplines. While our new science strategy has us well placed to respond to this trend internally, at a national and sectoral level we're participating in critical conversations around how best to implement these programs.

But much more could be done, and I urge the Australian science community to seize the opportunity of scale that these collaborations present. For Australia to compete internationally, we need to move past discussions around governance and funding mechanisms towards accelerated sharing of knowledge and information. Baker IDI enjoys a strong relationship with Alfred Health, other Alfred Medical Research and Education Precinct (AMREP) partners and beyond.

In the future, I would like to see greater emphasis on what might be achieved across the sector through these partnerships, especially as areas such as healthcare delivery undergo significant transformation.

## Effective translation is critical in driving better health

The Institute has a long history of effective translation – from better diagnosis of disease to drug and device development and, more recently, consumer education books. In the past year, we signed a number of licensing agreements to commercialise drugs and diagnostics, and there were many more promising laboratory findings that we are now discussing with potential funders. Some highlights are detailed in this report.

We also established the Clinical Research Centre with a dedicated imaging research suite that builds on the Institute's long-standing contributions to the diagnosis, prevention and treatment of cardiovascular disease, diabetes and their complications. The cornerstone of the Centre is a state-of-the-art research magnetic resonance imaging (MRI) scanner, which was purchased with the generous support of donors.

The Centre is a really exciting development because it combines clinical skills, basic science and public health expertise to improve the speed of translating the Institute's research into clinical practice.



*It has been a great honour to serve as the sixth Director of one of Australia's leading medical research Institutes. Over the past 14 years, I have been privileged to lead an exceptional team of people at every level of the Institute.*



We have also been taking our work into the community – hosting a cardiovascular screening day with Carlton Football Club players, developing a smart-phone app with the support of the Vodafone Foundation to help people break up sedentary behaviour and publishing a new book designed to help people with high blood pressure make better lifestyle choices.

These initiatives build on our reputation for translation and innovation, and ensure that the work of the Institute continues to meet the ever changing needs of the community.

### **Building capacity and leadership in Indigenous health**

One of the achievements of which I am most proud is the establishment of a national Aboriginal Health research program, centred in Alice Springs. Over the past eight years we have forged important links with community groups such as AMSANT and Congress to facilitate culturally appropriate health outcomes and a more efficient translation cycle from discovery to implementation and measurement.

Our work is not without its challenges. Over the years, it has been difficult to maintain a steady senior workforce in Alice Springs, but strong national leadership and mentoring support from many of our senior scientists is helping us to grow this program, which currently supports four PhD students and seven post-doctoral researchers, including Aboriginal and Māori researchers.

I am grateful to the partners and community groups with whom we work for placing their trust in us, and I am pleased to acknowledge that we have learnt as much from these groups as we have contributed. This is critical because research is so much more responsive with community engagement.

### **People and culture**

I am also really pleased that the Institute has developed a more inclusive and

supportive environment. However, I think that room remains for improvement in the area of equity, whether along lines of gender, ethnicity or age. I am buoyed by the establishment of the Institute's Gender Equity Committee, which aims to address the issue of under-representation of women at senior levels at the Institute and more broadly across the sector.

Guided by a diligent Board, our growth over the past 14 years has brought with it a level of stability that has allowed us to hire and support an outstanding management team. The Institute is extremely well run, thanks to the people we now have in place.

In 2014, we continued to recruit some of the most outstanding researchers in their field, including Professor Scott Summers, who joins us from Duke University, and well-known sports cardiologist and researcher, Associate Professor Andre La Gerche. Scott is an expert in translational metabolic health and Andre joins Baker IDI as head of the Institute's new Sports Cardiology laboratory and will study the interaction between exercise and heart function.

As I survey the next generation of researchers coming through the ranks, I feel very optimistic about the future of science in Australia and, particularly, at Baker IDI. Having supervised over 20 PhD students during my time at Baker IDI, I can say with some confidence that we have a really inspiring group of researchers who have the talent, persistence and curiosity to take the Institute's research agenda to a new level. I wish them every success.

### **YOUR SUPPORT IS CRITICAL**

While many things have changed since I joined the Institute, funding remains a challenge, exacerbated by pressures such as greater platform technology requirements and increased competition for grants, while funding for the indirect costs of

research has remained static. It is within this context that we are always extremely grateful for the support that we receive.

We are particularly grateful to the individuals, philanthropic trusts and foundations who support us financially; to our wonderful volunteers, the dedicated Friends of Baker IDI; to the patients at our clinics; to the trial participants engaged in our clinical research; and to our highly talented and dedicated staff – all of whom are critical in providing the support we need to do our work.

I would like to acknowledge the strong support of an active and highly visible Board, currently headed by Chairman Peter Scott. Over the past 14 years, I have also had the pleasure of working with Mr Robert Stewart and Mr Norman O'Bryan in their capacity as Chair of the Baker IDI Board. The Institute is extremely fortunate to have such high-calibre Boards at its helm, and I am personally grateful for the strategic counsel and guidance they have provided during my tenure.

We gratefully acknowledge the support we receive from the Victorian, Northern Territory and Federal governments. In particular, we acknowledge the important role of the Victorian Department of State Development, Business and Innovation in funding the indirect costs of our research through the Operational Infrastructure Support program, as well as the Federal Government through the allocation of National Health and Medical Research Council grants. These funding mechanisms are crucial to ensure that we are well placed to prevent, treat and manage Australia's burden of chronic disease.

**Professor Garry Jennings AO**  
Director,  
Baker IDI Heart  
& Diabetes Institute

# TACKLING CHRONIC DISEASE FROM BIRTH TO END OF LIFE

## 0-18

PRENATAL TO 18 YEARS



### MATERNAL HEALTH, PREGNANCY, EARLY CHILDHOOD AND ADOLESCENCE

Experiences during pregnancy and infancy may be a determinant of an individual's risk of developing diabetes, metabolic syndrome and subsequent cardiovascular disease in middle age. Of particular concern is the increasing incidence of childhood obesity and type 1 diabetes, in conjunction with widespread lifestyle and nutrition changes.

Baker IDI aims to inform policy and to help develop novel ways of altering the balance in an individual between energy expenditure, food intake and nutrient density, as well as to provide better information on optimal diets and physical-activity programs.

## 18-30

COMMON AT 18 TO 30 YEARS



### ADULTS WITH RISK FACTORS

It is important that cardiac and metabolic risks in young adults – particularly in relation to diabetes, hypertension and abnormalities of blood fats – are identified, assessed and managed. Ninety per cent of Australian adults have at least one cardiovascular disease risk factor, 25 per cent have at least three, while 54 per cent of adults are overweight.

Baker IDI is working to develop effective assessments of cardiac and metabolic risk and early interventions focusing on diabetes, hypertension and abnormalities of blood fats.

## 30-45

COMMON AT 30 TO 45 YEARS



### SUB-CLINICAL ORGAN DAMAGE

Early-stage diabetic complications and development of unstable coronary artery disease are often hard to identify until the damage is done and the pathway to acute disease is established.

Baker IDI aims to identify when asymptomatic risk factors have caused measurable changes in vascular health and associated organ complications in the heart, brain, kidneys and eyes, in order to develop interventions that prevent progression to acute complications.



*Baker IDI's research agenda is based on the notion of a disease continuum from birth to death, with the aim of treating, managing and preventing the progression of disease at any stage. Our work ranges from cellular and molecular biology research in the laboratory to clinical treatment services for patients through to lifestyle and behavioural RESEARCH that aims to inform PREVENTION strategies. By working across a broad spectrum of disciplines, with a strong focus on TRANSLATION, our researchers are dedicated to reducing ill health and mortality caused by cardiovascular disease and diabetes.*

# 45-60

COMMON AT 45 TO 60 YEARS



## ACUTE COMPLICATIONS

Heart attack, stroke and sudden death are more prevalent in this age group, with demand for interventions as a result of acute coronary syndromes continuing to increase.

Baker IDI aims to characterise and identify unstable coronary artery disease in order to prevent sudden blockages that cause heart attack and stroke.

# 60-70

COMMON AT 60 TO 70 YEARS



## CHRONIC CLINICAL COMPLICATIONS

With older age, complications such as angina, kidney failure and dementia can strike. Increasingly, this requires costly and resource-intensive intervention for heart failure and arrhythmias of the heart, where the heart does not beat normally.

Baker IDI aims to inform disease management strategies for people with chronic complications, with a focus on high-risk communities such as the Australian Indigenous community.

# 70+

COMMON AT 70+ YEARS



## HEART FAILURE AND ADVANCED DISEASE

Uncontrolled diabetes leading to end-stage kidney disease, chronic cardiovascular complications and hypertension are among the threats facing this group of the population.

Baker IDI aims to discover ways to enhance and maintain viability of heart cells in the context of advanced disease, prevent complications such as arrhythmias and explore stem-cell technologies to regenerate damaged heart muscle and heal damaged arteries.

# A NEW STRUCTURE TO DRIVE RESEARCH EXCELLENCE

In 2014, the Institute introduced an innovative science strategy that aims to accelerate areas of research excellence, encourage greater collaboration by breaking down silo structures, and focus Baker IDI's work on translational outcomes. This new approach had its genesis in the recommendations made by an International Scientific Advisory Board, which visited the Institute in 2013. The Board highlighted the need to develop collaborative centres of excellence rather than laboratories working in isolation in order to deliver scientific breakthroughs. The Institute's new approach provides fluidity to encourage more broad-based, multidisciplinary research while maintaining a firm organisational structure to accommodate funding and line management. This provides scientists greater flexibility to focus on peaks of excellence identified by the Institute and ultimately, aims to deliver more breakthroughs across more areas.

## DOMAINS

The Baker IDI scientific domains are based around seven themes as outlined below:

### PREVENTION DOMAIN LED BY PROFESSOR BRONWYN KINGWELL

Prevention is key to stemming the current burden of obesity, diabetes and cardiovascular disease. The Prevention domain seeks to slow ageing and prevent progression of these conditions by research informing primary prevention through; physical activity; more accurate risk assessment; and early intervention strategies to limit/reverse disease progression. Approaches combine basic molecular studies, systems biology, clinical physiology and epidemiological research across; lipid and adipose biology; glucose metabolism and muscle function; and vascular function and cardiac metabolism.

### CARDIOMETABOLIC RISK DOMAIN LED BY ASSOCIATE PROFESSOR JONATHAN SHAW

The Cardiometabolic Risk domain's aim is to understand diabetes and obesity at the clinical and population levels, and to build the evidence to support specific policy or practice approaches. This involves two main types of study: large population-based studies in Australia and overseas that provide insights into the causes and consequences of diabetes and obesity; and smaller studies that explore treatments for the two conditions, looking at new therapies as well as better ways of using established therapies.

### ABORIGINAL HEALTH DOMAIN LED BY PROFESSOR SANDRA EADES

Baker IDI's Aboriginal Health domain is a national program of research with the mission to improve the health of Aboriginal and Torres Strait Islander peoples, with a particular focus on the residents of Central Australia. With its main office located in Alice Springs and hubs in Melbourne and Sydney, the Aboriginal Health domain leads a number of research projects in close collaboration with community stakeholders across remote, regional and urban settings. Areas of research include clinical, population health, health services and global Indigenous health.

### CLINICAL RESEARCH DOMAIN LED BY PROFESSOR GRAEME MAGUIRE

The Clinical Research domain provides a focal point for all the Institute's interests in human research and clinical service provision, including governance and planning of clinical trials, clinical service delivery through the Baker IDI clinics, and an increasing interest in diagnostic imaging including MRI, cardiac echo and ultrasound.

### DIABETES DOMAIN LED BY PROFESSOR MARK COOPER

The Diabetes domain encompasses basic, translational and clinical research in the field of diabetes with a particular interest in diabetic complications. The focus is on developing and re-testing novel pharmacological approaches to reduce the burden of diabetes and its complications.

### VASCULAR DISEASE DOMAIN LED BY PROFESSOR JAYE CHIN-DUSTING

The Vascular Disease domain encompasses teams focused on understanding vascular disease pathologies from pre-symptomatic through to overt disease. The disease focus is dyslipidemia, hypertension, atherosclerosis and coronary artery disease including the role of the immune cells (monocytes, B- and T-cells). It investigates questions of prevention, diagnosis, therapy and drug delivery.

### HEART DISEASE AND NEUROSCIENCE DOMAIN LED BY PROFESSOR GEOFF HEAD

Heart disease encompasses a range of disorders including, heart failure, coronary artery disease, myocardial infarctions and arrhythmias. This domain combines a range of state-of-the-art cellular, tissue, animal and clinical studies to unravel the underlying mechanisms leading to heart disease, as well as investigating treatments and therapies. Laboratories focus on signalling pathways, mechanisms of cardiac remodelling in disease, new treatments for heart failure and genetic approaches. Importantly, this domain aims to unravel the psychological and nervous system mechanisms contributing to cardiovascular disease and hypertension.

*The Institute's new approach provides fluidity to encourage more broad-based, multidisciplinary research while maintaining a firm organisational structure to accommodate funding and line management.*

## PROGRAMS

The five programs are built around strengths identified following the International Scientific Advisory Board review, and focus on a series of specific questions that are the basis for Baker IDI's current work. An important measure of success will be the ability of Baker IDI scientists to either answer these questions and in doing so, to translate the research into better health outcomes; or to define new, and more compelling questions.

The current areas of focus are:



### **METABOLISM AND INFLAMMATION PROGRAM LED BY PROFESSOR MARK FEBBRAIO**

What is the role of inflammation in the initiation and progression of heart disease, diabetes, chronic kidney disease and heart failure?



### **ATHEROTHROMBOSIS AND VASCULAR PROGRAM LED BY PROFESSOR KARLHEINZ PETER**

How can vulnerable plaque be identified and treated?



### **DIABETIC COMPLICATIONS PROGRAM LED BY PROFESSOR KARIN JANDELEIT-DAHM**

How can we prevent the progression of diabetes to complications affecting arteries, the heart, the kidneys and the eyes?



### **BEHAVIOURAL AND GENERATIONAL CHANGE PROGRAM LED BY PROFESSORS NEVILLE OWEN AND ASSAM EL-OSTA**

What physical activity, diet and other behavioural patterns are optimal at different life stages for preventing diabetes and cardiovascular disease, and how can behavioural and generational change best be addressed?



### **HYPERTENSION AND CARDIAC DISEASE PROGRAM LED BY PROFESSOR DAVID KAYE**

How can we reverse chronic heart disease, and prevent and repair structural damage to the heart from hypertension, heart disease and associated rhythm disturbances?



# MEET OUR RESEARCHERS

## ABORIGINAL HEALTH



Researcher in Focus  
Professor  
Sandra Eades

### *Providing national leadership and building capacity to drive Aboriginal health and medical research*

Professor Sandra Eades, a Noonagar woman from Western Australia and Australia's first Aboriginal medical doctor to be awarded a Doctorate of Philosophy (focusing on epidemiology and Indigenous child health) heads the Institute's Aboriginal Health program. Sandra's research focuses on interventions for pregnant Indigenous women and a systems-based collaboration to improve the treatment of type 2 diabetes in Aboriginal Community Controlled Primary Health Care Services. Over the past decade, Sandra has made substantial contributions to the area of Aboriginal health and has provided leadership at a national level in Aboriginal research, with a strong focus on capacity building. She has previously led an NHMRC Population Health Capacity Building grant that funded a research-training program for five Indigenous researchers and six non-Indigenous researchers involved in programs related to Indigenous health. She continues to supervise and mentor Aboriginal and non-Aboriginal researchers making a contribution to this field.

## BEHAVIOURAL EPIDEMIOLOGY



Researcher in Focus  
Professor  
Neville Owen

### *Harnessing the Institute's knowledge to encourage behavioural change, reduce risk and prevent chronic disease*

Head of the Behavioural Epidemiology laboratory, Professor Neville Owen engages in research relating to the primary prevention of diabetes, heart disease and cancer by identifying the health consequences and environmental determinants of physical inactivity and sedentary behaviour – too little exercise and too much sitting. This involves laboratory-based experimental work, large-scale observational studies and real-world intervention trials. He has published extensively in peer-reviewed scientific papers and has contributed to policy formulation around built environments and healthy spaces, and is a highly sought-after speaker at international conferences on topics such as physical activity and movement, active ageing and behavioural medicine. Neville and Professor Assam El-Osta are leading Baker IDI's Behavioural and Generational Change Program, which aims to harness the Institute's skills and knowledge to understand how behavioural change can best be encouraged to reduce cardiometabolic risk and prevent chronic disease.

## CARDIOVASCULAR DISEASE



Researcher in Focus  
Dr Andris Ellims

### *Using advanced imaging technology to treat heart failure*

Dr Andris Ellims, who heads up the Institute's cardiovascular clinics, also works as a cardiologist in The Alfred Hospital's Heart Centre. Andris completed his PhD at Baker IDI and continues his cardiovascular research at the Institute. In 2012, he established the first specialised clinic in Victoria for patients with the most commonly inherited cardiovascular disease, hypertrophic cardiomyopathy (HCM). This disease is defined by the presence of thickened heart muscle and is a major cause of sudden and unexpected heart-related death in young people. The HCM clinic aims to improve the management of patients and encourage further research into this unpredictable condition. Andris is also a key part of a team at the Institute recognised internationally for its research using cardiac magnetic resonance imaging to develop novel treatments for heart failure. He has presented his research at both national and international conferences, including scientific meetings of the American Heart Association, the American College of Cardiology and the European Society of Cardiology.

*The Institute oversees several broad areas of research, supporting groups of scientists who work in the community as well as laboratory-based researchers.*

## GLYCATION, NUTRITION AND METABOLISM



Researcher in Focus  
Associate Professor  
Melinda Coughlan

### *Investigating components of the modern convenience diet that can lead to chronic disease*

Associate Professor Melinda Coughlan heads the Glycation, Nutrition and Metabolism laboratory, which is examining the role of diet in the development of both chronic kidney disease and diabetes complications, including which components of the modern diet initiate pathways of disease. This includes investigation of advanced glycation end products (AGEs) formed via the processing and heat-treatment of food, which are a major part of the modern convenience diet. Her research suggests that environmental factors, including over-nutrition and excess dietary intake of AGEs, contribute to the progression of chronic diseases, among them diabetes and chronic kidney disease. Melinda and her team aim to provide greater insight into the complex relationship between diet, physiology, gut microbiota and risk of chronic disease, with a view to identifying novel targets to halt disease progression.

## CELL BIOLOGY AND ATHEROSCLEROSIS



Researcher in Focus  
Professor  
Karlheinz Peter

### *Pioneering new approaches in the prevention and treatment of heart attacks*

Professor Karlheinz Peter works as a basic scientist at Baker IDI and as an interventional cardiologist at The Alfred Hospital. He heads a program area that aims to bring the Institute's resources and skills to bear on the broad questions around how vulnerable plaques (fatty deposits in the arteries) can be identified and treated. His research is focused on the cellular mechanisms of coronary-artery disease and its consequences, such as heart attack. This involves examining the role of microparticles, platelets, coagulation and inflammation in the narrowing or blocking of arteries, as well as the mechanisms leading to the rupture of plaques. Karlheinz has developed molecular-imaging strategies using MRI, ultrasound, CT and PET to study this area and identify patients at risk of heart attack. One of his research interests is the development of highly targeted drugs to prevent and treat blood clots without complications such as bleeding. His strong scientific track record, together with his clinical skills developed in Germany, the US and Australia, have made Karlheinz an international leader in this field.

## METABOLOMICS



Researcher in Focus  
Associate Professor  
Peter Meikle

### *Examining metabolic profiles to better understand disease and develop new diagnostic and treatment strategies*

Associate Professor Peter Meikle heads the Metabolomics laboratory, which employs powerful scientific instruments to analyse metabolites from cell and animal models, in addition to human samples. This approach is leading to improved understanding of disease mechanisms and the development of new diagnostic, prognostic and monitoring strategies in the areas of obesity, diabetes and cardiovascular disease. Research in Peter's laboratory includes the examination of changes in lipid metabolism associated with coronary artery disease; risk assessment for unstable coronary artery disease (identification of the vulnerable patient); and the relationship between lipid metabolism, obesity and diabetes (why do some obese people get diabetes and not others?). Peter is also working with international collaborators at the National University of Singapore to develop the world's first lipid database for healthy people, to enable scientists to better understand the healthy and unhealthy 'fat' levels in people of different racial and ethnic backgrounds.



*Du and his lab are collaborating with scientists in China to evaluate a new biomarker in the diagnosis of acute heart attack. The discovery by Baker IDI and Alfred Health researchers of a protein that may be an early biomarker for the severity of heart attack has the potential to rapidly diagnose such an event and estimate the extent of damaged heart muscle.*

**Head of Experimental Cardiology, Associate Professor Xiao-Jun Du (right), and PhD candidate, My-Nhan Nguyen (left).**



# DIABETES CLINICS: DELIVERING WORLD-CLASS CLINICAL CARE

*There are over 1.5 million Australians with diabetes, including those who are undiagnosed. If diabetes continues to rise at the current rates, up to 3 million Australians over the age of 25 years will have diabetes by 2025. Baker IDI's Specialist Diabetes Clinic aims to tackle the disease on a range of fronts, from preventative programs and expert education to evidence-based clinical treatment.*

Baker IDI's specialist diabetes clinics, which provide diabetes services in Melbourne's inner south east and west, have more than 5000 patients and together form one of the largest dedicated facilities of its kind. In addition, diabetes services are provided to communities in and around Alice Springs in Central Australia, and via a telehealth service in collaboration with the Royal Flying Doctor Service in Mildura.

The Clinic team combines specialist diabetes physicians; endocrinologists; ophthalmologists; renal and respiratory specialists. The Prahran Clinic, which is complemented by facilities including on-site pathology, is co-located with other preventative-health services, including the Healthy Hearts Clinic. The close collaborative link with the Institute's researchers ensures that health professionals offer evidence-based care and the most progressive therapies available.

A diabetes education service comprising diabetes nurse educators and dietitians provide individual and group education programs for people with diabetes. The service also delivers programs specifically targeted at health professionals assisting people who have type 1 or type 2 diabetes.

## 2014 HIGHLIGHTS

### Expanding the range of clinical specialties

The range of specialties at the clinics continue to expand, with the Prahran clinic now offering clinical exercise physiology services to deliver exercise, lifestyle and behavioural modification programs for the rehabilitation, prevention and management of chronic diseases and injuries. A consultant respiratory and sleep physician for people with diabetes who are also

experiencing respiratory and sleep-related problems, and a weight assessment and management clinic for people with severe obesity are among other recently-established services.

### Evaluation of Central Australian Diabetes Outreach Service

Since 2011, the Institute has provided a specialist diabetes outreach service to 11 rural and remote sites in Central Australia, including Alice Springs. The innovative model links and supports Melbourne and Alice Springs-based health professionals, and Central Australia primary healthcare services. A retrospective evaluation of the service from 2011 to 2014 by Baker IDI and the Northern Territory Department of Health established that the service was associated with a significant improvement in diabetes management. It also found that the positive impact extended beyond glycaemic control, and was associated with improvements in markers of control that relate to primary and secondary prevention of cardiovascular and renal disease, such as blood pressure and lipid control.

### Healthcare backed by the latest clinical research

There were a number of publications from research performed in the Clinic in 2014. These included a study examining psychological distress in Australian adults with type 1 diabetes, particularly those who experience severe hypoglycaemia, published in *Diabetes Research and Clinical Practice*. Another pivotal study involved a retrospective analysis of electronic medical records in primary care in Australia between 2005 and 2013. The study showed that a large percentage of patients being treated for diabetes in general practice are not adequately controlled, although there are positive trends showing some improvements in the past few years.

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# ADDRESSING THE HEALTH DISADVANTAGE IN ABORIGINAL COMMUNITIES

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## ***Baker IDI's Aboriginal Health program aims to harness the Institute's resources to enhance the health of Aboriginal Australians and Torres Strait Islanders.***

Baker IDI Aboriginal Health is a national program of research that began in Central Australia and has expanded to include additional sites in Melbourne and Sydney. Located in Alice Springs, Baker IDI Central Australia was founded in 2007, becoming the second health and medical research institute to be located in the Northern Territory and the first in Central Australia. It was established to help address the profound disadvantage experienced by Aboriginal people in Central Australia through scientific research that is rigorous, culturally appropriate and ethically sound.

While Baker IDI Aboriginal Health places emphasis on the needs of people in Central Australia, the team's research expertise spans many other jurisdictions and enables contributions in Aboriginal and Torres Strait Islander health from major cities to the most remote communities in Australia, as well as international collaborations that address global Indigenous health. The team is dedicated to carrying out collaborative research projects in response to community needs that build knowledge and provide practical contributions to Aboriginal and Torres Strait Islander peoples' health.

In 2014, Baker IDI was a partner in the proposed Central Australia Advanced Health Research and Translation Centre (Central Australia AHRTC), with a governance committee chaired by Mr John Paterson, Chief Executive Officer of AMSANT. The partners to the proposed Centre presented a case for recognition to the National Health and Medical Research Council (NHMRC) based on the strong track record of a critical mass of clinicians, researchers and academics who are undertaking complex and challenging work on behalf of the most disadvantaged population in Australia. While this Centre has not been formally recognised by the NHMRC, the partners believe it is a valuable initiative for Central Australia and are continuing to progress the partnership in the pursuit of improved health outcomes in Central Australia.

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## **2014 HIGHLIGHTS**

### **Significant funds secured for pivotal research studies**

Baker IDI's Head of Aboriginal Health, Professor Sandra Eades, received an NHMRC project grant of nearly \$2 million over five years to lead a study examining 'The Forgotten Generation: understanding health trajectories in Aboriginal adolescents and youth'. Despite the importance that transitions in adolescence have to future health, young Aboriginal people have received little attention in recent efforts to close the gap. This study will establish partnerships with communities to identify factors related to positive health behaviours and the best ways to support them. It will also track a wide range of factors that impact on health and wellbeing from mental health and housing to sexual and reproductive health, nutrition, and school relationships and bullying.

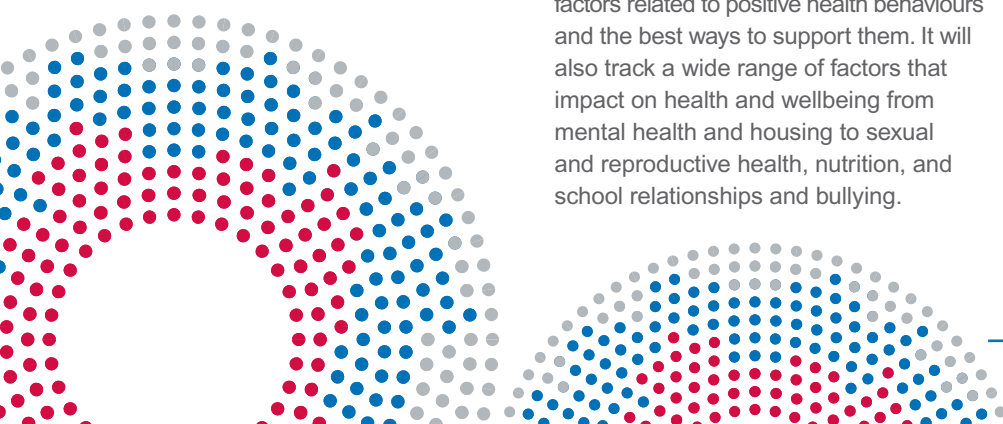
### **Capacity development**

A new position has been developed to help attract, retain and develop Aboriginal and Torres Strait Islander people to work at Baker IDI. Aboriginal Health Practitioner, researcher and a member of the Kurnai people, Ricky Mentha, has taken on the part-time role of Capacity Development Co-ordinator. Ricky began his research career in 2005 and is currently undertaking a Master of Public Health. Prior to this, Elder in Residence, Helen Liddle, played a central role in helping to build capacity and attract to the program Aboriginal people with skills, experience and local knowledge. The Institute was also pleased to welcome Dr Gregory Phillips, who recently completed a PhD examining Aboriginal health and cultural safety. He is now working with hospitals in Melbourne and Alice Springs to develop a framework to support and embed cultural safety within healthcare.

### **International collaboration**

Baker IDI continues to develop its global Indigenous health program to share knowledge and build capacity. In August, Professor Sandra Eades presented at the World Congress of Epidemiology in Anchorage, Alaska, on research addressing health inequalities among Australia's Aboriginal and Torres Strait Islander peoples. The Institute hosted a number of international experts to solidify Indigenous health and research links between Central Australia and Canada. In 2015, Professor Graeme Maguire spent time in Yellowknife at the Institute for Circumpolar Health Research in the Canadian Northwest Territories to establish collaborative research projects and identify potential funding streams for work in global Indigenous health.

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*The Aboriginal Health program is continuing to expand and now supports four PhD students and seven postdoctoral researchers, including Aboriginal and Māori researchers.*

**Head of Aboriginal Health, Professor Sandra Eades (right), and NHMRC postdoctoral researcher, Dr Catherine Chamberlain (left).**



# INTERNATIONAL COLLABORATION: SCIENCE WITHOUT BORDERS

## EXAMINING LIPID PROFILES IN THE INDIGENOUS POPULATIONS OF EAST AND WEST MALAYSIA

Researchers from the Vascular Domain, together with Institute Director Professor Garry Jennings, are collaborating with scientists from UCSI University in Malaysia to examine lipid profiles in Indigenous populations from East and West Malaysia. In a visit to Kota Kinabalu, Borneo, in 2015, blood samples and cardiovascular phenotypic data were collected from eight separate families identified from a previous baseline study with having very low levels of HDL (hypoalphalipoproteinaemia). The collaborative effort will examine potential genetic mutations in these families that may account for the low HDL.

## THE ROLE OF CERAMIDES IN INSULIN RESISTANCE AND METABOLIC DISORDERS

The Translational Metabolic Health laboratory has developed collaborations with experts in diabetes investigating the mechanisms through which dyslipidaemia contributes to metabolic disorders. The laboratory's focus is on ceramides, a family of fat derivatives that contribute to the aetiology of diabetes and cardiovascular dysfunction. Exploration in this area is being carried out with researchers from The University of Texas Southwestern, Cambridge University and Duke University. This has resulted in several joint grant awards and papers being published in 2014 in journals including *Diabetes* and *Cell Metabolism*, with collaborations continuing.

## MORNING HYPERTENSION IS A PREDICTOR OF STROKE

The Neuropharmacology laboratory is collaborating with colleagues in Japan to determine the risk associated with the morning surge in blood pressure. A novel mathematical algorithm developed at Baker IDI is being applied to the ambulatory blood-pressure recordings of a cohort of subjects from Ohasama in Japan that have been followed for over 12 years. The findings show that an excessively rapid rise in pressure is a predictor of ischaemic stroke, particularly in women. The study is now being prepared for publication.

## MEASUREMENT OF PHYSICAL ACTIVITY AND SEDENTARY BEHAVIOUR

The Behavioural Epidemiology laboratory is collaborating with the Faculty of Sport Sciences at Waseda University and the Department of Preventive Medicine and Public Health at Tokyo Medical University, Japan. Professor Neville Owen received a prestigious Australian Academy of Sciences Fellowship in 2014 to visit Tokyo, where he worked on developing new capacities for the objective measurement of physical activity and sedentary behaviour, and conducted studies on the health consequences of prolonged sitting in older Japanese adults.

**Baker IDI has a long and proud history of international collaboration, and this continues to underpin the Institute's research program. Our diverse international footprint reflects the future of research as we move into the era of 'big science'. International collaboration enables researchers to pool their resources and drive greater operating efficiencies, minimise duplication and, most importantly, to work with the best scientists to maximise the impact on health.**

### **EXPLORING BONE MORPHOGENETIC PROTEINS AS REGULATORS OF MUSCLE MASS**

The Muscle Research laboratory is collaborating with scientists at the Venetian Institute of Molecular Medicine at the University of Padova, Italy, to explore the significance of a new signalling mechanism they recently discovered in skeletal muscle (which the groups reported in complementary publications in *The Journal of Cell Biology* and *Nature Genetics*, and a jointly authored review in *Trends in Endocrinology and Metabolism*). Their discovery that specific members of the Bone Morphogenetic Protein family are important promoters of skeletal muscle growth has introduced a new mechanism responsible for regulating muscle mass in health and disease. Their current research is exploring disruption of this novel signalling pathway as a cause of muscle wasting associated with chronic illness. Interventions that target this pathway will then be explored as potential therapies to combat life-threatening frailty associated with muscle wasting.

### **IDENTIFYING NEW DRUG TARGETS FOR CARDIOVASCULAR DISEASE USING SYSTEMS BIOLOGY**

High levels of blood lipids such as triglyceride and cholesterol significantly increase a person's risk for developing cardiovascular disease. The Diabetes and Dyslipidaemia laboratory is collaborating with the Charles Perkins Centre in Sydney and the Department of Genetics and Department of Biochemistry at the University of California, Los Angeles (UCLA), to identify new pathways in the liver that regulate blood-lipid levels. Using a systems-biology approach, this collaboration integrates genomic datasets, transcriptomics and high-resolution proteomics data from UCLA's gene discovery panel to identify new targets that reduce blood lipids. Although still early days, exciting preliminary data has already supported the submission of three external research grants in 2015.

### **PREDICTING FUTURE RISK OF DISABILITY**

The Obesity and Population Health Unit is working with The Department of Public Health at The Erasmus University Medical Center in the Netherlands to develop a calculator to predict an individual's future healthy life expectancy based on their modifiable risk factors in middle age. This work combines the first disability risk score from middle age, developed by the Baker IDI team, with expertise in healthy life expectancy estimation from the researchers in the Netherlands. The groups have collaborated on a number of related projects over the years, resulting in many articles advancing understanding of the healthy years of life lost to common risk factors such as obesity and diabetes.

# BUILDING CAPACITY, KNOWLEDGE & STRATEGIC COLLABORATIONS

*Baker IDI is committed to harnessing the Institute's scientific research to reduce the burden of chronic disease through the provision of better diagnosis, prevention and management of disease. To do this, the Institute has formed strategic partnerships with government, industry and advocacy groups and actively engages in the commercial translation of Baker IDI's scientific discoveries.*

## ON YOUR FEET AUSTRALIA

In February, Baker IDI hosted the inaugural *On Your Feet Australia* health and wellbeing event, encouraging individuals to wear their sneakers to work and take every opportunity to get up and move during the day. The event has its genesis in the work of the Physical Activity laboratory, which has been at the forefront of global research on the deleterious effects of sedentary behaviour. The event raised over \$6,000 for the Institute and provided an important channel for translating research findings into better community health. By participating in the event and breaking up their sitting time, individuals are minimising a known risk factor for chronic disease as well as contributing to the advancement of medical research and the work that Baker IDI does.



## BAKER IDI BLOOD PRESSURE DIET AND LIFESTYLE PLAN

Building on our successful partnership with Penguin Books Australia, the Institute published its first solo book following the hugely successful *CSIRO and Baker IDI Diabetes Diet and Lifestyle Plan* and *CSIRO and Baker IDI Diabetes Recipe Book*. The third book in this popular series was developed by the Institute's researchers to help those at risk of high blood pressure take control of their health. *The Baker IDI Blood Pressure Diet and Lifestyle Plan* includes more than 90 easy and delicious recipes that have been specifically developed for people with hypertension, proving that it's possible to minimise salt and saturated fat in your diet while maximising flavour. Authored by Professors Garry Jennings and Peter Clifton, in conjunction with University of South Australia's Associate Professor Jennifer Keogh, the book has sold over 11,500 copies to date and is available for sale at all good book stores and on the Institute's website: [www.bakeridi.edu.au](http://www.bakeridi.edu.au)





## BAKER IDI LIFERIDE

Baker IDI LifeRide (initially set up as The Domestiques) is a community of cyclists supporting the Institute's work. Established with the assistance of William Walker – a former professional cyclist who suffers from a right ventricular tachycardia heart condition – the group supports awareness and research into heart disease and diabetes through activities such as cycling days and networking events.

Baker IDI hosted its first cycling community networking event in June 2014 to coincide with the Tour de France. Subsequently, Baker IDI was able to announce that SBS cycling commentator, Matt Keenan, had accepted a role as an Ambassador for the Institute. A second networking event on the topic of 'Drugs in Sport' was held on 22 September in the lead up to the UCI Road World Championships. Linking with the cycling community in this way has led to partnerships with Melbourne Cycling League, African Wildlife Safaris (the sponsor of a professional cycling team) and SuperSprint. The partnership with SuperSprint led to Baker IDI being named the charity partner for the RACV Great Ocean and Otway Classic Ride for 2015 – an opportunity that enabled the Institute to connect with young individuals focused on staying healthy.



## VODAFONE FOUNDATION AUSTRALIA

In 2014, Baker IDI was selected by Vodafone Foundation Australia to be one of the telco foundation's flagship charity partners for the next three years. One of the key objectives of the partnership is to increase awareness about the negative impact that extended sitting is having on our health, with a particular focus on the use of mobile technology as a tool that enables people to change their behaviour and, ultimately, their wellbeing. With the support of the Vodafone Foundation, Baker IDI is developing a smartphone app called YoYo to help people track and change their sedentary behaviour. The app, which aims to support people to get out of their chairs more often, is due for launch in 2016. In addition, Vodafone and Vodafone Foundation Australia have extended their support for Baker IDI's work through in-kind assistance and support.



## ALICE SPRINGS TOWN CAMP HEALTH PROJECT

With support and funding from Medicines Australia and Medtronic, the Alice Springs Town Camp Health Project was facilitated by Baker IDI in partnership with Tangentyere Council and local stakeholders, including Central Australian Aboriginal Congress, Alice Springs Hospital Emergency Department and St John's Ambulance. The project's aim was to better understand the determinants of high-quality and appropriate primary healthcare for Alice Springs Town Camp residents. Surveying 154 people within 16 Town Camps in Alice Springs, the project identified numerous opportunities to improve healthcare services for permanent Town Camp residents. The findings showed that access to transport and telecommunications were important in determining pathways to primary care and that the absence of this infrastructure contributes to pressure on hospitals as well as family networks.



# FROM DISCOVERY TO DEVELOPMENT



*The commercialisation of medical research is an important pathway for translating the discovery of drugs and devices into products that benefit patients. Baker IDI's commercialisation team provides support to clinical and research staff in collaboration with academic, industry and government partners for the purpose of taking discoveries from the bench-top to bedside.*

## BAKER IDI LICENSES NEW MEDICAL TECHNOLOGIES

Investigators at Baker IDI had an exciting year in 2014, with several technologies being endorsed as candidates for commercial translation through licence agreements with companies or investors. Highlights included:

- Completion of a proof-of-concept study into the efficacy of a slow-release oral form of the drug Milrinone in a small cohort of patients with advanced heart failure. This product has been developed by Professor David Kaye and patented by Baker IDI based on a large and growing demand for better management options for patients with advanced heart failure. The Medical Research Commercialisation Fund was impressed by Baker IDI's clinical trial data and subsequently invested in further development of the product through spin-out company Cardiora.
- A licensing deal with Finnish company, Zora Biosciences Oy, to commercialise a low-cost method for determining coronary artery disease risk. Developed by Associate Professor Peter Meikle and patented by Baker IDI, the test uses plasma-lipid profiling to assess risk of future plaque instability. It is anticipated that collaboration with Associate Professor Meikle, combined with licensed Baker IDI technology, will lead to the successful development of clinical diagnostic products with strong commercial potential.
- Licensing negotiations with Australian company Clarity Pharmaceuticals to commercialise a targeted imaging agent that can be used to identify patients at high risk of heart attack and stroke. Developed by Professor Karlheinz Peter and patented by Baker IDI, the imaging agent will use specialised diagnostic imaging to more effectively identify unstable plaques.

Recent discoveries at Baker IDI hold promise for drug discovery programs to treat victims of heart attack and reduce the burden of heart failure.

Highlights include:

- A collaboration between Associate Professor Rebecca Ritchie's lab and researchers at Monash University to develop a new test to identify drug candidates for the treatment of cardiac damage arising from heart attacks. Scientists at Baker IDI and Monash are now using the assay to discover new drugs for this important application.
- Associate Professor Elizabeth Woodcock's internationally recognised work with the protein PCLb1b has provided compelling new evidence that inhibitor drugs directed at this target may provide a powerful and selective means to slow or halt the development of heart failure. In collaboration with scientists at the Monash Institute of Pharmaceutical Sciences, Associate Professor Woodcock and colleagues at Baker IDI have developed a specialised assay that may be used to select drug candidates for clinical development.

# CONTRIBUTING TO AUSTRALIA'S EMERGING BIOTECHNOLOGY SECTOR



*Nucleus Network is a not-for-profit clinical research company wholly owned by Baker IDI Heart and Diabetes Institute. The organisation is one of Australia's leading early-phase clinical research facilities. The company works closely with the biotechnology sector in Australia to assist with transition into the clinic.*

The Centre for Clinical Studies, located in the Alfred Medical Research and Education Precinct (AMREP) in Melbourne's inner south east, is a purpose-built facility for conducting clinical trials and is core to the business of Nucleus Network. In addition, the company provides clinical trial consulting services focussing on the transition of new products from pre-clinical testing into clinical application.

Phase 1 clinical trials, where a new drug therapy is tested for the first time in a healthy volunteer or in patients with specific medical conditions, are integral to the development of new therapies. Nucleus Network relies on community involvement in this process, and is grateful for the time and effort volunteered by participants, without whom new medicines would not reach the people who need them most.

## 2014 HIGHLIGHTS

### Generation of significant export revenue

Approximately \$12 million in direct export revenue was generated on behalf of the Australian biopharmaceutical industry, in addition to flow-on benefits for the industry. Nucleus Network CEO, Bev Thomas, said that the company had worked with pharmaceutical and biotechnology companies from the US, France, New Zealand, China, India and the UK, in addition to Australian clients, with more than 40 clinical trials conducted at this facility in the past year.

### Expansion of clinical facilities

The AMREP clinical trials facility was recently expanded from 41 to 50 beds, including the addition of a four-bed infusion suite for patient studies. In addition to the clinical facilities, the unit has two participant recreation rooms, a fully-equipped laboratory, pharmacy access with dedicated clinical trial pharmacists and proximity to 24-hour emergency care.

### Development of education and training opportunities

During 2014, there were five direct student placements. In addition, support was provided to external researchers, including PhD students. With early-phase trials conducted across a range of therapeutic areas, including cardiovascular disease, dermatology, respiratory disease, endocrinology, oncology and infectious diseases, the result is a dynamic and varied learning environment.



# BAKER IDI IN THE COMMUNITY



**PICTURED:**

The Institute welcomed SBS cycling commentator, Matt Keenan, on board as an ambassador in 2014. He is helping Baker IDI to build partnerships with the cycling community.

## THE INAUGURAL SIR LAURENCE MUIR MEDAL

A prestigious award to recognise emerging leaders in heart and diabetes research was established at the Institute in 2014 in recognition of visionary Australian businessman and philanthropist, the late Sir Laurence Muir. Sir Laurence was knighted in 1981 and in 2001 was awarded a Centenary Medal 'for outstanding service to the business, financial and research community'. His commitment, insight and vision to building a more competitive, innovative country were remarkable. The inaugural Sir Laurence Muir Medal and research prize is testament to the significant contributions that Sir Laurence made to the health and medical research sector. This award is made possible by the Sir Laurence Muir Endowment Fund, established through the efforts of a volunteer committee comprising Mr John Bate OAM; Mr Neville Bertalli; Mr Tom Hogg; Dr Andrew Miller; Mr Gordon Moffatt AM; Mrs Margaret S Ross AM; Mr Brian Randall and Mr Geoffrey Webb. The recipient of the inaugural medal was Dr Andrew Murphy, who has a strong interest in leukocyte and platelet production and how this contributes to diabetic complications such as cardiovascular disease.

## BETTER HEALTH THROUGH PARTNERSHIPS

Baker IDI contributes to better health by forming partnerships with industry and communities of interest, such as those related to corporate triathlons and cycling, to promote awareness of optimum approaches to the prevention and management of disease. In 2014, a series of activities, including networking dinners, were held to bring together sporting communities who support awareness and research into heart disease and diabetes.

*Baker IDI is actively engaged in health promotion, advocacy and education. The Institute is committed to developing sustainable and collaborative relationships to enhance the community's understanding of cardiovascular disease, diabetes and related disorders, and to empower people to make better health and lifestyle choices.*

## PERSPECTIVES ON HEALTH AND MEDICAL RESEARCH

Baker IDI's *Perspectives* series includes a regular publication and forums for the public to engage with academics, scientists, clinicians, policy makers and community leaders in discussions on topical public health issues. In May 2014, the Institute hosted a public lecture in Melbourne by renowned cardiovascular and hypertension expert, Professor Suzanne Oparil, on the influence of female hormones on heart health. Professor Oparil, the Professor of Medicine at the University of Alabama, Birmingham, was the first female president of the American Federation for Clinical Research, the largest clinical research organisation in the world, and a former president of the American Heart Association. In August, the Institute published an edition of *Perspectives* that explored the funding of medical research in Australia. This publication, available on the Baker IDI website, explored some of the challenges and opportunities that the proposed Medical Research Future Fund presents.

## FAMILY FUN, THE GREAT OUTDOORS AND GOOD HEALTH

Friends of Baker IDI hosted the annual Open Garden and Family Fun Day at the late Dame Elisabeth Murdoch's majestic Cruden Farm in Langwarrin in March. Hundreds of people took in the magnificent gardens and enjoyed local produce, wine, vintage cars, children's entertainment and music. Baker IDI experts were also on hand to provide health information about diabetes and heart disease. The day helped to raise funds for the Institute's research into heart disease, diabetes and stroke – causes that were very important to Dame Elisabeth.

## EDUCATIONAL SYMPOSIUM FOR HEALTH WORKERS IN REMOTE SETTINGS

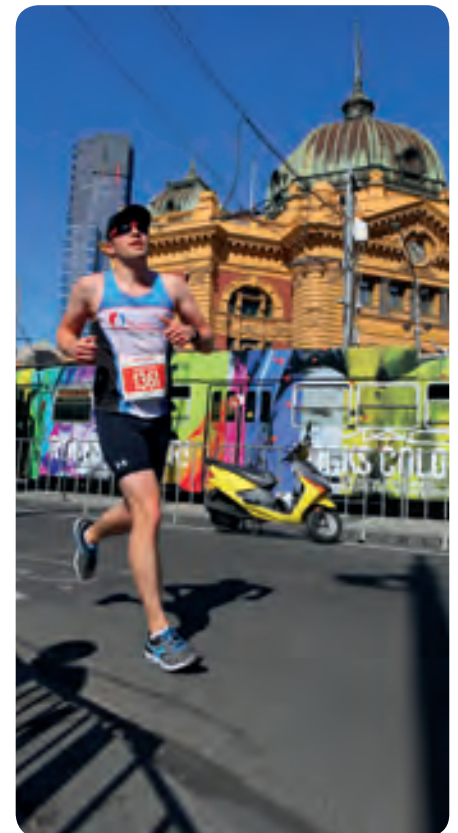
Since 2009, Baker IDI has staged free educational events in the Northern Territory aimed at promoting engagement between local healthcare providers and educators, as well as the provision of practical and sustainable care options for local healthcare workers in remote settings. This forms part of the Institute's commitment to capacity building and knowledge sharing. The sixth educational symposium for health professionals working with the impact of chronic diseases in Aboriginal communities, in particular cardiovascular disease, diabetes and related complications, was held in Alice Springs in October. The event featured presentations by renowned scientists and clinicians, as well as workshops on diabetes education and diabetes in pregnancy aimed at building practical skills.

## CELEBRATING THE BEAUTY OF SCIENCE AND GOOD HEALTH

Baker IDI hosted a photography competition for staff and the community entitled 'Better health, better lives, better futures' in 2014. Participants were invited to capture the impact of good health – on the mind, body or soul – and help inspire others to make positive choices to improve their health. Victorian secondary-school students in years 7, 8 and 9 were also invited to participate as part of Education Week. The winning entries were displayed in the Institute's foyer and online, and are being used in marketing material.

## TEAM BAKER IDI POUND THE PAVEMENT IN THE MELBOURNE MARATHON

More than 50 staff represented Team Baker IDI in the 2014 Melbourne Marathon in October, raising more than \$16,500 for the Institute. While the primary aim was fun and fitness, the team entry also served to highlight the Institute's work and reinforce the importance of physical activity in driving better health. Scientists at the Institute have shown that physical activity can help protect against serious chronic diseases including cardiovascular disease and type 2 diabetes.



ABOVE:

Researcher, Dr Martin Pal, participated in the Melbourne Marathon in Team Baker IDI.  
[www.marathon-photos.com](http://www.marathon-photos.com)

# SUPPORTERS AND ACKNOWLEDGEMENTS

1 JANUARY–31 DECEMBER 2014

## MAJOR INSTITUTIONAL SUPPORT

Australian and New Zealand  
Society of Nephrology  
Australian Diabetes Society  
Australian Primary Health Care  
Research Institute  
The Baker Foundation  
CASS Foundation  
Diabetes Australia Research Trust  
Federal Government of Australia

- Australian Research Council
- National Health & Medical  
Research Council

FHSD Global Research Foundation  
Juvenile Diabetes Research  
Foundation Australia  
Juvenile Diabetes Research  
Foundation International  
National Institutes of Health (USA)  
National Heart Foundation  
Victorian Government

- Department of State Development,  
Business and Innovation  
(Infrastructure funding)

## MAJOR GIFTS

Advantage Salary Packaging  
Mr Robert Albert AO  
Dr Susan Alberti AO  
Susan Alberti Medical  
Research Foundation  
Anonymous  
Casella Wines Pty Ltd  
Mr Stephen Cook  
Mrs Jean E Drury  
Mr John Eastment  
Diana Gibson AO  
Gillespie Family Foundation  
Mr Lindsay Maxsted  
Medicines Australia  
The Miller Foundation  
Mr Baillieu S Myer AC  
Portland House Foundation  
Prescott Family Foundation

Reece Australia Limited  
Mrs June Ross  
Margaret S. Ross AM  
The Search Foundation  
Texas Biomedical Research Institute  
The G W Vowell Foundation Ltd  
The Yulgilbar Foundation  
& Calvert-Jones Foundation

## SPECIAL GIFTS

Anonymous  
Susan Clifton  
CSYS Consulting Services Pty Ltd  
Ernest John & Sylvia Winifred Eastment  
Endowment  
Mr Melville & Mrs Suzanne Edwards  
J D O Enden  
Brian H Goddard  
Philip & Raie Goodwach  
Grahame M Green  
Henry & Miriam Greenfield  
The Harbig Family Foundation  
Miss Thelma Handreck  
H & K Johnston Family Foundation  
Mr R & Mrs M Macdonald  
Barry & Joan Medwin  
Mr Lynton & Mrs Susan Morgan  
Dina & Mark Munzer  
Mr Dennis & Mrs Fairlie Nassau  
Family of George R. Pegg  
Mr Michael & Mrs Rosalba Renzella  
John & Lesley Roche  
Mr Behnam Roohizadegan  
Peter & Anna Scott  
Mr Rob Stewart AM  
John Ward Thompson Endowment  
Mr Tony Whitty

## BRIGHT SPARKS

Anonymous  
William Angliss (Vic.) Charitable Fund  
Bertalli Family Foundation  
Mrs Rosetta & Mr Alan Bloom  
The Cybec Foundation  
Prof. J W Funder AO  
Mrs Sylvia Gelman AM MBE  
The Isabel & John Gilbertson  
Charitable Trust  
GRAS Foundation  
P & M Harbig Holdings Pty Ltd  
Mrs Diana Hardy  
Hermods Nominees Pty Ltd  
Mrs Anne King & Mr Beresford King OAM  
Mr Robert & Mrs Jan Lyng  
Harold Mitchell Foundation  
Mr Lynton & Mrs Susan Morgan  
J & R Pleydell  
Randall Foundation  
Rotary Club of Mount Waverley  
Miss Jacquie Stephens  
Mr Tony & Mrs Kitty Stewart  
Ms Jenny Tatchell  
Alan Williams Trust Fund  
Mr Norman & Mrs Meryll Wodetzki



*The breadth of our programs requires significant resources and we are extremely grateful for the commitment and support we receive from individual members of the community as well as philanthropic trusts and foundations, industry and government. Thank you to all who support our mission.*

## BEQUESTS

Estate Robert James Brown  
Estate Gwenneth June Dawson  
Estate John Robert Edwards  
Estate Ronald Victor Peck  
Estate Edward J Pemberton  
Estate Vera Dalgleish Phillips  
Estate of Gertrude Silberberg  
Estate Joan Storm  
Estate Kenneth Richard Styles  
Estate Barbara Frances Sutton  
Estate John Knox Trezise  
Estate Ruth Warren  
Estate Olga G Webb  
Estate Brian Thomas Henry Wilkins

## BEQUESTS IN PERPETUITY

Hazel & Pip Appel Fund  
Estate Lindsay J Baldy  
Bell Charitable Fund  
William Buckland Research Fund  
Lesley Dickson Charitable Endowment  
Joanna & Lyonel Middows Research Foundation  
M A & V L Perry Foundation  
Estate E E E Stewart

## SIR LAURENCE MUIR PRIZE

The Angus Family  
Mr John Bate OAM  
Bertalli Family Foundation  
Graeme & Pam Fraser  
Mr Tom Hogg  
Holowesko Partners Ltd.  
Kilwinning Nominees  
Lord Mayor's Charitable Foundation  
Mrs J & Mr J Gordon Moffatt AM  
The Miller Foundation  
Brian C Randall OAM  
Margaret S. Ross AM  
Phillip & Susan Schudmak  
Geoffrey Webb

## PERPETUAL SCHOLARSHIPS & TRAVEL BURSARIES

Ethel Mary Baillieu Memorial Trust  
Bertalli Family Scholarship Fund  
Noel Dickson Scholarship Fund  
Robbie Eisner Scholarship Fund  
Lang Research Fund  
Edgar Rouse Memorial Fund  
Ruby Wallace Travel Bursary

## TRUSTS & FOUNDATIONS

James and Elsie Borrowman Research Trust  
William Buckland Foundation  
Bupa Health Foundation  
Rebecca L Cooper Medical Research Foundation  
Gandel Philanthropy  
Ernest Heine Family Foundation  
The J and R McGauran Trust Fund  
Walter and Eileen Ralston Trust  
John T Reid Charitable Trusts  
Joe White Bequest  
VCF – Dean William Winter Trust

## COMMUNITY SUPPORT

Blue Illusion (Community Day)  
Friends of Baker IDI Committee (Cruden Farm Open Day)

- Mr Stephen Cook
- Mr Richard & Mrs Bernadette Brodribb
- Mr Robert & Mrs Jan Lyng
- Mrs Vivienne Ritchie
- Mr Richard & Mrs Jan Santo

Matt Keenan (Community Cycling)  
UBS

## EDUCATIONAL SUPPORT

AstraZeneca  
LifeScan, Johnson & Johnson Medical Pty Ltd  
Lilly  
MSD  
Naphtali Family Foundation  
National Diabetes Services Scheme and Diabetes Australia  
Northern Territory Medicare Local  
Novartis Pharmaceuticals  
Novo Nordisk Pharmaceuticals  
Roche Diagnostics Australia  
Takeda Pharmaceuticals

## CORPORATE PARTNERS

AbbVie Inc  
Boehringer Ingelheim  
BUPA Australia  
Clarity Pharmaceuticals  
Ergomotion Pty Ltd  
Fitbit  
Fitness Australia  
The Fred Hollows Foundation  
homyped®  
Novo Nordisk A/S  
Osprey Medical Inc.  
Pacific Brands  
Reata Pharmaceuticals Inc  
Resverlogix Corporation  
Vodafone Foundation Australia

# BOARD OF DIRECTORS



**Board of Directors from left to right:** Christine O'Reilly, Lindsay Maxsted, Professor Garry Jennings AO, Justin Arter, Robert Nicholson, Peter Scott, Ian Smith, David Gilmour, Associate Professor Andrew Way, Dr David Thurin and Professor Paul Zimmet AO. Pictured separately left to right are Kate Metcalf and Professor Christina Mitchell.



## PETER SCOTT

### Chairman

Peter Scott is Vice Chairman of the Investment Banking team at UBS Australia and has more than 30 years' experience in providing financial advice to large Australian companies and governments. He is a director of UWC Limited and the Association of Australian Medical Research Institutes. In 2014, he was appointed Chair of the Medical Research Future Fund action group. Peter was a member of the Australian Takeovers Panel from 2002 to 2014 and the New Zealand Takeovers Panel from 2008 to 2014.

## LINDSAY MAXSTED

### Treasurer

Lindsay Maxsted is the Chairman of Westpac Banking Corporation and Transurban Group, a director of BHP Billiton Limited and BHP Billiton plc, and is the Managing Director of Align Capital Pty Ltd. He was the CEO of KPMG from 2001 to 2007.

## PROFESSOR GARRY JENNINGS AO

### Executive Director

Garry Jennings is the Director and Chief Executive of the Institute. He is a cardiologist and was previously the Director of Cardiology and Chair of the Division of Medicine at The Alfred Hospital, Melbourne. Garry is Adjunct Professor of Medicine at Monash University and a director of Nucleus Network Limited and AMREP AS Pty Ltd.

## JUSTIN ARTER

### Non Executive Director

Justin Arter joined BlackRock Investment Management Australia as Country Head in September 2012 after three years as Chief Executive Officer of Victorian Funds Management Corporation (VFMC) and an 18-year career with Goldman Sachs JBWere. He also serves on the council of Geelong Grammar School.

## DAVID GILMOUR

### Non Executive Director

David Gilmour is a private investor and is Managing Director and owner of Untapped Fine Wines, Australia's foremost importer of fine wine from South America and Spain. Prior to this he was a Director and owner of Ansett Aviation Training, the largest airline-pilot training centre in the southern hemisphere. In his early career he was a management consultant for 15 years, initially with McKinsey & Company, and then for five years as a partner with the Boston Consulting Group.

## KATE METCALF

### Non Executive Director

Kate Metcalf is the Principal of K A Metcalf Solicitors and a Sessional Member at VCAT. She is a Trustee of The Baker Foundation and a Director of Boroondara Aged Services Society. She has previously held positions as Senior Solicitor, Monash University; Legal Director Asia, Carestream Health Australia Pty Ltd; and Senior Counsel and Company Secretary, Kodak (Australasia) Pty Ltd.

*Baker IDI has a dedicated Board comprising twelve Non Executive Directors and an Executive Director. The group carries responsibility for the corporate governance and financial sustainability of the organisation.*

## **PROFESSOR CHRISTINA MITCHELL**

### **Non Executive Director**

Christina Mitchell is the Dean of the Faculty of Medicine, Nursing and Health Sciences, Monash University. She has previously been a director of Victorian Endowment for Science, Knowledge and Innovation (VESKI) and a member of the scientific advisory panels of Cancer Council Victoria and the FSHD Global Research Foundation. Christina is a Fellow of the Australian Academy of Health and Medical Sciences and Chair of the Council of Monash Partners Academic Health Science Centre.

## **ROBERT NICHOLSON**

### **Non Executive Director**

Robert Nicholson is a senior partner of Herbert Smith Freehills, practising in a wide range of corporate transactions, including mergers and acquisitions, equity capital markets, corporate and government enterprise reconstructions and privatisations. Robert was a member of the Freehills board from 2000 to 2011 and chairman from 2008 to 2011. He is also chairman of Nucleus Network Limited and a director of Landcare Australia Limited.

## **CHRISTINE O'REILLY**

### **Non Executive Director**

Christine O'Reilly is a director of CSL Limited, Transurban Group, Medibank and Energy Australia, and the Deputy Chair of CARE Australia. She was formerly Co-head of Unlisted Infrastructure at Colonial First State Global Asset Management from 2007 to 2012 and, prior to that, CEO of Gasnet Australia from 2001 to 2006.

## **IAN SMITH**

### **Non Executive Director**

Ian Smith is a partner of Bespoke Approach, a corporate and political advisory firm. He is the United Kingdom's Honorary Consul in South Australia. Ian is on the Northern Territory Government's Economic Development Panel and is a director of Developing East Arnhem Limited. He sits on NAB PrivateWealth's Advisory Council and the advisory board of the Association of Australian Medical Research Institutes. He is an ambassador for The Orangutan Project and ENUF (a program to remove the stigma of HIV).

## **DR DAVID THURIN**

### **Non Executive Director**

David Thurin is the Managing Director and owner of Tigcorp Pty Ltd, a company that owns, develops and manages retirement communities, and has a land subdivision section and an investment arm involved in listed and unlisted securities. David was previously the joint Managing Director of the Gandel Group of companies and previously the Chairman of the International Diabetes Institute. He is currently a director of the Novion Property Group as well as the Melbourne Football Club.

## **ASSOCIATE PROFESSOR ANDREW WAY**

### **Non Executive Director**

Andrew Way is CEO of Alfred Health. Since his appointment to this role in July 2009, Andrew has concentrated on improving access, ensuring high-quality safe services with low mortality, within a strong financial framework. Alfred Health is now seen as a leader in these areas, having extensively adopted redesign methodologies to achieve them. Andrew has led the development of Victoria's first Academic Health Science Centre – Monash Partners – and holds several other senior and advisory appointments.

## **PROFESSOR PAUL ZIMMET AO**

### **Non Executive Director**

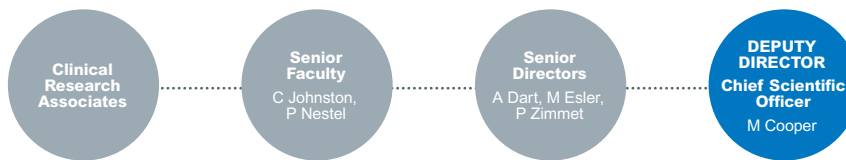
Paul Zimmet was founder and director of the International Diabetes Institute (IDI), Australia's first institute dedicated exclusively to diabetes. He is an Adjunct Professor at Monash University and at the University of Pittsburgh (USA), an Honoured Member of the Spanish Royal National Academy of Medicine and a Patron of Obesity Australia. He sits on the SAHMRI Aboriginal Research Council and is Honorary President, International Diabetes Federation. Paul is a member of the WHO Expert Panel on Diabetes, co-Chair of the Australian Government National Diabetes Strategy Advisory Group and a member of diabetes advisory boards for Novo Nordisk, Novartis, Takeda and Metacure.

*Baker IDI's Company Secretaries are David Lloyd (Deputy Director and Chief Operating Officer) and Jacqueline Goodall (General Counsel).*



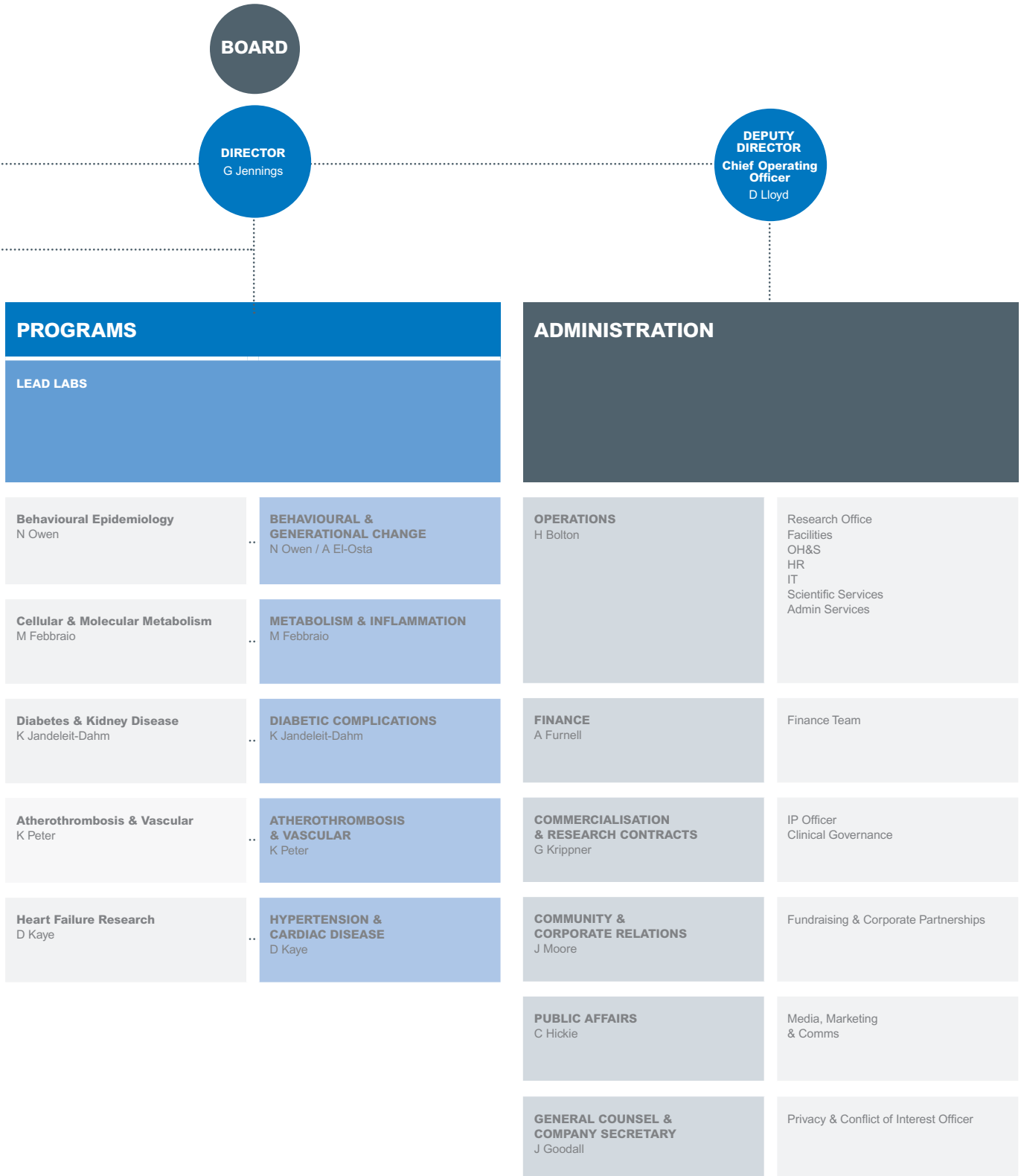
# ORGANISATIONAL CHART

CORRECT AT JUNE 2015



DOMAINS						
Clinical Research G Maguire	Prevention B Kingwell	Cardiometabolic Risk J Shaw	Diabetes M Cooper	Vascular Disease J Chin-Dusting	Heart Disease & Neuroscience G Head	Aboriginal Health S Eades
Diabetes Clinics N Cohen	Metabolic & Vascular Physiology B Kingwell	Clinical Diabetes J Shaw	Molecular Group M Cooper	Vascular Pharmacology J Chin-Dusting	Neuropharmacology G Head	Aboriginal Population Health Research S Eades
Cardiovascular Clinics A Ellims	Translational Metabolic Health S Summers	Clinical Obesity J Dixon	Biochemistry of Diabetic Complications M Thomas	Computational Biology R Lazarus	Cardiac Hypertrophy J McMullen	Aboriginal Health G Phillips
Clinical Imaging A Taylor	Metabolomics P Meikle	Diabetes & Population Health D Magliano	Diabetes & Atherosclerosis T Allen	Lipoproteins & Atherosclerosis D Sviridov	Experimental Cardiology X Du	
Education Services S Middleton	Muscle Research & Therapeutics P Gregorevic	Obesity & Population Health A Peeters	Human Epigenetics A El-Osta	Vascular Biology & Atherosclerosis A Bobik	Heart Failure Pharmacology R Ritchie	
Healthy Hearts E Jenkins	Physical Activity D Dunstan		Epigenomic Medicine T Karagiannis	Vascular Biotechnology C Hagemeyer	Human Neurotransmitters G Lambert	
Sports Cardiology A La Gerche	Genomics & Systems Biology K Bozaoglu		Nutrition, Glycation & Metabolism M Coughlan		Molecular Cardiology E Woodcock	

*In 2014, the Institute introduced an innovative science strategy that aims to accelerate areas of research excellence, encourage greater collaboration by breaking down silo structures and focus Baker IDI's work on translational outcomes. The Institute's new approach now provides for the combination of a firm organisational structure to accommodate funding and line management (Domains), with the fluidity to pursue broad-based, multidisciplinary research (Programs). The Programs focus on peaks of excellence and ultimately aim to deliver more breakthroughs across more areas of the Institute's program.*





*Jonathan is investigating the role of obstructive sleep apnoea in people with diabetes, and whether treatment of this sleep condition will lead to improvements in metabolic and blood pressure control.*

**Head of the Cardiometabolic Risk Domain and Clinical Diabetes Research Unit, Associate Professor Jonathan Shaw, and PhD candidate, Winda Liviya Ng.**



# FINANCIAL SUMMARY

*In 2014, the Institute recorded a consolidated net surplus of \$1.6 million. This was primarily driven by a \$1.5 million net surplus from wholly owned clinical trials subsidiary, Nucleus Network, as well as funding received for a new magnetic resonance imaging (MRI) machine.*

Funding and support from donors is critical to Baker IDI's success. In 2014, the Institute raised \$11.05 million through a combination of appeals, regular giving, community events, major gifts, trusts and foundations, and bequests.

To ensure the Institute's ongoing sustainability, we aim to diversify our funding base. To this end, we have seen increasing engagement with 'peer to peer' and 'community of interest' fundraising programs, including the cycling community, adventure-based and workplace challenges such as Stand Up Australia and a Machu Picchu hike. Baker IDI is grateful to all our donors for their generosity and ongoing commitment to our research.

The Baker Foundation provided \$2.1 million to the Institute in 2014, as well as ongoing research funding for a musculoskeletal project and funding for the new clinical research imaging suite. The Foundation has been a major supporter of the Institute's work since the establishment of the Baker Institute in 1926, and we are extremely grateful for this critical support of our scientific community.

With financial assistance from our philanthropic partners, the Institute established a new clinical research imaging suite, detailed on page 44 of this report. The financial contributions of The Baker Foundation, the Ernest Heine Family Foundation, the Bertalli Family Foundation, the Estate of Olga Webb and an anonymous donor were critical in developing this facility. Their support has been crucial to our success and ensures that we are well placed to tackle Australia's burden of chronic disease.

In 2014, Operational Infrastructure Support (OIS) from the Victorian Government remained constant at \$3.4 million. The OIS program provides essential funding towards indirect costs that are not provided for by competitive grants. The fund contributes to meeting costs associated with infrastructure, commercialisation and clinical exploitation of the Institute's research endeavours, as well as equipment maintenance essential to grant-funded

research. The Institute would like to acknowledge the Victorian Government and its commitment to medical research.

The Institute was also awarded \$4.8 million through the Federal Government's Independent Research Institute Infrastructure Support Scheme (IRIISS), an increase of six per cent from the previous year. The Institute is grateful for this support from the Federal Government for the indirect costs of grant-funded research activities.

Baker IDI's researchers were awarded \$24 million in the 2014 round of National Health and Medical Research Council Grants for 28 grants. Funding is scheduled to commence in 2015 and covers the life of the grants, which ranges from three to five years. Baker IDI welcomes government support for health and medical research funding, which is critical both to the Institute and to the medical research sector as a whole in maintaining a strong international profile.

Other significant sources of competitive grant funding include the Juvenile Diabetes Research Foundation, the National Heart Foundation and the Diabetes Australia Research Trust. The Institute gratefully acknowledges the support of these grant programs and the critical role they play in supporting our research endeavour.

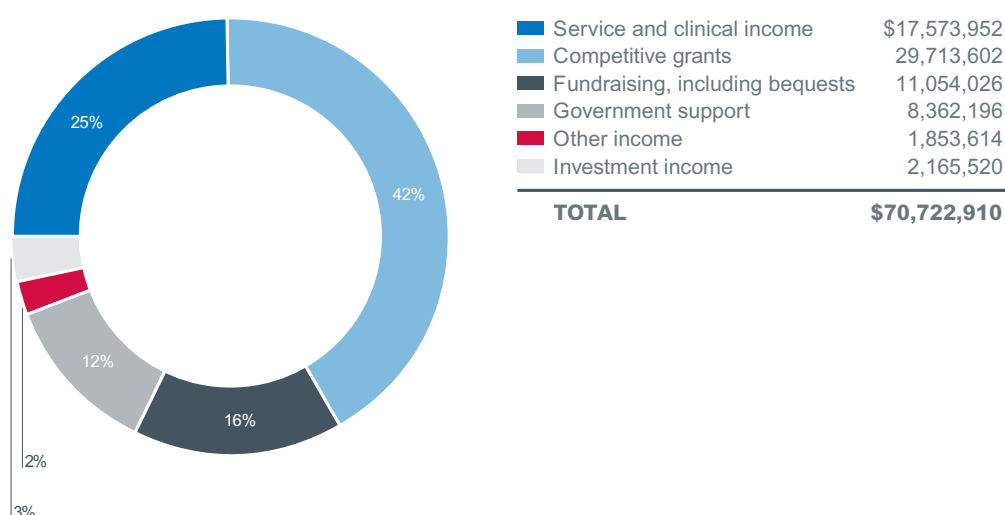
## \$24m

**TOTAL GRANTS AWARDED TO BAKER IDI'S RESEARCHERS FOR COMMENCEMENT IN 2015**

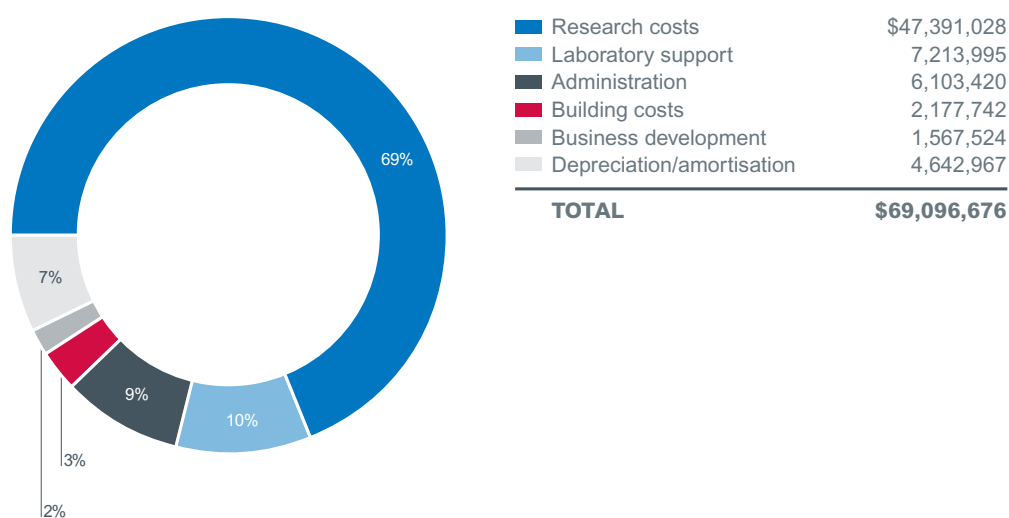
2014 ROUND OF NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL GRANTS FOR 28 GRANTS WHICH RANGE FROM THREE TO FIVE YEARS

# FINANCIAL PERFORMANCE AT A GLANCE

## CONSOLIDATED REVENUE



## CONSOLIDATED EXPENDITURE



## NOTABLE FINANCIAL INFORMATION

	2014 (\$)	2013 (\$)
Income for research and clinical trials	70,722,910	72,211,494
Expenditure on research and clinical trials	64,453,709	63,214,428
<b>Net surplus from operations before depreciation and amortisation</b>	<b>6,269,201</b>	<b>8,997,066</b>
Capital expenditure	5,402,761	3,292,199
Operational Infrastructure Support included in income	3,487,171	4,883,747
Number of full time equivalent staff and visiting scientists	414	421
Number of students	82	81
Scientific papers published	411	419



*Melinda and her team are investigating whether certain components of processed foods might be responsible for developing pathways of disease.*

**Head of Nutrition, Glycation and Metabolism laboratory, Associate Professor Melinda Coughlan with Research Officer, Dr Gavin Higgins.**



# FINANCIAL STATEMENTS

## STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2014

	CONSOLIDATED		PARENT	
	2014 (\$)	2013 (\$)	2014 (\$)	2013 (\$)
<b>ASSETS</b>				
<b>Current assets</b>				
Cash and short term deposits	17,198,516	14,709,649	15,698,048	13,870,910
Trade and other receivables	5,702,450	4,458,221	2,182,369	2,825,690
Right to occupy	507,619	507,619	507,619	507,619
Prepayments	215,084	187,561	127,121	108,481
Other current financial assets	6,838	6,412	6,838	6,412
<b>Total current assets</b>	<b>23,630,507</b>	<b>19,869,462</b>	<b>18,521,995</b>	<b>17,319,112</b>
<b>Non-current assets</b>				
Property, plant and equipment	49,181,354	47,863,773	48,500,845	46,946,151
Right to occupy	7,702,983	8,210,602	7,702,983	8,210,602
Intangible assets	165,840	223,666	165,840	223,666
Investment in an associate	3,557,402	3,527,840	2,265,001	2,265,001
Available-for-sale financial assets	22,498,597	23,144,204	22,446,516	23,092,123
Other non-current financial assets	4,197	11,035	4,197	11,035
<b>Total non-current assets</b>	<b>83,110,373</b>	<b>82,981,120</b>	<b>81,085,382</b>	<b>80,748,578</b>
<b>TOTAL ASSETS</b>	<b>106,740,880</b>	<b>102,850,582</b>	<b>99,607,377</b>	<b>98,067,690</b>
<b>LIABILITIES</b>				
<b>Current liabilities</b>				
Trade and other payables	8,770,680	6,762,236	6,849,213	5,758,544
Interest bearing loans and borrowings	25,000	138,412	–	38,412
Lease incentive liability	29,218	1,635	–	–
Unearned income	7,856,197	7,817,529	7,736,943	7,728,484
Provisions	8,405,380	7,627,976	7,760,066	7,027,356
<b>Total current liabilities</b>	<b>25,086,475</b>	<b>22,347,788</b>	<b>22,346,222</b>	<b>20,552,796</b>
<b>Non-current liabilities</b>				
Lease incentive liability	–	97,370	–	–
Provisions	1,814,135	1,837,204	1,653,220	1,651,064
<b>Total non-current liabilities</b>	<b>1,814,135</b>	<b>1,934,574</b>	<b>1,653,220</b>	<b>1,651,064</b>
<b>TOTAL LIABILITIES</b>	<b>26,900,610</b>	<b>24,282,362</b>	<b>23,999,442</b>	<b>22,203,860</b>
<b>NET ASSETS</b>	<b>79,840,270</b>	<b>78,568,220</b>	<b>75,607,935</b>	<b>75,863,830</b>

# \$79.8m

TOTAL NET ASSETS

STATEMENT OF FINANCIAL POSITION  
AS AT 31 DECEMBER 2014

## STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2014 (CONTINUED)

	CONSOLIDATED		PARENT	
	2014 (\$)	2013 (\$)	2014 (\$)	2013 (\$)
<b>EQUITY</b>				
<b>Equity attributable to equity holders of the parent</b>				
Restructure reserve	–	–	5,578,233	5,578,233
Retained earnings	76,652,796	75,026,562	66,842,228	66,743,939
Available-for-sale reserve	3,187,474	3,541,658	3,187,474	3,541,658
<b>TOTAL EQUITY</b>	<b>79,840,270</b>	<b>78,568,220</b>	<b>75,607,935</b>	<b>75,863,830</b>

The Statement of Financial Position provided above, together with the attached Income Statement have been extracted from the audited general purpose financial statements of Baker IDI Heart and Diabetes Institute Holdings Limited and its controlled entities. The summary financial information does not include all the information and notes normally included in a statutory financial report. The audited general purpose financial report can be obtained upon request to the Chief Financial Officer.

The statutory financial report (from which the summary financial information has been extracted) has been prepared in accordance with the requirements of the Corporations Act 2001, Australian Charities and Not-for-profits Commission Act 2012 and Regulations 2013, Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board.

# FINANCIAL STATEMENTS

## CONTINUED

### INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2014

	CONSOLIDATED		PARENT	
	2014 (\$)	2013 (\$)	2014 (\$)	2013 (\$)
<b>Continuing operations</b>				
Grants supporting research activities	29,713,602	30,410,169	29,713,602	30,410,169
Infrastructure funding	8,362,196	9,501,631	8,362,196	9,501,631
Fundraising, corporate and private support	11,054,026	12,351,825	11,054,026	12,351,825
Service and clinical income	17,573,952	15,149,059	5,728,000	5,269,826
Investment income	2,165,520	2,844,287	2,130,308	2,831,945
Other revenue	1,853,614	1,954,523	2,457,201	2,544,698
<b>Revenue</b>	<b>70,722,910</b>	<b>72,211,494</b>	<b>59,445,333</b>	<b>62,910,094</b>
Employee benefits expense	41,133,386	40,591,951	36,031,304	36,058,944
Research, service and clinical expense	15,183,470	14,524,986	11,714,103	10,878,367
Depreciation and amortisation expense	4,642,967	4,206,447	4,032,500	3,962,188
Share of profit/(loss) in associate	(29,562)	8,778	–	–
Loss on decommissioning of asset	7,658	–	7,658	–
Building overheads	991,704	1,309,502	894,262	1,181,312
Borrowing costs expense	2,062	16,862	278	9,266
Laboratory support expense	2,174,565	1,889,841	2,174,565	1,889,841
Donor acquisition expense	1,224,143	1,394,778	1,224,143	1,394,778
Other expenses from ordinary activities	3,766,283	3,477,730	3,268,231	3,055,044
<b>Expenditure</b>	<b>69,096,676</b>	<b>67,420,875</b>	<b>59,347,044</b>	<b>58,429,740</b>
<b>Surplus before tax</b>	<b>1,626,234</b>	<b>4,790,619</b>	<b>98,289</b>	<b>4,480,354</b>
Income tax expense	–	–	–	–
<b>Surplus for the year</b>	<b>1,626,234</b>	<b>4,790,619</b>	<b>98,289</b>	<b>4,480,354</b>





*Bronwyn and her team are studying how to harness the energy-burning properties of brown fat in people to treat obesity.*

**Head of the Prevention Domain and Metabolic and Vascular Physiology laboratory, Professor Bronwyn Kingwell, and postdoctoral scientist, Dr Andrew Carey.**

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# TRANSLATING RESEARCH INTO CLINICAL PRACTICE

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*New capabilities within the Clinical Research Domain, including the Institute's new MRI scanner, will provide insights into diabetes, heart and metabolic disease to enhance prevention, diagnosis and clinical care.*

The Clinical Research Domain already provides a platform for linking and translating Baker IDI's human and basic science research to enhance the prevention, diagnosis and management of heart disease and diabetes. The introduction of cutting-edge imaging technology for cardiac, diabetes and metabolic imaging in 2014, made possible thanks to philanthropic contributions, forms an important pillar of Baker IDI's new Clinical Research Domain.

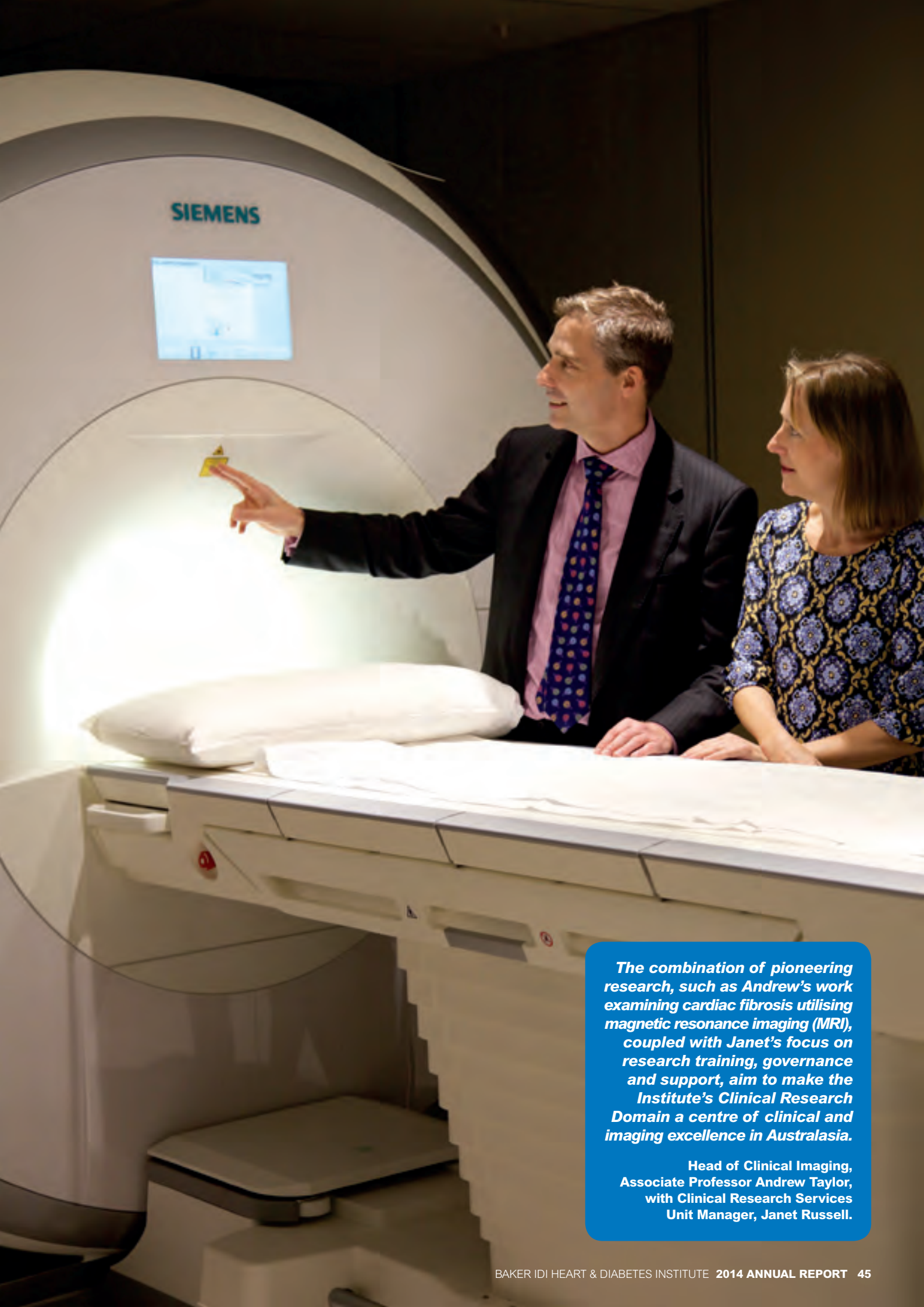
This pioneering Domain now incorporates a Siemens Prisma 3 Tesla MRI and a Philips Epic echocardiogram machine, radiology and clinical support to facilitate research and education activities involving cardiac, diabetes and metabolic imaging. These new facilities support an active MRI research community of medical and public health scientists from Baker IDI, The Alfred Hospital and their collaborators. The facilities are also available to external researchers who wish to use these technologies and services on a commercial basis.

Imaging studies under way aim to improve understanding of the role that scarring or fibrosis plays in heart disease, including specific cardiomyopathies such as hypertrophic cardiomyopathy; examine the effectiveness of new therapies for heart failure and atrial fibrillation; improve strategies in the prevention of sudden death in heart failure patients; further understand the metabolic role of white and brown fat in the development of diabetes; and discover how brain function and signalling differ in obesity.

Co-locating these investigational and research resources together with Baker IDI's clinical services in the Clinical Research Domain will facilitate rapid translation of research discoveries into improvement in healthcare practice and patient outcomes. It will ensure that patients utilising the clinical services have the opportunity to participate in research and be cared for by clinicians who are world leaders in both research and healthcare. Furthermore, it will help to build a broad-based health and clinical-research centre to advance prevention of these debilitating chronic diseases.







*The combination of pioneering research, such as Andrew's work examining cardiac fibrosis utilising magnetic resonance imaging (MRI), coupled with Janet's focus on research training, governance and support, aim to make the Institute's Clinical Research Domain a centre of clinical and imaging excellence in Australasia.*

**Head of Clinical Imaging,  
Associate Professor Andrew Taylor,  
with Clinical Research Services  
Unit Manager, Janet Russell.**





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