

# RESEARCH TRANSLATION PREVENTION

ANNUAL REPORT  
2012



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# UNIQUELY POSITIONED TO ADDRESS THE CHANGING HEALTH LANDSCAPE

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**AN INDEPENDENT, AUSTRALIAN-BASED RESEARCH INSTITUTE,  
RECOGNISED INTERNATIONALLY FOR ITS CONTRIBUTIONS  
TO MEDICAL SCIENCE.**

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Baker IDI Heart and Diabetes Institute is an independent, internationally-renowned medical research facility, with a history spanning more than 87 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; the most 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, psychologists, nurse educators, renal specialists, nutrition 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, as well as a preventative health research hub in South Australia. 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 the global communities in which it operates.

*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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# AUSTRALIA'S HEALTHCARE CHALLENGE TODAY AND BEYOND

12

## EVERY 12 MINUTES

Cardiovascular disease (heart, stroke and blood vessel disease) kills one Australian every 12 minutes and affects 3.7 million Australians<sup>1</sup>

1<sup>ST</sup>

## WITHIN THE 1ST HOUR

One in four people who die from a heart attack die within the 1st hour of their 1st symptom<sup>2</sup>

6

## ONE IN SIX PEOPLE

One in six people is likely to suffer a stroke in their lifetime and in Australia a stroke occurs every 10 minutes<sup>3</sup>

269

## 269 PEOPLE A DAY

Every day, approximately 269 adults in Australia over the age of 25 develop diabetes<sup>4</sup>

30

## 30 PER CENT HIGHER

Rates of cardiovascular disease are 30 per cent higher among Aboriginal and Torres Strait Islander peoples than non-Indigenous Australians<sup>5</sup>

8

## EIGHT TIMES AS LIKELY

Indigenous people are eight times as likely to begin dialysis for kidney disease or to receive a kidney transplant<sup>6</sup>

2<sup>ND</sup>

## 2ND AND 5TH HIGHEST RATE

Australia has the 2nd highest rate of obesity for males and the 5th highest for females when compared with other developed countries<sup>7</sup>

7

## ONE IN SEVEN AUSTRALIANS

Chronic kidney disease (CKD) is more common than is widely known, affecting one in seven Australian adults to some degree<sup>8</sup>

2x

## DOUBLE THE RISK

Living in the most socially disadvantaged areas of Australia doubles the risk of developing diabetes<sup>9</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>10</sup>

4

## TOP FOUR RISK FACTORS

Australian data shows the top four risk factors for burden of disease are tobacco smoking; high blood pressure; overweight and obesity; and physical inactivity<sup>11</sup>

<sup>1</sup> Heart Foundation – Cardiovascular Disease Statistics, [www.heartfoundation.org.au](http://www.heartfoundation.org.au) <sup>2</sup> Heart Foundation – heart attack facts [www.heartattackfacts.org.au/heart-attack-facts/](http://www.heartattackfacts.org.au/heart-attack-facts/) <sup>3</sup> Stroke Foundation – [www.strokefoundation.com.au](http://www.strokefoundation.com.au). Article titled “Stroke – nothing has changed. Still the Nation’s second biggest cause of death, 25 June 2012 <sup>4</sup> The Australian Diabetes, Obesity and Lifestyle Study (AusDiab 2012), Baker IDI Heart and Diabetes Institute, 2013 <sup>5</sup> Australian Institute of Health and Welfare. Cardiovascular disease and its associated risk factors in Aboriginal and Torres Strait Islander peoples 2005-2005. Cat. no. CVD 41. Canberra, AIHW, 2008. <sup>6</sup> Australian Institute of Health and Welfare 2012. Australia’s health 2012: in brief. Cat.no. AUS 157. Canberra. AIHW. <sup>7</sup> Ibid <sup>8</sup> Ibid <sup>9</sup> The Australian Diabetes, Obesity and Lifestyle Study (AusDiab 2012), Baker IDI Heart and Diabetes Institute, 2013 <sup>10</sup> Diabetes: the silent pandemic and its impact on Australia, Baker IDI Heart and Diabetes Institute in partnership with Diabetes Australia and JDRF, 2012 <sup>11</sup> Diabetes: the silent pandemic and its impact on Australia, Baker IDI Heart and Diabetes Institute in partnership with Diabetes Australia and JDRF, 2012

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# SNAPSHOT OF THE INSTITUTE

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- > A medical research institute focused on cardiovascular disease (including stroke and hypertension), diabetes, obesity and their complications, such as kidney disease
- > A long and distinguished history, spanning more than 87 years
- > Research agenda spans birth to end-of-life health (including maternal health, Indigenous and gestational health, subclinical organ damage, acute complications such as heart attack, heart failure and terminal disease)
- > Headquartered in Melbourne, with a research facility in Alice Springs and a preventative research hub in Adelaide
- > Key player in research, translation, education, advocacy and health promotion
- > A staff base of more than 650 (including students, honorary staff and visiting academics)
- > Senior staff on a broad range of government advisory boards; from health and wellbeing to science and innovation
- > Collaborations with many leading international research groups
- > Committed to a range of international projects that aim to assist vulnerable societies around the world
- > Funded through a diverse range of sources including competitive grants, Federal and State Governments, service and clinical income, and philanthropic support
- > The largest beneficiary of National Heart Foundation research funds in Australia
- > \$71 million turnover, including commercial subsidiaries
- > Commercial subsidiaries include early phase clinical trials facility, Nucleus Network

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# 2012 HIGHLIGHTS

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## SCIENTIST AWARDED EUREKA PRIZE FOR TRANSLATION OF RESEARCH INTO THERAPEUTIC DEVICE

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Professor David Kaye, Head of the Institute's Heart Failure Research Group, was the recipient of the prestigious 2012 Australian Museum Eureka Prize for Medical Research Translation. Professor Kaye was acknowledged for the development of a catheter-based device which aims to alleviate the damaging effects of contrast dye injected into the kidneys of patients undergoing coronary angiography. The success of spin-off company, Osprey Medical Inc., founded by David and his colleagues, has continued to go from strength to strength, with the medical device company making its debut on the Australian Stock Exchange in May 2012. This is the second consecutive year that Baker IDI scientists have been successful in this prize category, with Professors Murray Esler and Markus Schlaich acknowledged in 2011 for their renal denervation work.

# 2012

AUSTRALIAN MUSEUM  
EUREKA PRIZE FOR MEDICAL  
RESEARCH TRANSLATION

## OLD DRUG OFFERS NEW HOPE FOR PEOPLE WHO SUFFER LEG PAIN WHEN WALKING

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Baker IDI scientists demonstrated that patients with Peripheral Arterial Disease (PAD) of the legs can enjoy longer and more pain-free time on their feet when treated with a standard anti-hypertensive drug. Critically, patients treated with the drug, ramipril, improved their walking ability by more than five times the amount achieved with the currently indicated medical therapy. PAD is a group of disorders affecting the arteries of the lower limbs, leading to inadequate blood supply in the legs. Approximately three million Australians are affected by PAD. The disease can lead to complications such as gangrene and leg amputation, and is also associated with a five-fold increase in the incidence of cardiovascular events, such as heart attack and stroke. The findings by Professor Bronwyn Kingwell and her team, published in the *Journal of the American Medical Association*, could mean the difference between independent living and being dependent on carers for people living with this debilitating condition.

# 3m

3 MILLION AUSTRALIANS  
ARE AFFECTED  
BY PERIPHERAL  
ARTERIAL DISEASE

## HEART FAILURE STUDY DEMONSTRATES INCREASING ROLE FOR HOME-BASED CARE

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Home-based care for patients with Chronic Heart Failure (CHF) has come out as the clear winner in a comparative study of home versus clinic-based care, particularly when it comes to cost, a Baker IDI study has shown. The multicentre study of 280 patients demonstrated healthcare cost savings of 30 per cent or \$1.1 million per 100 patients (\$1.6 million overall) managed through home-based or outreach care (\$3.93m), compared to clinic-based management (\$5.53m). The study, published in the *Journal of the American College of Cardiology*, also showed home-based care was associated with fewer days of hospitalisation. Every year, an estimated 300,000 Australians are affected by CHF, with more than 40,000 related hospital admissions. As a consequence, it is one of the most common reasons for someone aged 65 years or more to be hospitalised. Chief Investigator and Head of Preventative Health at Baker IDI, Professor Simon Stewart says the study has significant implications for governments managing spiralling healthcare budgets.

# 300k

300,000 AUSTRALIANS  
ARE AFFECTED BY CHRONIC  
HEART FAILURE PER YEAR

*For more than 87 years, the Institute's researchers have been responsible for many groundbreaking advances, transforming clinical care and informing preventative health strategies.*

## GENE DISCOVERY HERALDS MAJOR STEP IN TREATING DIABETES-RELATED COMPLICATIONS

An Australian-Dutch research team led by Professor Karin Jandeleit-Dahm from Baker IDI and Professor Harald Schmidt from the Maastricht University, has confirmed the role of a specific enzyme in the accelerated development of diabetic atherosclerosis. By inhibiting the activity of the enzyme with a new drug, researchers were able to significantly reduce the development of plaques which can block arteries, paving the way for a new approach to prevention and treatment of cardiovascular disease in people with diabetes. Patients with diabetes are susceptible to vascular complications such as atherosclerosis – a condition that involves thickening of the artery walls through a build-up of cholesterol-rich plaques. As a result, people with diabetes are at increased risk of stroke, heart attack and death. This research revealed that a gene known as NOX1 was associated with toxic amounts of oxygen radicals in the walls of blood vessels, which along with other inflammatory chemicals, leads to atherosclerotic plaque development. The findings were published in *Circulation*, the Journal of the American Heart Association, in May 2013.

# NOX1

GENE FOUND TO BE LINKED TO ATHEROSCLEROTIC PLAQUE DEVELOPMENT

## INHIBITING A FAMILY OF TINY MOLECULES COULD HELP TACKLE HEART FAILURE

A team of researchers in the Cardiac Hypertrophy laboratory, headed by Associate Professor Julie McMullen, have discovered that inhibiting a family of tiny molecules called microRNAs can prevent heart failure in mice and improve the pumping performance of the heart. These molecules are important for the normal function of cells but when the mechanism regulating them is not working, they can cause heart disease. The researchers, with collaborators from the University of New South Wales and Santaris Pharma, found that by inhibiting these molecules, they were able to prevent or reduce the adverse effects of a heart attack or high blood pressure and, most importantly, improve heart function. This work, led by Dr Bianca Bernardo, was published in the *Proceedings of the National Academy of Sciences USA* in October 2012. Existing therapies typically slow rather than prevent or reverse heart failure progression, highlighting the enormous potential of this discovery.

# RNAs

USING MICRORNA INHIBITORS IN THE TREATMENT OF HEART FAILURE

## DEVELOPMENT OF UNIQUE MODEL TO PREVENT AND TREAT HEART ATTACK

Professor Karlheinz Peter's group aims to prevent and improve treatment of heart attack, which is a frequent cause of death worldwide. To assist in identifying people at risk of clot formation, vessel blockage and loss of heart tissue, and subsequently offer enhanced treatment options, the team has developed a unique mouse model that is instrumental in defining genes and molecules involved in plaque rupture. They have developed molecular imaging tools to identify plaques that are prone to rupture using laboratory-made targeted nanoparticles that can be used as a contrast reagent in various imaging modalities such as ultrasound, MRI, CT and PET. The group has also designed an 'intelligent drug' that prevents blood clotting and vessel blockage without causing bleeding complications. This work was highlighted in papers published in 2012 in *Circulation*, and *Circulation Research and Blood* in 2013.

# 55k

EVERY YEAR, AROUND 55,000 AUSTRALIANS SUFFER A HEART ATTACK



# CHAIRMAN'S REPORT

It is widely agreed that Australia's medical research institutes are a valuable national asset and will play an increasingly important role as we transition to a knowledge economy.

At present, these institutes deliver significant benefits to the community in terms of supporting our healthcare system, generating investment and employment, bolstering our biotech and associated industries and contributing to education export earnings.

It has been estimated that every \$1 spent on medical research produces \$2.17 in health benefits to the Australian economy<sup>1</sup>.

With Australia facing an ageing population and rapidly increasing rates of chronic disease, medical research is critical to better patient outcomes and improved use of the health budget. Cardiovascular disease, diabetes and obesity are among the biggest health challenges facing Australian communities today. Cardiovascular disease remains the number one cause of death in Australia and is responsible for one death every 12 minutes. Every day, approximately 269 adults in Australia over the age of 25 develop diabetes. Indigenous Australians continue to die at a much younger age and have significantly more disability than non-Indigenous Australians, as evidenced by statistics that show they are more than eight times as likely to require dialysis for kidney disease or a kidney transplant.

## REFORM IS CRITICAL

In addition to the complexities of tackling rising rates of chronic diseases, medical research institutes face a raft of strategic challenges. These include funding of both the direct and indirect costs of the institutes' operations, the costs of new technologies and the need for a long-term, whole-of-government vision for Australian medical research.

Chaired by Simon McKeon AO, the 2012 Strategic Review of Health and Medical Research in Australia presented a critical opportunity to address these challenges, and in doing so, to realise the goal of embedding research in healthcare delivery. Baker IDI was actively engaged in the review process, both as a member of the working group that developed an industry submission on behalf of the Association of Australian Medical Research Institutes and in developing our own response, relevant to our specific fields of investigation. Amongst other things, the Institute's response emphasises the need to address the indirect costs of research, as well as endorsing greater alignment between healthcare and research priorities.

Following the release of initial findings from the review panel, Baker IDI invited Simon McKeon to visit the Institute in December 2012 and present a briefing on the review panel's consultation paper. Over 150 people attended, representing a broad cross-section of the research community as well as government and patient interest groups.

Several themes emerged from the briefing, including the need for better linkages between researchers and industry, the benefits of scale and the challenges of translating research into commercially viable outcomes. The Federal election in 2013 has delayed a detailed response by the Federal Government to the report but the importance of the review remains central to the long-term sustainability of the medical research sector and we remain cautiously optimistic about the outcomes.

State government funding of the indirect costs of research also has a significant impact on the long-term sustainability of medical research institutes. Baker IDI has taken a leadership role in developing a submission to the Victorian government on behalf of the State's 13 institutes, arguing the case for a new program that would attract non-government revenue. The submission is the subject of ongoing discussions and we are committed to working in partnership with the government to identify solutions to this most pressing issue.

## COMMITTED TO INNOVATIVE SOLUTIONS

These issues are not insurmountable. With the support of government, industry and our donors, I believe Baker IDI is well placed to make a significant contribution to the strategic future of the sector as well as to pursue our mission with respect to reducing death and disability from cardiovascular disease, diabetes and related conditions.



*It is widely agreed that Australia's medical research institutes are a valuable national asset and will play an increasingly important role as we transition to a knowledge economy.*



One of the real strengths of the Institute is its relationship with national and international medical research institutes, universities and hospitals. Baker IDI has enjoyed collaborative links with Alfred Health for 88 years, Monash University for 51 years and the Burnet Institute for more than a decade as part of the Alfred Medical Research and Education Precinct.

In July 2013, we moved to strengthen these ties as one of the founding members of a new collaborative partnership, known as 'Monash Partners'. The initiative is one of two Victorian integrated health research centres supported by the State Government. The centre's objective is to undertake innovative research and accelerate the translation of clinical research into practice.

The move to fostering closer collaboration is a positive development as there is strong international evidence that health services that undertake research produce better health outcomes. We look forward to working with both integrated health research centres toward a shared goal of better health for patients sooner.

## VOTE OF THANKS

I would 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 makes the Institute's work possible.

In December 2012, we paused to reflect on the passing of Dame Elisabeth Murdoch; an inspirational woman and gracious philanthropist. Dame Elisabeth was a long-standing, generous and committed benefactor of the Institute's

research for many decades. Her support for Baker IDI extended to a genuine interest in the research agenda and we were delighted to host numerous visits by her to our facilities. The Institute's scientists were touched by her warmth as well as her inquisitive nature and her interest in their work. Dame Elisabeth will be fondly remembered for her devotion to helping others through her support for medical research, the arts and the community more generally.

Another philanthropic organisation to whom we owe a great deal is The Baker Foundation. Having supported the Institute since 1926, the funding provided by the Foundation is critical to our ability to support the work of the Institute's scientists. On behalf of everyone at Baker IDI, I would like to thank the Foundation and its committed members for their passion and generosity.

I would also like to thank my fellow directors for their commitment and professionalism. In particular, I would like to acknowledge our outgoing Deputy Chairman, Paula Dwyer, who retired from the Baker IDI board on 30 June, 2013, having served as a director for ten years. Paula has been instrumental in guiding the work of our board and has also served on our Audit and Risk Management Committee, our Investment Committee and our Remuneration and Appointments Committee during a period of significant growth for the Institute. She has worked tirelessly to support our stakeholder partnerships and ensure best practice governance standards.

In July 2013, Christine O'Reilly joined the board as a non-executive director. Christine has a strong financial background and considerable corporate expertise and we welcome her involvement with the Institute.

I would also like to thank the Director of Baker IDI, Professor Garry Jennings. It takes great passion, commitment and enthusiasm to lead one of Australia's largest medical research institutes. It is therefore fitting that Garry was recognised with an Officer of the Order of Australia (AO) in the 2013 Queen's Birthday Honours for his distinguished service to medical research.

Garry has made a sustained and prominent contribution to the prevention, diagnosis and treatment of chronic diseases, both in Australia and internationally, especially in the field of cardiovascular disease. He has been instrumental in the development of national health and research policy and strategy and has displayed extraordinary dedication to fostering the next generation of researchers.

Finally, I commend the leadership team and staff of the Institute for their hard work and dedication and acknowledge the achievements of the Institute's scientists over the past year. I am always inspired by the work of the Institute's researchers and proud to be associated with an organisation dedicated to playing such an important role in the nation's health.

A handwritten signature in black ink, appearing to read 'Peter Scott', written over a white background.

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

1. Exceptional returns: The Value of Investing in Health R&D in Australia II, Access Economics, June 2008

# DIRECTOR'S REPORT

In the past year, big science has captured global attention, taking centre stage and reminding us of the enormous capabilities that large-scale facilities and clusters of scientists working together can achieve.

In 2012, we celebrated the discovery of the Higgs boson-like particle, a subatomic particle that completes our model of how the universe works, with a simultaneous announcement in Geneva and Melbourne. The Higgs boson was observed by two independent teams comprising thousands of physicists from hundreds of universities around the world.

Months later, we marked the 10th anniversary of the sequencing of the human genome, with scientists now looking beyond its routine application in uncovering the causes of rare diseases to see how sequencing can benefit larger populations and prevent the onset of diseases, including cardiovascular disease and diabetes. The Human Genome Project remains the largest collaborative biological project – it was formally founded in 1990 by the US and expected to take 15 years but a 'rough draft' of the genome was finished in 2000, thanks largely to widespread international cooperation together with advances in the field of genomics.

## PROMOTING COLLABORATION AND CELEBRATING DIVERSITY

Global collaboration, and to some degree, global competition, have been a driving force in these life-changing discoveries, reinforcing the notion that organisations that foster partnerships can often achieve greater outcomes. Baker IDI has a long and proud history of international collaboration and it continues to underpin the Institute's research program. The diversity of our staff is a real strength, with 28 different nationalities and 21 languages represented at Baker IDI. In this report, we detail some

of the Institute's international collaborations to highlight the global reach of our work and our leadership role in driving partnerships with some of the world's most prestigious universities, medical research institutes and hospitals.

One example is Professor Dmitri Sviridov, a leading researcher in the field of atherosclerosis and lipoprotein, who joined Baker IDI from the National Cardiology Research Centre in Moscow more than two decades ago. Professor Sviridov has been collaborating with George Washington University in the US for the past 12 years on a series of projects connecting infectious and cardiovascular diseases. The projects aim to identify how infectious diseases, especially HIV, increase the risk of cardiovascular disease. This partnership is not only important in understanding more about the intersection of these common diseases but is indicative of the need to move beyond silo disease exploration to investigate the complex connectivity of disease.

Baker IDI's Professor Karlheinz Peter and his team worked with researchers from Harvard University and the University of Freiburg to develop molecular imaging tools to identify plaques that are prone to rupture using laboratory-made targeted nanoparticles that can be used as contrast reagent in imaging modalities such as ultrasound, MRI, CT and PET. Such innovation has the potential to impact screening programs for people at risk of heart disease.

## GLOBAL SCIENTIFIC LEADERSHIP

Professors Murray Esler and Markus Schlaich continue to play a leadership role in global studies on renal denervation. Their pioneering work has resulted in a paradigm shift in the management of people with high blood pressure – the number one risk factor for premature

death and disability globally. Following a pivotal paper in *The Lancet* in 2010 describing the successes achieved with this new treatment, the procedure has been approved for use in Europe and Australia, and is offered in more than 10 hospitals nationally. This is a wonderful example of the translation of our research from the laboratory in Melbourne to clinics around the world.

The role of our staff in helping to shape and lead major scientific conferences is testament to the international reputations they have forged both inside and outside of the laboratory through their commitment to specialist societies and organisations. In 2012, senior scientists at Baker IDI played a pivotal role in organising the 24th Meeting of the International Society of Hypertension in Sydney. In December 2013, our researchers will play an important role in the World Diabetes Congress which is expected to attract more than 8000 delegates to Melbourne.

## DRIVING NEW PARTNERSHIPS

The trend toward big science is in part driven by economic realities and our scientific governance structures, which, in many cases, require researchers to pool their resources and drive greater operating efficiencies. Competition is fierce and maintaining a leadership role in this environment is critical to continuing to build our research program, and our national and international profile.

Our Preventative Health group is leading by example in this area. Professor Simon Stewart's group will head a \$2.5m NHMRC Centre of Research Excellence to reduce inequality in heart disease, providing support for collaborative research and capacity building. Professor Stewart is Principal Investigator of a second NHMRC program worth more than \$5m over five years which aims to understand how best to prevent heart disease, and for those

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affected, how to achieve the best health outcomes. These studies stand to have a significant impact on the health of our communities by informing policy and developing best-practice prevention and treatment guidelines.

### **ADDRESSING THE HEALTH DISADVANTAGE IN INDIGENOUS COMMUNITIES**

Addressing the profound disadvantage experienced by Indigenous Australians is also core to our mission. We continue to forge a productive role in Indigenous health and one way we do this is by supporting staff to pursue diverse career opportunities. In 2012, Senior Researcher, Associate Professor Graeme Maguire was awarded a five-year NHMRC Practitioner Fellowship. A/Prof Maguire is believed to be the first clinician/researcher in Alice Springs to receive this award, which will allow him to focus on research into the prevention, diagnosis and management of heart and lung disease in Indigenous Australians in remote Australia. As part of Baker IDI's commitment to building capacity amongst our Indigenous researchers, we are pleased to report that Indigenous Research Fellow, Ricky Mentha, who has previously worked as an Aboriginal Health Worker and community development officer, has published his first paper and is now undertaking a Master's degree.

The Institute's clinical outreach and research programs continue to expand. Baker IDI has been successful in securing another three years of funding to deliver diabetes outreach to 10 remote communities in Central Australia. Our researchers are also leading collaborative studies such as a program to determine the future response to Rheumatic Heart Disease, where acquisition of this lifelong condition is now almost exclusively restricted to Aboriginal Australians and

Torres Strait Islander peoples and the prevalence remains among the highest in the world.

In the longer-term, Baker IDI's vision is to establish an alliance of Indigenous health research organisations and universities to make Alice Springs in Central Australia a research hub in the field of Indigenous health. The Institute believes there is enormous potential in harnessing research efforts and resources to champion improvements in this area.

### **RECOGNISING PRE-EMINENT FIGURES IN SCIENCE**

I would like to take this opportunity to acknowledge the passing of two prominent Baker IDI leaders in 2012. Associate Professor Jeremy Jowett led our genomics and system biology laboratory for 15 years. He worked closely with researchers at Deakin University and in San Antonio, Texas, as well as in collaboration with biotechnology company, Chemgenex. Professor Jowett's research led to numerous discoveries of gene associations with type 2 diabetes and obesity.

We also commemorated the important contributions of Professor Paul Korner AO, a former Director of Baker IDI. Professor Korner is widely regarded as one of the great figures in Australian science during the past 50 years and will be remembered as a global pioneer in cardiovascular research. He was director of the Institute from 1975 to 1990 and it was during this time that the Baker is credited with becoming the premier institute in Australia for cardiovascular research, earning an international reputation in hypertension and atherosclerosis research.

### **THANK YOU TO ALL WHO SUPPORT OUR MISSION**

The support that we receive from so many people is vital in assisting us in the fight against cardiovascular disease and diabetes, and in our leadership role in the health and medical research arena.

We are buoyed by the commitment and passion of our donors. Adequate funding is critical to our research and we are grateful for the generous assistance we receive from individuals as well as philanthropic trusts and foundations. A warm thank you to our volunteers, Friends of Baker IDI, patients at our clinics, trial participants engaged in our clinical research and our highly talented and dedicated staff – all of whom are essential in providing the support we need to do our work.

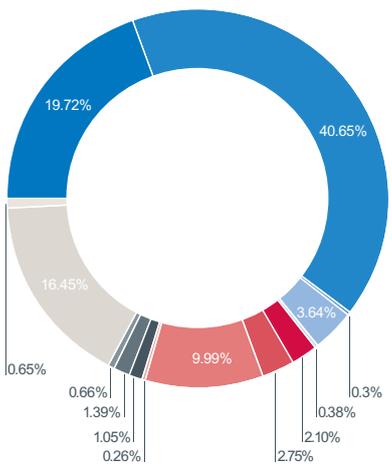
I would like to acknowledge the unwavering assistance of our board, and the support we receive from the Victorian, Northern Territory and Federal governments.

We gratefully acknowledge the important role of the Victorian Department of Business and Innovation in funding the indirect costs of our research, as well as the federal government through the allocation of National Health and Medical Research Council grants. These funding mechanisms are crucial in helping us tackle cardiovascular disease, diabetes and obesity - Australia's biggest health challenges facing society today.

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

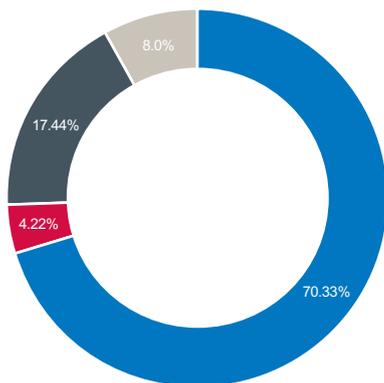
# RESEARCH OUTPUT: GRANTS & PUBLICATIONS

## NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL FUNDING RECEIVED IN 2012



Program Grants	\$5,739,243
Project Grants	\$11,829,958
EU Collaborative Research Grant	\$85,937
Development Grants	\$1,059,954
Capacity Building Grant	\$109,192
Centres of Research Excellence	\$611,138
Australia Fellowships	\$800,000
Research Fellowships	\$2,907,199
Practitioner Fellowships	\$76,116
Career Development Fellowship	\$306,652
Early Career Fellowships	\$405,411
Postgraduate Scholarships	\$192,112
IRIISS	\$4,787,396
Equipment Grant	\$189,952
<b>TOTAL</b>	<b>\$29,100,260</b>

## HEART FOUNDATION FUNDING RECEIVED IN 2012



Grants-in-Aid	\$900,188
Career Development Fellowship	\$54,071
Postdoctoral Fellowships	\$223,250
Postgraduate Scholarships	\$102,394
<b>TOTAL</b>	<b>\$1,279,903</b>

**\$1.23m**  
INTERNATIONAL FUNDING

National Institutes of Health	\$287,715
Juvenile Diabetes Research Foundation	\$946,168
<b>Total</b>	<b>\$1,233,883</b>

**403**  
2012 PUBLICATIONS

Publication Type	Quantity
Original research articles	253
Reviews	94
Editorials & comments	27
Letters	9
Author replies	2
Statements, guidelines & protocols	10
Video research articles	1
Book chapters	7
<b>Total</b>	<b>403</b>

## TOP 10 HIGHEST IMPACT FACTOR JOURNALS

IN 2012, THE WORK OF BAKER IDI RESEARCHERS WAS PUBLISHED IN A RANGE OF INTERNATIONAL PEER REVIEW JOURNALS, INCLUDING:

Publication Name	2011 Impact factor
Nature	36.28
Cell	32.403
JAMA-Journal of the American Medical Association	30.026
Nature Medicine	22.462
Circulation	14.739
Journal of the American College of Cardiology	14.156
British Medical Journal	14.093
Angewandte Chemie International Edition	13.455
European Heart Journal	10.478
Journal of Cell Biology	10.264

A full list of publications can be found on Baker IDI's website at [http://www.bakeridi.edu.au/publications/2012\\_published\\_research/](http://www.bakeridi.edu.au/publications/2012_published_research/)

*Head of the Muscle Research  
and Therapeutics Development  
laboratory, Dr Paul Gregorevic  
with Senior Research Officer,  
Dr Catherine Winbanks*

# TRANSLATION AND PREVENTION



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# TACKLING CHRONIC DISEASE FROM BIRTH TO END OF LIFE

0-18

PRENATAL TO 18 YEARS



18-30

COMMON AT 18 TO 30 YEARS



30-45

COMMON AT 30 TO 45 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 in 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 providing better information on optimal diets and physical activity programs.

## ADULTS WITH RISK FACTORS

It is important that cardiac and metabolic risk 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.

## SUBCLINICAL 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 which 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



**60-70**

COMMON AT 60 TO 70 YEARS



**70+**

COMMON AT 70+ YEARS



### **ACUTE COMPLICATIONS**

Heart attack, stroke and sudden death is 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 which cause heart attack and stroke.

### **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.

### **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 arrhythmia and explore stem cell technologies to regenerate damaged heart muscle and heal damaged arteries.

# MEET OUR RESEARCHERS

This combination of basic scientists with clinicians and population health researchers is central to Baker IDI's approach, and a unique feature that sets it apart from many other research organisations. This approach ensures research is directly informed by community needs, and that research developments and discoveries can be translated into new clinical services and medical devices that benefit the community.

Here we profile just a few of the hundreds of researchers working across the Institute's focus areas.

## RESEARCH STREAM: DIABETES – CLINICAL AND POPULATION HEALTH



Researcher in Focus  
Associate Professor  
Anna Peeters

*Building evidence to inform objective and equitable public health strategies to tackle obesity*

As the Institute's Head of Obesity and Population Health and President of the Australian and New Zealand Obesity Society, Associate Professor Anna Peeters is interested in bringing objectivity and equitability to strategies aimed at tackling the rapidly escalating rates of obesity in Australian communities. Anna leads a team of public health researchers and epidemiologists who aim to build the evidence base for public health policy regarding the prevention of obesity and related diseases such as diabetes and cardiovascular disease. During the past decade her research, both in The Netherlands and Australia, has focused on obesity and the relationship between

increasing weight and loss of life expectancy and links with disease and disability.

## RESEARCH STREAM: HUMAN PHYSIOLOGY AND BEHAVIOURAL SCIENCE



Researcher in Focus  
Professor  
David Dunstan

*Helping to shape public health policy around physical activity, sedentary behaviour and chronic disease*

Head of Physical Activity at Baker IDI, Professor David Dunstan and his team are focused on the role of physical activity and sedentary behaviour in the prevention and management of chronic diseases. His research deals with the health consequences of physical inactivity and sedentary behaviours; the measurement and analysis of environmental, social and personal determinants of behavioural risk factors (television viewing, sitting in cars, desk and screen-bound work); the establishment of laboratory-based trials to better understand how too much sitting may affect health and the development and analysis of broad-reaching interventions. He leads the collaborative group that is analysing the lifestyle risk factors collected from the Australian Diabetes, Obesity and Lifestyle (AusDiab) study, and is the creator of the physical activity program, *Lift for Life*. Through his work, David and his team aim to contribute unique insights relevant to public health policy and to identify environmental and social innovations that can increase physical activity and reduce sitting time.

## RESEARCH STREAM: CELL SIGNALLING AND METABOLISM



Researcher in Focus  
Associate Professor  
Julie McMullen

*Investigating methods for improving function of the failing heart and protect it from complications*

Associate Professor Julie McMullen and her team are interested in understanding heart enlargement, known as cardiac hypertrophy, through comparisons between models of health and disease. They do this by examining the enlarged athletic heart, known as physiological hypertrophy, in comparison to heart enlargement associated with disease, known as pathological hypertrophy. It is well understood that the hearts of athletes grow; the super fit have a heart size greater than the average person. This enlargement is of benefit to them in their training but when they stop training, that healthy heart growth stops and the heart returns to a normal size. Conversely, heart failure patients commonly experience heart growth but this change is devastating. It wreaks havoc and can be very difficult to reverse. Julie is working to identify genes causing heart enlargement that are good for the heart and to reproduce the work of the 'good genes' in the failing heart.

*The institute oversees a broad research program which supports groups of scientists who work in the community, as well as laboratory-based researchers. Their work encompasses the prevention and treatment of diabetes, cardiovascular disease and obesity, and related complications, including hypertension, vascular disease and kidney disease*

## RESEARCH STREAM: DIABETIC COMPLICATIONS



Researcher in Focus  
Associate Professor  
Terri Allen

*Helping to prevent, treat and reverse diabetic complications*

Diabetes is a major risk for the development of cardiovascular disease. Associate Professor Terri Allen's team aims to address important clinical questions about the prevention and treatment of diabetic complications such as atherosclerosis (a hardening and narrowing of the arteries). Current treatment options fail to protect patients from these complications and new treatments are urgently needed. Terri's work, both in the laboratory, as well as her leadership roles with key scientific bodies such as the Australian Atherosclerosis Society, is contributing to greater understanding about this disease, as well as helping to shape research policy and practice guidelines.

## RESEARCH STREAM: HYPERTENSION, OBESITY AND STRESS



Researcher in Focus  
Professor  
Geoff Head

*Advancing our understanding of mechanisms that trigger cardiovascular disease, such as stress*

An internationally renowned neurophysiologist and neuropharmacologist, Professor Geoff Head has made significant contributions to understanding the brain's control of the cardiovascular system.

In particular, his work aims to shed light on the influence of the central nervous system on long-term blood pressure levels and the relationship between blood pressure and stress pathways in the brain. Geoff and his team have developed the first mathematical model used to estimate the rate of blood pressure rise in the morning. While this morning surge in blood pressure has been previously documented, Geoff's work aims to advance understanding about the underlying mechanisms that trigger heart attack and stroke. Geoff has also made major contributions to the understanding of, and management, of hypertension using ambulatory blood pressure monitoring. He has held several key policy roles in this area and chaired a working group to update the guidelines of hypertension management in Australia using ambulatory blood pressure monitoring, with a consensus statement published in the *Journal of Hypertension* in 2012.

## RESEARCH STREAM: BASIC AND CLINICAL CARDIOLOGY



Researcher in Focus  
Associate Professor  
Xiao-Jun Du

*Investigating the underlying causes of heart disease and developing novel interventions for heart failure*

Associate Professor Xiao-Jun Du heads the Experimental Cardiology laboratory, which involves both clinical and pre-clinical research, to help understand the underlying causes that drive heart disease progression and lead to the development of heart failure. Xiao-Jun and his team also test novel interventions, such as those to treat inflammation or fibrosis of the heart and related complications following a heart attack. As well as leading national studies, Xiao-Jun works in partnership

with a number of international groups. He is chief investigator of an international collaborative project funded by the National Natural Science Fund of China, as well as holding the title of adjunct professor at four universities in China.

## RESEARCH STREAM: INDIGENOUS HEALTH



Researcher in Focus  
Associate Professor  
Graeme Maguire

*Committed to improving the health of Aboriginal and Torres Strait Islander peoples*

Associate Professor Graeme Maguire is a senior researcher working to advance the Institute's Indigenous health research program. He is a specialist physician, trained in respiratory medicine, with research interests in Aboriginal and Torres Strait Islander health and rheumatic fever. In addition to a busy research and leadership role, Graeme provides expertise to a range of professional and health organisations, including serving as an advisor to the Australian Lung Foundation and Australian Institute of Health and Welfare. One of his key areas of research relates to trying to understand more about heart valve abnormalities of children in northern and central Australia in a setting where rates of acute rheumatic fever and rheumatic heart disease remain amongst the highest in the world. In 2012, Graeme was awarded a five year NHMRC Practitioner Fellowship, believed to be the first awarded to a researcher and clinician based in Alice Springs.

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# SPECIALIST DIABETES CLINIC DELIVERING WORLD-CLASS CLINICAL CARE

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*Diabetes currently represents one of the most challenging public health problems of the 21st century. 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 the year 2025.*

In response, Baker IDI's Specialist Diabetes Clinic has developed a model of care designed to tackle diabetes on a range of fronts, from preventative programs and expert education through to evidence-based clinical treatment. The Clinic, which provides diabetes services in Melbourne's inner south east and west, has more than 5000 patients and is 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.

The Clinic provides highly advanced treatment and services for people with diabetes, backed by a team of experienced diabetes specialists. The team combines Specialist Diabetes Physicians; Endocrinologists; Dietitians; Ophthalmologists; Renal and Respiratory specialists; Diabetes Nurse Educators and a Counsellor. The close collaborative link with the Institute's researchers on site ensures that health professionals offer evidence-based care and the most progressive therapies available.

The Institute's specialist diabetes physicians are leaders in their field with expertise across a range of areas including diabetes complications; insulin pump therapy; body weight regulation and novel therapies for managing diabetes. In 2013, Baker IDI opened a Weight Assessment and Management Clinic with a view to providing comprehensive advice about a range of weight

management treatments, including the use of specialised diets, drugs, devices and surgical procedures. The Institute also expanded its range of clinical specialties, with a respiratory specialist now providing treatment for diabetes patients with sleep and respiratory-related problems. The Diabetes Clinic in Footscray continues to grow, with several endocrinologists and health education specialists now operating from the clinic in Melbourne's west.

A highly regarded diabetes education service complements the medical services offered by the clinic. The diabetes education service comprises diabetes nurse educators, dietitians and a counsellor who provide individual and group education programs. The curriculum includes supermarket tours for people with type 2 diabetes, flexible insulin therapy and carbohydrate counting.

In addition, Baker IDI delivers a range of training services specifically targeted at health professionals working with patients who have type 1 or type 2 diabetes. These programs are aimed at Practice Nurses, General Practitioners, Community Health Nurses, Diabetes Nurse Educators and Allied Health Professionals.



# ADDRESSING THE HEALTH DISADVANTAGE IN INDIGENOUS COMMUNITIES

*Baker IDI's Indigenous health research program aims to harness the institute's resources to address the profound health disadvantage experienced by Aboriginal Australians and Torres Strait Islanders.*

Infectious and chronic non-communicable diseases such as cardiovascular and kidney disease and diabetes are major contributors to the gap in life expectancy between Indigenous and non-Indigenous Australians.

Baker IDI's Indigenous health research program aims to harness the Institute's resources to address the profound disadvantage experienced by Aboriginal Australians and Torres Strait Islanders, and to build a long-term strategic platform for health and medical research in these communities.

The Institute's Indigenous health research program focuses on working with existing services 'on the ground' in cities, towns and remote communities. It is conducted in close consultation with local communities in and around Alice Springs (where Baker IDI has a research base on the Alice Springs Hospital campus), in the remote communities of Central Australia and the Barkly Region, and in collaboration with partners across northern and urban Australia and internationally.

The research program is based on a whole-of-life approach to understanding and responding to chronic and infectious diseases in Indigenous Australians. This means identifying and addressing the drivers of disease development from the earliest stages of pregnancy through to major causes of disease development and progression, including alcohol and tobacco use, obesity and poor nutrition.

## **2012 Highlights**

### **Published recommendations to address type 2 diabetes in Australian Indigenous children and adolescents**

Baker IDI convened a group of clinicians, policymakers and researchers to consider the actions that need to be taken to address type 2 diabetes mellitus (T2DM) in Australian Aboriginal and Torres Strait Islander children and adolescents. This resulted in a paper in the *Medical Journal of Australia* in 2012, which provides recommendations for diagnosing, screening for, managing and preventing T2DM among Australian Indigenous children and adolescents living in rural and remote settings.

### **Prestigious Practitioner Fellowship for Alice Springs researcher and clinician**

Senior Clinical Research Fellow at Baker IDI Central Australia, Associate Professor Graeme Maguire, was awarded a five year Practitioner Fellowship by the National Health and Medical Research Council. The Fellowship will enable A/Prof Maguire to focus on research into the prevention, diagnosis and management of heart and lung disease in Indigenous Australians in remote Australia.

### **Identifying new approaches to diagnosing and managing STIs in Aboriginal communities**

Indigenous researcher, James Ward, is involved in several key research studies relating to Sexually Transmitted Infections (STIs) and reproductive health in Aboriginal communities. He is an investigator on a \$2.5m NHMRC Centre for Clinical Research Excellence. The program aims to identify new approaches to diagnosing and managing STIs and Blood Borne Viruses, while developing improved clinical guidelines and research capacity within the sector.

# BUILDING CAPACITY, KNOWLEDGE AND STRATEGIC COLLABORATIONS

## DIABETES EDUCATION PROGRAMS

Baker IDI continues to deliver educational programs for professional groups working with patients with diabetes. In 2012, The Preceptorship Program, funded by Novartis, engaged eight General Practitioners from regional areas around Australia in a two day program at the Baker IDI Diabetes Clinic in Melbourne. Attending GPs were updated on best practice in patient management, ensuring they can deliver the most advanced treatment to communities in country areas.

Research shows that people with disabilities experience a high prevalence of diabetes. In 2012, Baker IDI's Diabetes Education services won a contract with Victoria's Department of Human Services (DHS) to run one day workshops up-skilling Disability Accommodation Services' staff in the North and West Divisions. This three-year partnership is an example of the Institute's commitment to assisting with the treatment of diabetes in high-needs groups.

## ADVANCING TREATMENT OPTIONS FOR PATIENTS WITH HEART DISEASE

Baker IDI's researchers are committed to advancing the treatment options available to patients with heart disease. Baker IDI scientists have made significant discoveries that are now being translated into two new products for patient care: a new oral medicine that will provide better options for patients with severe heart failure; and an intravascular imaging technology to prevent heart attack and stroke.

Advanced heart failure is a common, life-threatening disorder resulting in a marked reduction in quality of life and frequent hospitalisation. Due to a lack of viable therapeutic options, heart failure has become the most common cause for hospitalisation in patients over 65 years. To address this challenge, Baker IDI researcher, Professor David Kaye, has developed an extended release oral formulation of a drug which is already used intravenously in hospitals for the treatment of heart failure. Such a formulation will allow patients to be treated at home, providing a significant improvement in their quality of life. Professor Kaye has received NHMRC funding to undertake the early development of this product, with clinical trials scheduled to commence in September 2013.



Despite extensive advances in the field of cardiovascular medicine, early detection of unstable rupture-prone atherosclerotic plaques - which develop in arteries in advance of heart attacks or strokes - is not yet possible. There is an urgent need for a reliable imaging technique to identify vulnerable plaques which could help clinicians treat these lesions before they rupture. Baker IDI senior investigator, Professor Karlheinz Peter, has developed a new and sensitive technology for imaging rupture-prone plaque using an intravascular catheter, and recently received NHMRC funding to undertake the manufacture of prototypes to further develop this technology prior to commencing clinical trials.

# 350

TRAINERS ACCREDITED

TO DELIVER THE LIFT FOR LIFE PROGRAM  
TO MORE THAN 1400 INDIVIDUALS ACROSS  
100 CENTRES IN AUSTRALIA IN 2012

*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 commercialisation of Baker IDI's scientific discoveries.*

## IMPROVED DISEASE MANAGEMENT

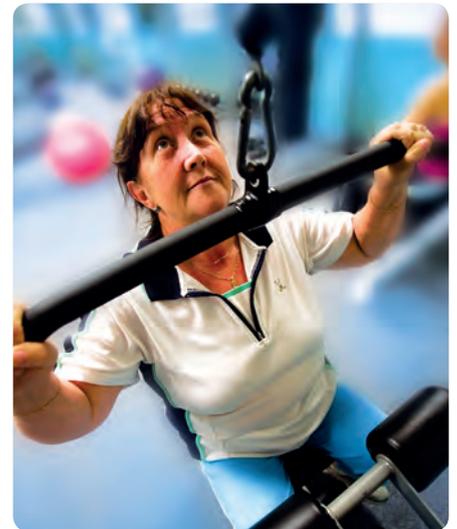
Research by Baker IDI's Head of Physical Activity, Professor David Dunstan led to the development and implementation of a community-based strength training program called Lift for Life. The program is designed to help people manage type 2 diabetes as well as promoting preventive exercise for a range of chronic conditions. In 2009, Baker IDI licensed the rights to the program to Australia's fitness industry association (Fitness Australia) to help increase the uptake of the program nationally. In 2010, Fitness Australia and Baker IDI successfully applied for funding from the Australian Government to roll-out the Lift for Life program in disadvantaged communities throughout Australia, with a focus on people who are unemployed.

At the end of 2012, over 350 trainers were accredited to deliver Lift for Life to more than 1400 individuals across nearly 100 centres throughout Australia. From remote locations such as Alice Springs and Thursday Island to Hume and the Bass Coast in Victoria, Lift for Life has been very popular with local communities and has provided extensive learnings for Fitness Australia, Baker IDI and the Australian Government on implementing lifestyle programs in disadvantaged communities.

## UPSKILLING THE NEXT GENERATION OF SCIENTISTS

Baker IDI is participating in a Victorian government-sponsored program called 'Molecules to Medicines' which provides practical, on-the-job training and mentoring for early career researchers in technology transfer, translation and the commercial development of biomedical discoveries.

The course provides practical experience in areas such as the identification and analysis of research with translation potential, intellectual property management, marketing communication, technology transfer administration and the medicine development process. It is envisaged that these skills will be invaluable to the next generation of researchers as they turn their attention to the translation of research findings.



The Lift for Life physical activity program, developed by Baker IDI researcher, Professor David Dunstan, is helping disadvantaged communities across Australia.



# INTERNATIONAL COLLABORATION SCIENCE WITHOUT BORDERS

## COMPARISON OF TYPE 2 DIABETES AMONG ETHNIC GROUPS

Dr Elizabeth Barr and Director Emeritus Paul Zimmet, AO are collaborating with the National University of Singapore (Department of Epidemiology & Public Health and the Yong Loo Lin School of Medicine), the China-Japan Friendship Hospital, the Chinese Academy of Medical Science, and the Peking University People's Hospital, Beijing, China, on a two-year project which aims to compare the trends in the prevalence of type 2 diabetes among different ethnic groups in Singapore, Mauritius and China. Funded by a Global Asia Institute grant, the project will explore the reasons for differences in prevalence rates of type 2 diabetes among similar ethnic groups in the three countries, including the impact of biological and environmental risk factors on type 2 diabetes.

## THE ROLE OF PLASMA LIPIDS IN CHRONIC DISEASE

The Metabolomics lab is collaborating with the Department of Genetics at San Antonio's Texas Biomedical Research Institute. This collaboration is focused on the integration of lipidomic and genomic datasets from the San Antonio Family Heart Study to better understand the relationship between genetic plasma lipids and the risk of cardiovascular disease and type 2 diabetes. The collaboration is funded from NIH and NHMRC Project grants and has resulted in four publications to date.

## BUILT-ENVIRONMENT DETERMINANTS OF PHYSICAL ACTIVITY

The Behavioural Epidemiology Laboratory is collaborating with the Department of Family and Preventive Medicine at the University of California, San Diego and the Department of Movement and Sports Sciences at Ghent University in Belgium on a study of built-environment determinants of physical activity and sedentary behaviour across 11 countries. Funded by the US National Cancer Institute, evidence from the study will be used to inform public health, transport policy and built-environment initiatives. Data collection is complete and initial findings have been published in the *American Journal of Preventive Medicine* and *Social Science and Medicine*.

## EARLY MARKERS OF DIABETES COMPLICATIONS

The Biochemistry of Diabetes Complications laboratory is working with the FinnDiane Study at the University of Helsinki Finland. The project aims to identify and validate early markers of an increased risk of complications, including kidney disease, cardiovascular disease and mortality. Samples from the FinnDiane cohort are being assessed at Baker IDI, while hypotheses generated at the Institute are being tested in Finland. This ongoing collaboration has already generated over 20 high impact publications.

## RISK FACTORS UNIQUE TO INDIGENOUS POPULATIONS

The Vascular, Lipids and Lipoproteins Division has embarked on a collaboration with the Faculty of Medicine at Malaysia's University Technology Mara to examine the high density lipoprotein (HDL) profile and function in the Indigenous Malay population. Preliminary studies have identified that many individuals within the Indigenous population have an abnormal plasma HDL profile and Baker IDI researchers are providing expertise as to whether these findings might be genetic or environmentally-based.

## RELATIONSHIP BETWEEN INFECTIOUS DISEASE AND RISK OF CARDIOVASCULAR DISEASE

The laboratory of Lipoproteins and Atherosclerosis has been collaborating with the Department of Microbiology, Immunology and Tropical Diseases, and Division of Cardiology at George Washington University in the US for the past 12 years on a series of projects connecting infectious and cardiovascular diseases. Funded by four NIH grants and three NHMRC grants, the projects aim to identify how infectious diseases, especially HIV, increase the risk of cardiovascular diseases. The projects have resulted in 14 publications, including one in the prestigious *PLoS Biology* journal.

**Baker IDI has a long and proud history of international collaboration and this approach 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, minimising duplication and maximising the impact on health.**

### **IMPACT OF BREAKING UP SITTING TIME ON COGNITIVE FUNCTION**

The Physical Activity Laboratory is collaborating with the Department of Public Health and Clinical Medicine, Umeå University, Sweden, on experimental studies examining the impact of breaking up prolonged sitting time on cognitive function in overweight and obese adults. The laboratory has hosted Dr Patrik Wennberg throughout 2013 to undertake this work, with data collection ongoing.

### **INSULIN RESISTANCE AND CELL METABOLISM**

The Cellular and Molecular Metabolism Laboratory has many international collaborations with other world leading laboratories in the area of insulin resistance and cell metabolism. These include collaborations with Max Planck Institutes in both Freiberg and Cologne, Germany which have resulted in papers in journals such as *Cell* and *Journal of Biological Chemistry*. In addition, the lab has ongoing collaborations with laboratories at UCLA, United States, Tokyo, Japan and Kiel, Germany, which have resulted in patent applications and publications in other journals such as *Proceedings of the National Academy of Sciences*.

### **BETTER HEALTH OUTCOMES FOR PEOPLE WITH DIABETES**

The Diabetes & Kidney Disease Laboratory is collaborating with the Department of Pharmacology at the University of Maastricht and the University of Glasgow on several projects funded by the NHMRC and a JDRF multicentre study. These projects aim to better understand the development of blood vessel and kidney disease in diabetes to improve health outcomes of diabetic patients at risk of heart attack, stroke, amputation and chronic kidney failure. Led by Baker IDI researchers, this work has resulted in a publication and editorial in the prestigious cardiovascular journal, *Circulation*, as well as several presentations at national and international conferences.

### **MORE EFFECTIVE TREATMENT FOR ATRIAL FIBRILLATION**

The Clinical Electrophysiology lab is a collaborating partner in an international, multicentre randomised controlled trial called 'The Minimax study'. The study aims to assess whether a minimal or maximum ablation strategy (removal of an unwanted structure or tissue) for atrial fibrillation patients results in improved freedom for people with this common cardiac arrhythmia. Collaborating partners include the Department of Cardiology, Royal Melbourne Hospital; Melbourne Private Hospital; Centre for Heart Rhythm Disorders, University of Adelaide and Royal Adelaide Hospital; Waikato Hospital, New Zealand; Auckland City Hospital and Papworth Hospital, Cambridge, UK. The trial has recruited 250 participants, with preliminary results generating abstracts and presentations at key national and international cardiovascular meetings.

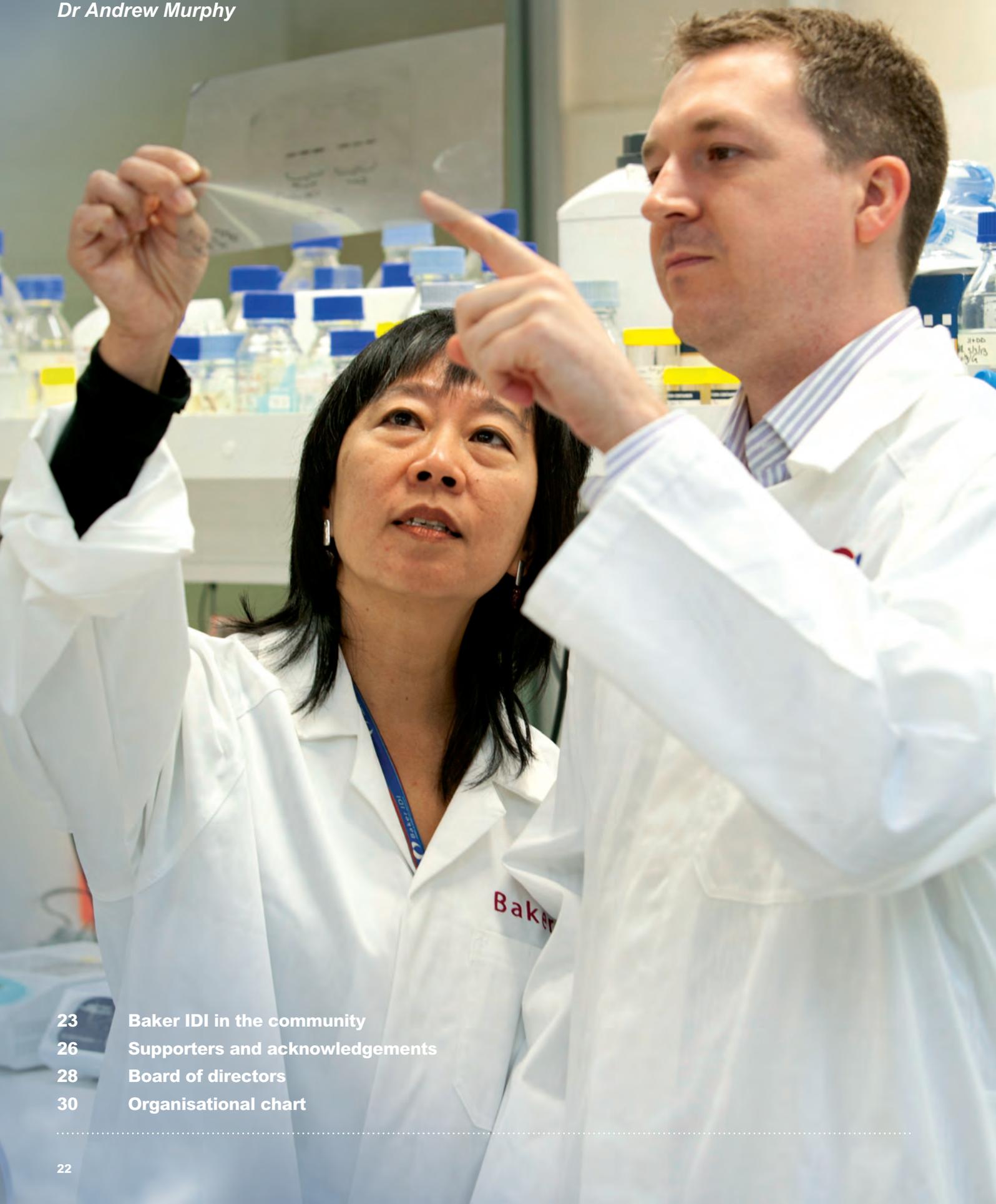
### **NEW THERAPIES FOR HEART FAILURE**

The Cardiac Hypertrophy lab has been collaborating with scientists at Santaris Pharma in Denmark to assess the potential of a new class of drugs which inhibit tiny molecules called microRNAs in a setting of heart failure. A similar therapy has already entered a clinical trial for the treatment of Hepatitis C virus, with favourable results reported in the *New England Journal of Medicine* this year. Baker IDI researchers have demonstrated the therapeutic potential of this new drug in mouse models with failing hearts. This has already resulted in the publication of a paper in the highly ranked *Proceedings of the National Academy of Sciences*.

### **INFORMING HEALTH CARE POLICY IN SOUTH AFRICA**

The Baker IDI / NHMRC Centre of Research Excellence to Reduce Inequality in Heart Disease is collaborating with the Hatter Institute, University of Cape Town in South Africa to document emergent heart disease in Africa's largest urban concentration of black Africans. Comprehensive data from more than 6000 hospital cases (2006-2008) and 1300 primary care cases (2009) has resulted in unique reports on emergent heart disease, heart failure (hypertension rheumatic heart disease), HIV and heart disease, atrial fibrillation and the primary care burden of heart disease. The data has informed and influenced health care policy in South Africa. A new phase of research involving wider collaborations in Africa (particularly Nigeria) has extended heart disease surveillance in sub-Saharan Africa, as well as a multicentre primary prevention study involving pregnant women and their families.

*Head of the Vascular, Lipids  
and Lipoproteins Research Group,  
Professor Jaye Chin-Dusting with  
Group Leader in the Vascular  
Pharmacology laboratory,  
Dr Andrew Murphy*



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# BAKER IDI IN THE COMMUNITY

*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.*

## THE LATE DAME ELISABETH MURDOCH'S HISTORIC CRUDEN FARM OPENED TO THE PUBLIC

In March, the magnificent gardens of the late Dame Elisabeth Murdoch AC were again opened to the public to raise funds for Baker IDI. Hundreds of people took the opportunity to inspect the gardens and purchase local produce and wine. Diabetes and cardiovascular disease specialists from the Institute were on hand to speak about the Institute's research program and to provide health checks and healthy living tips. The Open Day is run by the Friends of Baker IDI, a highly-committed group which has been a long-time supporter of the Institute.

## PACELINE FUNDRAISING RIDE FOR CARDIAC ARRHYTHMIA RESEARCH

In 2012, Paceline cyclists rode 1023km from Coolangatta to Sydney, raising more than \$70,000 for cardiac arrhythmia research. The team, which included several Baker IDI staff, helped generate more than 60 TV, radio and print stories highlighting the Institute's work and raising awareness of this debilitating and potentially deadly condition. The Paceline ride is the brainchild of Melbourne cyclist, father of two and team captain, Steve Quinn, who was 35 when he was diagnosed with atrial fibrillation. Each year, a growing band of cyclists tackles a different course across the country, with the annual event raising more than

\$230,000 to-date for medical research. Funds raised are donated toward research into atrial fibrillation undertaken by scientists at Baker IDI and the Victor Chang Cardiac Research Institute.

## WORKSHOP ON METABOLIC SURGERY FOR DIABETES IN ASIAN POPULATIONS

Baker IDI helped convene a regional conference for leading international experts in type 2 diabetes in Singapore to address the specific challenges and opportunities of metabolic (bariatric) surgery for Asian patients and health care systems. Asian populations have an increased risk of diabetes and cardiovascular disease at lower BMI levels compared with subjects of European descent, due to more abdominal fat. Experts believe that metabolic surgery holds great promise for obese patients with type 2 diabetes in Asia when medical therapies have failed. The conference aimed to provide a platform from which to promote the scientifically sound and safe development of this emerging field. Baker IDI convened the conference with the Diabetes Surgery Center of New York-Presbyterian Hospital/ Weill Cornell Medical Center and the A\*Star Singapore Institute for Clinical Sciences in partnership with the Qatar Foundation.

# 1023km

DISTANCE PACELINE CYCLISTS RODE  
FROM COOLANGATTA TO SYDNEY RAISING MORE  
THAN \$70,000 FOR CARDIAC ARRHYTHMIA RESEARCH

# BAKER IDI IN THE COMMUNITY

## EXPLORING COMMUNITY PERSPECTIVES ON TOPICAL HEALTH ISSUES

Baker IDI canvassed a wide range of issues during the past year as part of its Perspectives series, with high-profile national and international experts engaging with the community on a broad range of health topics including the medicines industry; childhood depression and obesity; and ageing.

In February, the Perspectives series reflected on the challenges facing the Australian medicines industry including the unprecedented wave of patent expiries, the unfolding impact of the Global Financial Crisis and the effect of emerging global markets. The forum included keynote addresses from Dr Brendan Shaw, Chief Executive of Medicines Australia and Professor Lloyd Sansom AO, former Chair of the Pharmaceutical Benefits Advisory Committee.

In May, Dr Alexandre Kalache, who pioneered the concept of 'Active Ageing' and developed the global movement on Age Friendly Cities while at the World Health Organisation, spoke about the challenge of maintaining quality-of-life as people live for longer. The forum coincided with a Perspectives publication on ageing, available on the Baker IDI website.



**Above:** Baker IDI Central Australia's Associate Professor Graeme Maguire with former Olympian, Cathy Freeman and a patient at the Alice Springs Hospital. During a trip to the Northern Territory, Cathy spoke about her personal challenges of living with diabetes.

In September, the President of the Swedish Society of Medicine and Baker IDI Alumnus, Professor Peter Friberg discussed the role of obesity and depression in childhood as possible markers of heart disease and the implications for preventative health strategies.

## SYMPOSIUM ON DIABETES CARE IN AUSTRALIA'S TOP END

Baker IDI, together with the Northern Territory Government's Department of Health and Families, hosted an educational symposium in Darwin titled 'Diabetes Care at the Top End' in October. The symposium reviewed the latest management and preventative health programs, as well as research around key issues such as barriers to care, with a particular focus on remote communities. Former Olympian, Cathy Freeman was a guest speaker, sharing her personal story of the challenges of living with type 2 diabetes to help raise awareness of issues that people with diabetes can face, particularly Indigenous Australians.

*Baker IDI is actively engaged in the area of public health advocacy and education, ensuring the Institute's research is translated in a way that is accessible to the wider community.*

## A COMPREHENSIVE ASSESSMENT OF DIABETES IN AUSTRALIA

*'Diabetes: the silent pandemic and its impact on Australia'*, is a comprehensive assessment of the disease's rapid growth and its impact on Australians. Researched and written by Baker IDI in partnership with Diabetes Australia, the Juvenile Diabetes Research Foundation and Novo Nordisk – the report provides a sobering reminder that in just over a decade (by 2025), our fastest growing chronic disease, (type 2 diabetes) will triple in prevalence and affect three million Australians. Launched at Parliament House in March 2012, the report highlights the need for urgent action to contain the significant burden that diabetes is set to have on future generations.

## TRANSLATING OUR RESEARCH THROUGH ADVOCACY AND EDUCATION

Baker IDI is actively engaged in the area of public health advocacy and education, ensuring the Institute's research is translated in a way that is accessible to the wider community. The Institute's researchers regularly speak with Australian and international media to provide advice on topical public health issues ranging from bariatric surgery, diabetes management and the importance of maternal health, to evidence-based approaches to managing high blood pressure and cholesterol. The Institute is also active on social media and contributes to government health information networks such as *HealthInsite* and Victoria's *Better Health Channel*, ensuring quality, evidence-based information is available to the public.



**Above:** The magnificent gardens at Cruden Farm provided an enchanting setting for Baker IDI's Open Day.

# SUPPORTERS AND ACKNOWLEDGEMENTS

1 JANUARY – 31 DECEMBER 2012

## MAJOR INSTITUTIONAL SUPPORT

Australian Primary Health Care  
Research Institute  
The Baker Foundation  
Cardiac Society of Australia  
& New Zealand  
Diabetes Australia Research Trust  
Federal Government of Australia

- Australian Research Council
- Department of Health & Ageing
- National Health & Medical  
Research Council

Juvenile Diabetes Research Foundation  
The Miller Foundation  
National Institutes of Health (USA)  
National Heart Foundation  
Pfizer Australia  
Victoria State Government

- Department of Business  
& Innovation
- Department of Human Services
- VicHealth
- Victorian Cancer Agency

## MAJOR GIFTS

Advantage Salary Packaging  
Mr Robert Albert AO  
Anonymous  
Bellberry Limited  
Casella Wines Pty Ltd  
In memory of Jeffrey Clifton  
Mr Stephen Cook  
Dairy Innovation Australia Ltd  
Diana Gibson AO  
Mrs Jean E Drury  
In memory of Izzy Herzog AM  
Mrs J Marie Jones  
Meydan Family Foundation  
Mr Philip & Mrs Sylvia Munz  
Prescott Family Foundation  
Reece Australia Limited  
Mrs June Ross  
Mrs Margaret S. Ross AM  
The Search Foundation  
St Jude Medical Australia Pty Ltd  
The G W Vowell Foundation Ltd

## SPECIAL GIFTS

The Abercrombie Family Foundation  
Anonymous  
Australian Lions Foundation  
Mr Martin P Bade  
Miss Joan Barradell  
The L. R. Cazaly Trust Fund  
CSYS Consulting Services Pty Ltd  
In memory of Mr Les Erdi OAM  
Eva & Tab Fried  
(in memory of Helen & Henrik Aroni)  
George Victor Rumbold  
Dina and Ron Goldschlager Family  
Charitable Foundation  
Mr Grahame Green  
GRAS Foundation  
Thelma Handreck  
The Harbig Family Foundation  
Mrs Lindsay Henderson  
Lions Club of Melbourne Chinese Inc  
Mr & Mrs R & M Macdonald  
Mr Lindsay Maxsted  
Mrs Dina Munzer  
Mr Baillieu Myer AC  
Mr Dennis & Mrs Fairlie Nassau  
Paceline Inc.  
Mr Nigel Peck AM & Mrs Patricia Peck  
Family of George R. Peggie  
John and Lesley Roche  
Mr Behnam Roohizadegan  
Mr Peter Scott  
Mr Rob Stewart AM  
Mr Peter Twomey

*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.*

## **BRIGHT SPARKS PROGRAM SPONSORS**

Alan Williams Trust Fund  
Anonymous  
Bayview Travel  
Mrs Rosetta & Mr Alan Bloom  
The Cybec Foundation  
Mrs Sylvia Gelman AM MBE  
The Isabel & John Gilbertson  
Charitable Trust  
GRAS Foundation  
The Harbig Family Foundation  
Mrs Diana Hardy  
Harold Mitchell Foundation  
Hermods Nominees Pty Ltd  
Mrs Anne King  
& Mr Beresford King OAM  
Mr Robert & Mrs Jan Lyng  
The Miller Foundation  
Mr Lynton & Mrs Susan Morgan  
Pierce Armstrong Foundation  
Rotary Club of Mount Waverley  
Mr Tony & Mrs Kitty Stewart  
Ms Jenny Tatchell  
William Angliss (Vic.)  
Charitable Fund  
Norman & Meryll Wodetzki

## **SIR LAURENCE MUIR PRIZE**

Mr John Bate OAM  
Bertalli Family Foundation  
Mr Ian & Mrs Maria Cootes  
Mr Tom Hogg  
Mrs J & Mr J Gordon Moffatt AM  
Portland House Foundation  
Brian C Randall OAM  
Mr John B Reid AO  
Mrs Margaret S. Ross AM  
Scanlon Foundation  
Mr Geoffrey Webb

## **BEQUESTS**

Estate Anthony Francis O'Callaghan  
Estate Clarice Jones  
Estate Donald James Riddiford  
Estate Edna Mary McKaige  
Estate Enid Wandin  
Estate Grace Saunders in  
appreciation for services rendered  
by Dr Peter Habersberger  
Estate Helen Delamain Glascodine  
Estate Isabel Louise Deravin  
Estate Mignon Rae Davis  
Estate Moya Alberta Robinson  
Estate Polly Harris Godfrey  
Estate Robert William Robertson  
Estate Ruth Webster  
Estate Sofia Zitron

## **BEQUESTS IN PERPETUITY**

Hazel & Pip Appel Fund  
Baker Institute Grant Trust  
The Baldy Trust Fund  
Bell Charitable Fund  
William Buckland Foundation  
Joanna & Lyonel Middows  
Research Foundation  
The Lesley Dickson  
Charitable Endowment  
M A & V L Perry Foundation  
Estate E E E Stewart

## **TRUSTS & FOUNDATIONS**

Bupa Health Foundation  
Ernest Heine Family Foundation  
Harold and Cora Brennen Benevolent Trust  
James & Elsie Borrowman Trust  
The John T Reid Charitable Trusts  
The Marian & E.H. Flack Trust  
Joe White Bequest

## **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

## **FRIENDS OF BAKER IDI COMMITTEE**

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

## **EDUCATIONAL SUPPORT**

Abbott Diabetes Care  
Bristol-Myers Squibb  
& AstraZeneca joint venture  
Lilly  
Medicines Australia  
Northern Territory  
Department of Health  
Novartis  
Novo Nordisk  
Swisse

# BOARD OF DIRECTORS

## GOVERNANCE



**Board of directors from left to right:** Mr Lindsay Maxsted (Treasurer); Mr Ian Smith; Professor Garry Jennings AO; Mr Justin Arter; Ms Kate Metcalf; Mr Peter Scott (Chairman); Professor Paul Zimmet AO; Mr David Gilmour; Ms Paula Dwyer (Deputy Chair); Mr Robert Nicholson; Associate Professor Andrew Way; Dr David Thurin. Professor Christina Mitchell is not pictured.

### PETER SCOTT

#### Chairman

##### Appointed June 2012

Peter Scott is Vice Chairman of the Investment Banking team at UBS Australia and has more than 25 years experience in providing financial advice to large Australian companies and governments. He has been a member of the Australian Takeovers Panel since 2002 and a member of the New Zealand Takeovers Panel since 2008.

### PAULA DWYER

#### Deputy Chairman

Paula Dwyer's background is in investment management and investment banking. She is Chairman of Tabcorp Holdings Ltd and Deputy Chairman of Leighton Holdings Ltd, a Director of Australia and New Zealand Banking Group Ltd and Lion Pty Ltd. She is also a member of the Takeovers Panel and the ASIC Advisory Board.

### 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. Professor Jennings is Adjunct Professor of Medicine at Monash University and a director of the National Heart Foundation of Australia, AMREP AS Pty Ltd, Research Australia and the Association of Australian Medical Research Institutes.

### JUSTIN ARTER

#### Non Executive Director

Justin Arter joined BlackRock Investment Management Australia 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 former Director and Vice President of the Boston Consulting Group's Melbourne office. He was a director and owner of Ansett Aviation Training, the largest airline pilot training centre in the Southern Hemisphere. Now he is a private investor and is director and owner of Untapped Fines Wines, which imports and distributes fine wine from South America and Spain.

*Baker IDI has a passionate Board comprising eleven unpaid non-executive directors, an executive director and a director emeritus. This group has a variety of skills, and carries responsibility for the corporate governance and financial sustainability of the organisation.*

## KATE METCALF

### Non Executive Director

Kate Metcalf is a Senior Solicitor at Monash University and is a Trustee of the Baker Foundation. She has previously held positions as the Legal Director Asia, General Council Australia and New Zealand, director and Company Secretary of Carestream Health Australia Pty Ltd and Senior Counsel and Company Secretary Kodak (Australasia) Pty Ltd.

## 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.

## 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 has been a member of the Herbert Smith Freehills board since 2000 and was Chairman between 2008 and 2011. He is also chairman of the Nucleus Network Board.

## IAN SMITH

### Non Executive Director

Ian Smith is a partner of Bespoke Approach, a corporate and political advisory firm established in July 2008. Ian was appointed in April 2013 to the Northern Territory Government's economic development panel and is a member of the NAB PrivateWealth Advisory Council. He undertakes a range of not-for-profit roles: as Chairman of Jirrawun Arts, an East Kimberley arts organisation; as an advisory board member of the *Big Issue*; and an advisory board member of the Association of Australian Medical Research Institutes.

## 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 an investment arm involved in both 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 Melbourne Football Club.

## ASSOCIATE PROFESSOR ANDREW WAY

### Non Executive Director

Andrew Way commenced as CEO of Alfred Health in July 2009. Prior to this, Andrew had an extensive career in the NHS in the UK, most recently as CEO of Royal Free Hampstead NHS Trust, a major London teaching hospital associated with University College London. Whilst there he helped support the creation of one of the UK's Academic Health Science Centres (AHSC), UCLPartners, and most recently, has been a major driver in the development of Monash Partners Academic Health Science Centre.

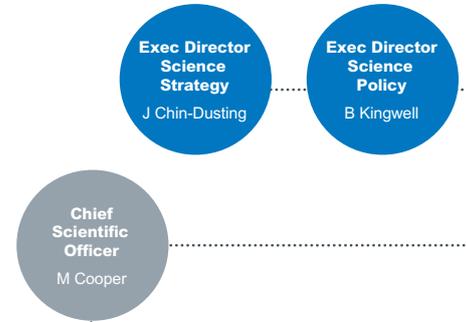
## PROFESSOR PAUL ZIMMET AO

### 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 the University of Pittsburgh (USA), an Honoured Member of the Spanish Royal National Academy of Medicine, a Patron of Obesity Australia, sits on the SAHMRI Aboriginal Research Council and is Honorary President, International Diabetes Federation. He is on the International Advisory Board of the National University of Singapore Initiative to Improve Health in Asia (NIHA) and a member of diabetes advisory boards for Novo Nordisk, Janssen Cilag and Novartis.

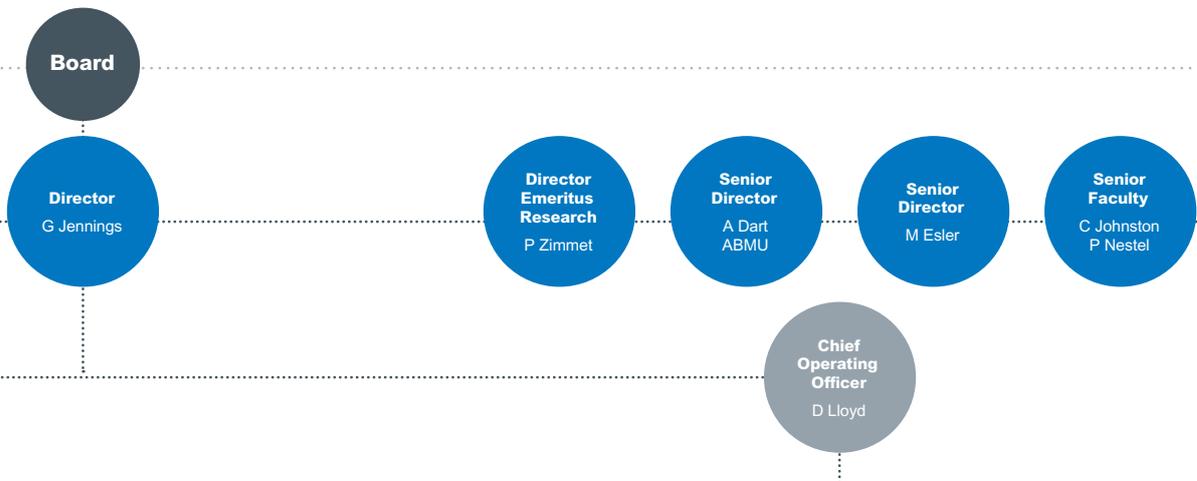
*Baker IDI's Company Secretary is David Lloyd (Deputy Director and Chief Operating Officer). Anita Furnell serves as the Chief Financial Officer.*

# ORGANISATIONAL CHART



## Diabetes & Metabolism

Diabetes – Clinical & Population Health J Shaw	Cell Signalling & Metabolism M Febbraio	Epigenetics A El-Osta	Diabetic Complications K Jandeleit-Dahm	Indigenous Health G Maguire	Human Physiology & Behavioural Science B Kingwell	Vascular Lipids & Lipoproteins J Chin-Dusting	Cell Biology & Atherosclerosis K Peter
Clinical Diabetes & Epidemiology J Shaw	Cellular & Molecular Metabolism M Febbraio	Human Epigenetics A El-Osta	Diabetes & Kidney Disease K Jandeleit-Dahm	Deputy Director Central Aus J Ward	Metabolic & Vascular Physiology B Kingwell	Vascular Pharmacology J Chin-Dusting	Atherothrombosis & Vascular K Peter
Obesity & Population Health A Peeters	Muscle Research & Therapeutics P Gregorevic	Epigenomic Medicine T Karagiannis	Diabetes & Atherosclerosis T Allen		Physical Activity D Dunstan	Lipoproteins & Atherosclerosis D Sviridov	Vascular Biotechnology C Hagemeyer
Diabetes & Population Health D Magliano	Cardiac Hypertrophy J McMullen		Biochemistry of Diabetic Complications M Thomas		Behavioural Epidemiology N Owen	Metabolomics P Meikle	Vascular Biology & Atherosclerosis A Bobik
Diabetes Clinics N Cohen			Nutrition, Glycation & Metabolism M Coughlan			Computational Biology R Lazarus	
Education Services M Mack			Molecular Group M Cooper				
			Genomics & Systems Biology K Bozaoglu				



### Cardiovascular Research

Hypertension Obesity & Stress M Schlaich	Basic & Clinical Cardiology D Kaye	Preventative Cardiology S Stewart
Hypertension & Kidney Disease M Schlaich	Heart Failure Research D Kaye	Preventative Health S Stewart
Human Neurotransmitters G Lambert	Experimental Cardiology X Du	Primary Care & Risk Surveillance M Carrington
Neuropharmacology G Head	Molecular Cardiology E Woodcock	Data Management
Clinical Obesity J Dixon	Heart Failure Pharmacology R Ritchie	Healthy Hearts
	Clinical Electrophysiology P Kistler	
	Clinical Cardiology J Shaw/S Duffy	
	Imaging A Taylor	

### Research Support & Administration

Legal J Goodall	Clinical Research Centre L Keam	Finance A Furnell	Commercialisation G Krippner	Community & Corporate Relations L Harrison	Operations H Bolton
		Group Financial Controller D Shearer	Commercialisation G Ward	Fundraising & Development J Moore	Human Resources J Morris
		Financial Controller N Marich	Project Admin K Tulli	Business Development G Cormick	Information Technology I Briggs
		Systems Admin & Investments G Loetsch		Media & Comms C Hickie	Facilities Management G Whitehall
					Occupational Health & Safety A Quintarelli
					Scientific Services L Pipolo
					Admin Services C Thomson
					Research Office H Gallichio
					Research Support L Cullen

*Head of the Primary Care and Risk Surveillance Unit, Dr Melinda Carrington with Professor Simon Stewart who leads the Preventative Cardiology Research Group*



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# FINANCIAL SUMMARY

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Fundraising and support from our donors is critical to Baker IDI's success, with the commitment of our donors particularly encouraging during times of economic instability and political change. In 2012, the Institute raised \$8.42m through a combination of appeals, regular giving, a raffle, community events, major gifts, trusts and foundations and bequests. The generosity of our donors, enables the Institute to purchase key equipment, support leading scientists and develop new research projects.

For every \$1 the Institute spends on fundraising, we raise over \$3 more. Overall, \$2.65m was invested across the fundraising department in 2012, including a significant investment in the direct marketing program for the acquisition of new donors. The acquisition strategy aims to grow our network of supporters nationally and ensure a reliable and regular funding stream to support the ongoing needs of the Institute year on year. We are particularly buoyed by the increase in new donors during the past two years as we continue to extend our reach to those people touched by diabetes and heart disease across Australia.

The Baker Foundation generously provided \$1.95 million to the Institute in 2012 as well as research funding for a muscular skeletal project. The Baker Foundation has been a major supporter of the Institute's work since the establishment of the Baker Institute in 1926. We are extremely grateful to The Baker Foundation, which continues to provide invaluable support to our scientific community.

The Institute's share of capped Operational Infrastructure Support (OIS) funding from the Victorian Government increased by 8.6 per cent while funding from the Federal Government's Independent Research Institute Infrastructure Support Scheme (IRIIS) increased by 11.8 per cent for the period. The Institute is grateful for this support as both contribute towards the indirect costs of grant funded research activities.

The Institute was awarded \$29.91 million in the 2012 round of National Health and Medical Research Council grants for 32 research grants scheduled to commence in 2013. Baker IDI welcomes bipartisan support for health and medical research funding, which is critical both to the Institute, and 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 Diabetes Australia Research Trust grants. The Institute gratefully acknowledges the support of these grant programs and the critical role they play in supporting our research endeavours.

The Institute is working hard to foster a more diverse range of 'partners in translation', including private and philanthropic capital, to match the investment of government and deliver greater returns to Australians.

Some challenges remain – most notably the funding gap between research grants and the indirect costs associated with that research. The gap includes salary support to retain our top scientists, new equipment, core facilities and laboratory running costs. For every \$1 our scientists receive in government research funds, the Institute has to find an additional 56 cents to ensure the project can become a reality. Baker IDI is committed to working in partnership with government to identify solutions to this issue and ensure a vibrant and sustainable future for the sector.

*The generosity of our donors enables the Institute to purchase key equipment, support leading scientists and develop new research projects.*

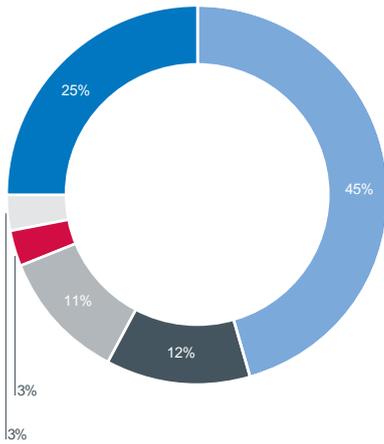
**\$8.42m**

GENEROUSLY CONTRIBUTED BY OUR DONORS

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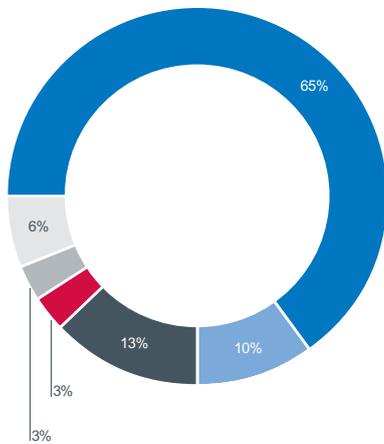
# FINANCIAL PERFORMANCE AT A GLANCE

## CONSOLIDATED REVENUE



Service and clinical income	17,774,567
Competitive grants	32,251,438
Fundraising, including bequests	8,420,598
Government support	8,178,189
Other income	2,143,285
Investment income	2,468,042
<b>TOTAL</b>	<b>\$71,236,119</b>

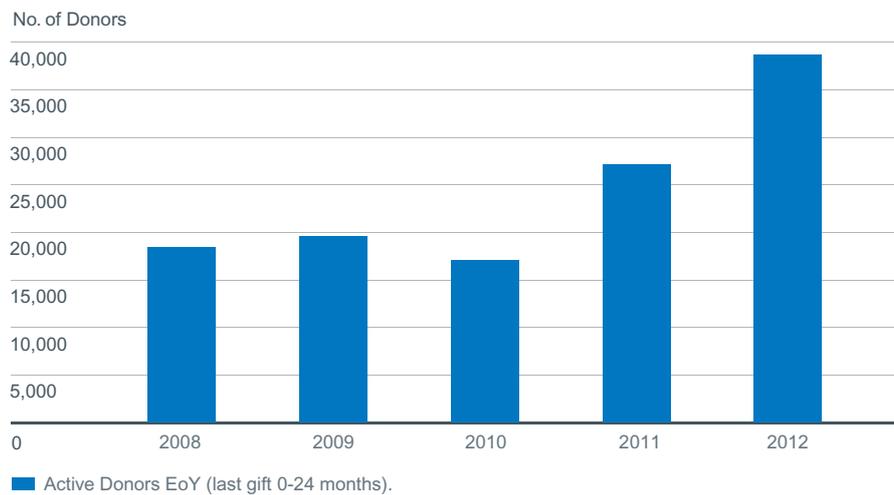
## CONSOLIDATED EXPENDITURE



Research costs	47,707,962
Laboratory support	7,451,113
Administration	9,351,818
Building costs	2,558,052
Business development	1,863,433
Depreciation/amortisation	4,362,298
<b>TOTAL</b>	<b>\$73,294,676</b>



## DONOR BASE GROWTH



## NOTABLE FINANCIAL INFORMATION

	2012 (\$)	2011 (\$)
Income for research and clinical trials	71,236,119	69,247,150
Expenditure on research and clinical trials	68,932,378	68,794,738
<b>Net surplus from operations before depreciation and amortisation</b>	<b>2,303,741</b>	<b>452,412</b>
Capital expenditure	1,718,689	1,555,077
Operational Infrastructure Support included in income	3,390,792	3,123,456
Number of full time equivalent staff and visiting scientists	443	421
Number of students	74	83
Scientific papers published	403	385

# FINANCIAL STATEMENTS

## STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2012

	CONSOLIDATED		PARENT	
	2012 (\$)	2011 (\$)	2012 (\$)	2011 (\$)
<b>ASSETS</b>				
<b>Current assets</b>				
Cash and short term deposits	11,517,765	13,180,424	11,511,416	13,134,741
Trade and other receivables	5,089,716	5,065,016	2,079,977	2,238,715
Right to occupy	507,619	507,619	507,619	507,619
Prepayments	139,169	280,597	81,547	205,840
<b>Total current assets</b>	<b>17,254,269</b>	<b>19,033,656</b>	<b>14,180,559</b>	<b>16,086,915</b>
<b>Non-current assets</b>				
Property, plant and equipment	48,314,653	50,594,197	47,314,387	49,271,380
Right to occupy	8,718,221	9,225,840	8,718,221	9,225,840
Intangible assets	88,419	157,786	88,419	157,786
Investment in subsidiary	–	–	–	15,488
Investment in an associate	3,536,618	3,531,002	2,265,001	2,265,001
Available-for-sale financial assets	18,914,064	14,335,577	18,861,983	14,283,496
<b>Total non-current assets</b>	<b>79,571,975</b>	<b>77,844,402</b>	<b>77,248,011</b>	<b>75,218,991</b>
<b>TOTAL ASSETS</b>	<b>96,826,244</b>	<b>96,878,058</b>	<b>91,428,570</b>	<b>91,305,906</b>
<b>LIABILITIES</b>				
<b>Current liabilities</b>				
Trade and other payables	6,814,456	6,431,003	5,224,183	5,267,231
Interest bearing loans and borrowings	517,862	861,627	222,874	177,816
Unearned income	8,121,856	8,089,947	7,863,496	7,862,717
Provisions	7,236,481	6,934,643	6,770,681	6,364,693
<b>Total current liabilities</b>	<b>22,690,655</b>	<b>22,317,220</b>	<b>20,081,234</b>	<b>19,672,457</b>
<b>Non-current liabilities</b>				
Interest bearing loans and borrowings	138,412	220,484	38,412	220,484
Lease incentive liability	94,262	303,050	–	–
Provisions	1,674,875	1,751,357	1,475,009	1,503,585
<b>Total non-current liabilities</b>	<b>1,907,549</b>	<b>2,274,891</b>	<b>1,513,421</b>	<b>1,724,069</b>
<b>TOTAL LIABILITIES</b>	<b>24,598,204</b>	<b>24,592,111</b>	<b>21,594,655</b>	<b>21,396,526</b>
<b>NET ASSETS</b>	<b>72,228,040</b>	<b>72,285,947</b>	<b>69,833,915</b>	<b>69,909,380</b>

# \$96.8m

TOTAL CONSOLIDATED ASSETS  
STATEMENT OF FINANCIAL POSITION  
AS AT 31 DECEMBER 2012

## STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2012 (CONTINUED)

	CONSOLIDATED		PARENT	
	2012 (\$)	2011 (\$)	2012 (\$)	2011 (\$)
<b>EQUITY</b>				
<b>Equity attributable to equity holders of the parent</b>				
Restructure reserve	–	–	5,578,233	5,578,233
Retained earnings	70,235,943	72,083,322	62,263,585	64,351,541
Available-for-sale reserve	1,992,097	(20,394)	1,992,097	(20,394)
<b>Parent interests</b>	<b>72,228,040</b>	<b>72,062,928</b>	<b>69,833,915</b>	<b>69,909,380</b>
Non-controlling interests	–	223,019	–	–
<b>TOTAL EQUITY</b>	<b>72,228,040</b>	<b>72,285,947</b>	<b>69,833,915</b>	<b>69,909,380</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 Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board. The statutory financial statements were unqualified by the auditors Ernst & Young.

# FINANCIAL STATEMENTS

continued

## INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2012

	CONSOLIDATED		PARENT	
	2012 (\$)	2011 (\$)	2012 (\$)	2011 (\$)
<b>Continuing operations</b>				
Grants supporting research activities	32,251,438	29,277,969	32,251,438	29,277,969
Commonwealth and state government capital infrastructure grants	–	1,050,912	–	1,050,912
Infrastructure funding	8,178,189	7,404,227	8,178,189	7,404,227
Fundraising, corporate and private support	8,420,598	8,698,270	8,420,598	8,698,270
Service and clinical income	17,774,567	19,588,851	5,070,571	8,128,959
Investment income	2,468,042	1,736,920	2,475,618	1,728,086
Other revenue	2,143,285	1,490,001	2,723,346	2,160,488
<b>Revenue</b>	<b>71,236,119</b>	<b>69,247,150</b>	<b>59,119,760</b>	<b>58,448,911</b>
Employee benefits expense	43,189,833	43,239,397	36,380,979	35,750,279
Research and clinical expense	12,831,583	12,081,965	11,721,209	11,235,913
Depreciation and amortisation expense	4,362,298	4,714,766	4,114,666	4,413,364
Share of profit/(loss) in associate	(5,616)	103,910	–	–
Impairment of assets	418,686	986,034	418,686	1,006,170
Loss on decommissioning of asset	281,006	255,895	–	255,895
Building overheads	1,250,634	1,375,722	1,281,373	1,184,640
Borrowing costs expense	62,752	63,400	20,967	27,609
Laboratory support expense	4,993,227	4,798,305	2,087,260	1,979,216
Raffle expense	1,707,100	1,929,683	1,707,100	1,929,683
Other expenses from ordinary activities	4,203,173	3,960,427	3,475,476	3,420,869
<b>Expenditure</b>	<b>73,294,676</b>	<b>73,509,504</b>	<b>61,207,716</b>	<b>61,203,638</b>
<b>Surplus/(deficit) before tax</b>	<b>(2,058,557)</b>	<b>(4,262,354)</b>	<b>(2,087,956)</b>	<b>(2,754,727)</b>
Income tax expense	–	–	–	–
<b>Surplus/(deficit) for the year</b>	<b>(2,058,557)</b>	<b>(4,262,354)</b>	<b>(2,087,956)</b>	<b>(2,754,727)</b>
Surplus/(deficit) attributable to:				
Non-controlling interest	–	(9,384)	–	–
Members of the parent	(2,058,557)	(4,252,970)	(2,087,956)	(2,754,727)
	<b>(2,058,557)</b>	<b>(4,262,354)</b>	<b>(2,087,956)</b>	<b>(2,754,727)</b>



*Head of the Physical Activity laboratory, Professor David Dunstan with Dr Alicia Thorp – a Research Fellow in the Neurovascular Hypertension and Kidney Disease Laboratory*

# THE HEALTHY HEARTS CLINIC

*Baker IDI's Healthy Hearts Clinic has been helping individuals at risk of developing cardiovascular disease for 25 years and enabling researchers and clinicians to determine optimum approaches to cardiovascular risk assessment.*

Cardiovascular disease (including heart attack, stroke and vascular diseases) kills more Australians than any other disease and is responsible for over 50,000 deaths each year. In the future, the burden of disease is expected to increase due to our ageing population.

Baker IDI's Healthy Hearts Clinic is a free community service that helps people identify and address their risk of developing cardiovascular disease.

A cardiovascular risk assessment is essentially a health check conducted by trained nurses. As part of the assessment, a clinical nurse asks a series of questions to assess lifestyle factors and medical history, measure blood pressure, height and weight as well as checking cholesterol and blood sugar levels.

Based on the results of these measurements, a person's cardiovascular risk score is established. The clinic's nurses then provide healthy diet and lifestyle advice to help reduce that risk or suggest referral to other health professionals (if necessary).

The information collected during a visit to the Healthy Hearts Clinic can also help researchers identify new links between risk factors and the chances of developing cardiovascular disease and diabetes.

## CELEBRATING 25 YEARS' SERVICE TO THE COMMUNITY

In 2012, the clinic celebrated 25 years' service to the community. Since it first opened its doors, the clinic has screened more than 14,000 people to assess their risk of cardiovascular disease. Approximately sixty per cent of visitors to the clinic return for a follow-up assessment, accounting for more than 23,000 visits to the clinic over the period. In 2011, the clinic performed 426 risk assessments.

Over the past 25 years, the clinic has documented important trends in cardiovascular disease, collecting valuable data for preventative health research. Overall, blood pressure levels have declined and there are less people who smoke; two critical risk-factors contributing to cardiovascular disease. However, there remain some big challenges to Australia's cardiovascular health, with an ageing population and significant weight gain amongst adults in the community, highlighting the need for continued risk monitoring and prevention strategies.

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