

RESEARCH TRANSLATION PREVENTION

ANNUAL REPORT
2013



UNIQUELY POSITIONED TO ADDRESS THE CHANGING HEALTH LANDSCAPE

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

Baker IDI Heart and Diabetes Institute is an independent, internationally renowned medical research facility, with a history spanning more than 88 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 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.

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

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

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

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

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Scientific discoveries by Baker IDI researchers are helping to tackle frailty, high blood pressure and atherosclerosis

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The Institute's scientists were recognised with some of the most prestigious health and research awards

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Meet some of the researchers who work across the Institute and find out what drives them

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The publication of lifestyle and recipe books is just one way that Baker IDI is translating its research into better health for the community

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The Institute's diverse international footprint reflects the future of research as we move into the era of 'big science'

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An inaugural oration in Central Australia aimed at encouraging discussion about the health of Aboriginal and Torres Strait Islander people

AUSTRALIA'S GREATEST HEALTH CHALLENGES

12

EVERY 12 MINUTES

Cardiovascular disease (heart, stroke and blood vessel disease) kills one Australian every 12 minutes¹

1ST

WITHIN THE 1ST HOUR

One in four people who die from a heart attack die within the first hour of their first symptom²

6

ONE IN SIX PEOPLE

One in six people will suffer a stroke in their lifetime³

269

269 PEOPLE A DAY

Every day, approximately 269 adults in Australia aged over 25 develop diabetes⁴

x2

DOUBLE THE RISK

Living in the most socially disadvantaged areas of Australia doubles the risk of developing diabetes⁵

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 2025⁶

30

30 PER CENT HIGHER

Rates of cardiovascular disease are 30 per cent higher among Aboriginal and Torres Strait Islander peoples than among non-Indigenous Australians⁷

8

EIGHT TIMES AS LIKELY

Indigenous people are eight times as likely to begin dialysis for kidney disease or to receive a kidney transplant⁸

54

54 PEOPLE A DAY

More than 54 people in Australia die every day with kidney-related disease⁹

2ND

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 countries¹⁰

4

TOP FOUR RISK FACTORS

Australian data show the top four disease risk factors are tobacco smoking; high blood pressure; overweight and obesity; and physical inactivity¹¹

SNAPSHOT OF THE INSTITUTE



A staff base of more than 650 (including students, honorary staff and visiting academics)



Research agenda spans birth to end-of-life health (including maternal health, Indigenous and gestational health, acute and chronic complications, heart failure and advanced disease)



A long and distinguished history, spanning more than 88 years



Headquartered in Melbourne, with a research facility in Alice Springs



Collaborations with many leading international research groups



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



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



\$72 million turnover, including commercial subsidiaries such as early phase clinical trials facility, Nucleus Network



Funded through a diverse range of sources, including competitive grants, Federal and State Governments, service and clinical income, and philanthropic support

2013 HIGHLIGHTS DISCOVERY

WAKE-UP CALL FOR AUSTRALIAN HEART ATTACK SURVIVORS

One of the largest studies assessing the perceptions of Australian heart attack survivors and those who care for them has uncovered a concerning level of patient complacency. The report, *Two Hearts One Future*, led by Professor Simon Stewart from Baker IDI's Preventative Cardiology group and sponsored by AstraZeneca, also highlighted the emotional burden faced by carers of those living in the shadow of the nation's biggest killer. Released in July 2013, the report revealed that many heart attack survivors underestimate their risk of having a future heart attack, and fail to follow their GP's advice or attend rehabilitation (carers maintain that only half of survivors do so). Conversely, carers appear to be more deeply affected post-event, carrying a greater emotional burden and expressing concern that nearly half of survivors (45 per cent) hadn't taken responsibility for their future heart health. Every year, around 55,000 Australians are hospitalised due to a heart attack, with nearly a third of these (29.4 per cent) due to repeat heart attacks. By the end of the decade, the number of Australians dying from repeat heart attacks is expected to rise to 7521, a 40 per cent increase on current levels.

55k

EVERY YEAR, 55,000
AUSTRALIANS SUFFER A
HEART ATTACK

INSIGHT INTO THE WORKING OF MUSCLE CELLS COULD HELP FIGHT FRAILTY

Researchers in the Muscle Research and Therapeutics laboratory, headed by Dr Paul Gregorevic, have identified an important new role for members of the Bone Morphogenetic Protein (BMP) family in controlling the size of skeletal muscles. Published in the *Journal of Cell Biology*, Winbanks *et al.* report that muscles make specific BMP family members and rely on them to promote muscle growth, or to minimise muscle wasting, in certain circumstances. The research team examined how BMPs achieve these beneficial effects, and found that they help to inhibit protein breakdown and encourage the production of extra muscle proteins. Revealing this new role for Bone Morphogenetic Proteins is exciting because it changes our perspective on the mechanisms at work inside muscle cells during health and disease. The group is exploring how this discovery can be translated into new therapies to combat loss of muscle mass and strength, and, because cardiac muscle has a lot in common with skeletal muscle, whether targeting these same mechanisms might help treat heart disease.

BMPs

BONE MORPHOGENETIC PROTEINS COULD HELP
COMBAT LOSS OF MUSCLE MASS AND STRENGTH

STUDY OF AUSTRALIAN ADULTS' HEALTH STATUS UNVEILED

The findings of the 12-year follow-up study of 11,000 participants in the Australian Diabetes, Obesity and Lifestyle Study (AusDiab) were presented in August 2013. The findings showed: living in the most socially disadvantaged areas of Australia doubled the risk of developing diabetes; people with previously known diabetes have a similar risk of mortality to that of smokers; diabetes, obesity and kidney disease each increased the risks of having depression; and people with diabetes, obesity or kidney disease were more likely to be admitted to hospital than people without these conditions. AusDiab is the largest Australian longitudinal population-based study of its kind and aims to determine how many people develop diabetes, obesity, kidney and heart disease. The key findings, published research and a list of collaborators are available on the Institute's website.

12 YRS

THE HEALTH OF AUSTRALIANS WAS TESTED
OVER 12 YEARS IN THE AUSDIAB STUDY

MODEL TO STUDY STRESS-RELATED HIGH BLOOD PRESSURE

Researchers in the Neuropharmacology laboratory, led by Professor Geoff Head, have uncovered a major cause of high blood pressure (hypertension) through pre-clinical studies in mice. They have shown that a defect in a receptor in the brain pathway is activated during emotional stress, which leads to an overactive nervous system, particularly to the kidney, resulting in a greater release of the hormone, renin, during the active period when it is normally suppressed. This is further exacerbated by nerve stimulation and a lack of suppression by a specific microRNA in the kidney. As this latter effect has also been shown in humans with high blood pressure, the researchers now have an excellent model to study this cause of stress-related hypertension. This research, which was published in *Hypertension* in July 2013, builds on the group's work looking at the relationship between blood pressure and stress pathways in the brain, and could lead to novel therapeutic targets for hypertension.

UNDERSTANDING ROLE OF KILLER CELLS COULD HELP TACKLE ATHEROSCLEROSIS

Heart attack and stroke as a result of advanced atherosclerosis (build-up of fatty deposits on inflamed artery walls) are currently the leading causes of mortality globally. CD8+ T cells, known as professional killer cells, compose up to 50 per cent of the white blood cells in advanced atherosclerotic plaques. Sudden release of plaque content through rupture can result in blood clotting, blocking blood supply to the heart and brain, yet the role of these killer cells in atherosclerosis is poorly understood. Since CD8+ T cells are known to destabilise inflammation sites, researchers in the Vascular Biology and Atherosclerosis laboratory examined their role in the genesis of these plaques. For the first time, Professor Alex Bobik and his group provided definitive evidence that CD8+ T cells are important not only in accelerating inflammatory changes in plaques but also in destabilising them. This finding, published in *Circulation* in November 2013, demonstrates that depleting CD8+ T cells has the potential to limit plaque progression and reduce death from atherosclerosis.

CD8+ T

DEPLETING THESE CELLS COULD LIMIT ATHEROSCLEROTIC PLAQUE PROGRESSION

4.6m

AUSTRALIANS AGED 18+ WITH HIGH BLOOD PRESSURE

TRANSPORTER GENE SHOWS PROMISE IN MANAGING CHOLESTEROL TO PREVENT AND TREAT DISEASE

Cholesterol metabolism plays a central role in the production and development of many diseases, but nowhere is it more important than in the pathogenesis of cardiovascular and metabolic diseases. Regulation of cholesterol metabolism is very complex. In this study, a team of researchers in the Lipoproteins and Atherosclerosis laboratory, headed by Professor Dmitri Sviridov, described a new cholesterol transporter, ABCA12, that brings together many different layers of regulation and therefore may be a key to managing cellular cholesterol homeostasis in many cells related to many diseases. Understanding of this mechanism now paves the way for investigation of prevention and treatment options. This work, published in *Cell Metabolism* in August 2013, builds on work by this group in examining ABCA12 in atherosclerosis (a condition that involves thickening of the artery walls through a build-up of cholesterol-rich plaques) and common skin disorders.

ABCA12

GENE THAT MAY HELP TO REGULATE CHOLESTEROL METABOLISM

2013 HIGHLIGHTS PEOPLE

INTERNATIONAL AWARD FOR HYPERTENSION RESEARCHER

Hypertension expert and Senior Director at Baker IDI, Professor Murray Esler AM, was recognised with the American Heart Association's Excellence Award in Hypertension Research in New Orleans in October. This is one of the most prestigious international awards for hypertension research and recognises Professor Esler's pioneering work undertaken during the past four decades in defining the relationship between the sympathetic nervous system and cardiovascular disease.

DIRECTOR AWARDED AO

Director of Baker IDI, Professor Garry Jennings AM, was recognised with an Officer of the Order of Australia (AO) in the 2013 Queen's Birthday Honours List. Professor Jennings was awarded an AO for distinguished service to medical research, particularly the prevention and control of cardiovascular disease, diabetes and obesity, as a contributor to professional associations and to education. His achievements include establishing the country's first medical research institute dedicated to cardiovascular disease and diabetes; developing an Indigenous health research program in Central Australia; playing a pivotal role in the development of national health and research policy and strategy; and fostering the next generation of researchers.

DIABETES EXPERT RECOGNISED

International diabetes and obesity expert, Professor Paul Zimmet AO, was awarded The Peter Wills Medal at the Research Australia awards in November. Director Emeritus at the Institute, Professor Zimmet was recognised for his outstanding contribution to building Australia's international reputation in health and medical research, and fostering collaboration for better health. Notably, the judges acknowledged Professor Zimmet for raising the awareness of diabetes as an international public health emergency and helping to enhance the understanding of diabetes, improved care and prevention in many nations around the world. Previous winners include Sir Gustav Nossal AC and Professor John Shine AO.

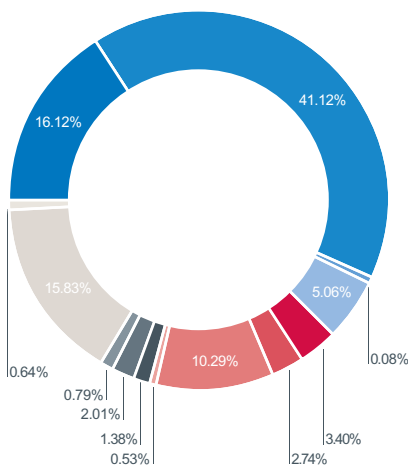
OTHER AWARDS

- Chief Scientific Officer, Professor Mark Cooper, was awarded the Outstanding Foreign Investigator Award by the Japanese Society of Diabetic Complications
- Head of Obesity and Population Health, Associate Professor Anna Peeters, was awarded the André Mayer Award by the International Association for the Study of Obesity
- PhD student, Arpeeta Sharma, from the Molecular group, Diabetes Complications Division, was the recipient of the Young Investigator Award at the Australian Atherosclerosis Society; and the K. Piafsky Trainee Presentation Award from the Canadian Society of Pharmacology and Therapeutics
- Dr Kathryn Backholer from Obesity and Population Health was awarded the Australian and New Zealand Obesity Society Young Investigator Award
- Dr Daniel Fineberg, from the Epigenetics group, was the recipient of the Endocrine Society of Australia's Early Career Research Basic Science Award
- Dr Alex McLellan, from the Clinical Electrophysiology group, was awarded the Young Investigator Award at the Asia Pacific Heart Rhythm Society conference

RESEARCH OUTPUT: GRANTS & PUBLICATIONS

NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL FUNDING RECEIVED IN 2013

\$29m
NHMRC FUNDING IN 2013



Program Grants	\$4,703,631
Project Grants	\$11,997,108
EU Collaborative Research Grant	\$23,995
Development Grants	\$1,474,736
Centres of Research Excellence	\$990,490
Australia Fellowships	\$800,000
Research Fellowships	\$3,001,871
Practitioner Fellowships	\$154,974
Career Development Fellowships	\$403,969
Early Career Fellowships	\$586,527
Postgraduate Scholarships	\$231,660
IRIIS	\$4,617,884
Equipment Grant	\$186,941
TOTAL	\$29,173,786

INTERNATIONAL FUNDING 2013

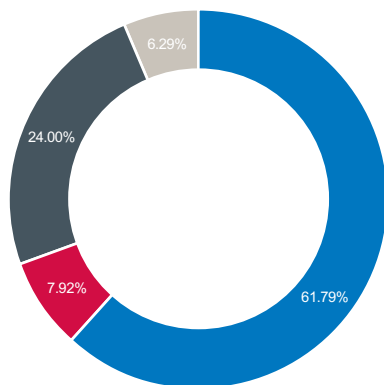
National Institutes of Health	\$279,045
Juvenile Diabetes Research Foundation	\$340,587
Total	\$619,632

418

2013 PUBLICATIONS

Publication type	Quantity
Original research articles	290
Reviews	60
Editorials and comments	26
Letters and author replies	21
Books and book chapters	7
Other	14
Total	418

NATIONAL HEART FOUNDATION FUNDING RECEIVED IN 2013



Grants-in-Aid	\$844,155
Career Development Fellowships	\$108,142
Postdoctoral Fellowships	\$327,874
Postgraduate Scholarships	\$85,905
TOTAL	\$1,366,075

TOP 10 HIGHEST IMPACT FACTOR JOURNALS

IN 2013, THE ORIGINAL RESEARCH OF BAKER IDI RESEARCHERS WAS PUBLISHED IN A RANGE OF INTERNATIONAL PEER-REVIEWED JOURNALS, INCLUDING:

Publication name	2012 Impact factor
JAMA – Journal of the American Medical Association	29.978
Nature Immunology	26.199
Nature Medicine	24.302
Journal of Clinical Oncology	18.038
Circulation	15.202
Cell Metabolism	14.619
Journal of the American College of Cardiology	14.086
Journal of Clinical Investigation	12.812
Circulation Research	11.861
Journal of Cell Biology	10.822

A full list of publications can be found on Baker IDI's website at http://www.bakeridi.edu.au/publications/2013_published_research/

CHAIRMAN'S REPORT

MEDICAL RESEARCH WILL PLAY A CRITICAL ROLE IN THE KNOWLEDGE ECONOMY

Australia is undergoing a transition from an economy dependent on minerals and traditional manufacturing to one that is increasingly based on knowledge and services. At the same time, the healthcare system is coming under increasing financial pressure. The 2010 Intergenerational Report forecast that Australian Government spending on health would grow from 4.0 per cent of GDP in 2009–10 to 7.1 per cent of GDP in 2049–50¹. The nation's medical research and biotechnology sector has an important role to play in helping to address these challenges.

The cost of healthcare is set to dominate the public policy agenda in the coming years as governments around the world grapple with massive changes in the projected burden of disease. There are several factors driving these costs, including an ageing community; increasing rates of obesity and its consequences for diabetes, stroke, heart, and vascular disease; and the impact of globalisation on health epidemics.

The impact of chronic diseases is highlighted by *The Australian Diabetes, Obesity and Lifestyle (AusDiab) study* – a population-based longitudinal study led by Baker IDI. The 12-year findings of the study, unveiled by our researchers in August 2013, showed that diabetes almost doubled the chances of a person being admitted to hospital and requiring multiple visits to a doctor.

As well as reducing the impact of disease and offering people hope, medical research has an important role to play in addressing healthcare costs. In the first instance, better prevention

and screening allow people to live longer, more productive lives. A healthy working population contributes to increased economic activity and tax revenue and, at the same time, decreases medical, hospital and pharmaceutical costs.

Medical research also reduces the direct costs associated with healthcare by halting the progression of disease and, in doing so, removing the need for expensive interventions such as surgery, dialysis and long-term health management.

Thanks to discoveries in health and medical research, such as the Cochlear hearing implant and the Gardasil vaccine against cervical cancer, Australians now live longer and healthier lives. In Victoria alone, it is estimated that over 10,000 Victorian hospital patients a year benefit from treatment through the performance of research-sponsored clinical trials². Advances in healthcare have led to significant increases in average years lived disability free, which have increased from 60 in 1999 to 63 in 2009³.

In addition to providing health and economic benefits, Australia's biotech and medical research sector will play an important role in the transition to a knowledge economy. The health and medical research sector employs approximately 23,000 Australians, generates significant intellectual property for commercial ventures and makes an important contribution to the nation's burgeoning medicines industry, which is worth around \$4 billion in exports per annum^{4,5}.

The transition to a knowledge-based economy takes time and requires an investment in infrastructure, training and commercialisation. Government support for this process is critical and will ensure that Australia is in a strong position to leverage its intellectual resources for economic growth and development.

The McKeon Review⁶ made an important contribution to this process, developing a roadmap for reform and a raft of recommendations designed to bolster the sector. The pace of economic change now gives greater urgency to these recommendations and we hope they will be fully embraced for the benefit of Australia's long-term economic sustainability, as well as for the more direct benefits to the healthcare system and patients.

VICTORIA'S HEALTH AND MEDICAL RESEARCH SECTOR IS A WORLD-CLASS ASSET

The Victorian health and medical research and biotech sector is the powerhouse behind the nation's knowledge economy. Victoria is home to 13 independent medical research institutes. It is also home to 34 life science companies listed on the Australian Securities Exchange, having a combined market capitalisation of approximately \$38 billion⁷.

It is encouraging that many of the fundamentals required for success are evident and that, critically, the sector enjoys strong bipartisan support from the Victorian parliament. There is no shortage of ideas about how we might continue to grow Victoria's research capacity, but it will take a whole-of-government approach if we want to maintain our position as the jewel in Australia's research crown.

Thanks to discoveries in health and medical research, such as the Cochlear hearing implant and the Gardasil vaccine against cervical cancer, Australians now live longer and healthier lives.



ON THE HORIZON: TRANSFORMATION OF THE HEALTH AND MEDICAL RESEARCH LANDSCAPE

In the not-too-distant future, we anticipate that the medical research landscape in Australia will be transformed by the move to organise around Integrated Health Research Centres (IHRCs): clusters of researchers, universities, medical research institutes and hospitals working in collaboration towards a self-improving health system.

We believe that this is the right direction for the Australian health system and we are committed to contributing to the development of a model that is substantially influenced by the needs of patients with a view to embedding research in the health system. To this end, we have invested in understanding the most effective way to establish the IHRC model by carefully researching the best-performing international centres. As the operating environment becomes more conducive to implementing these recommendations, we anticipate that Baker IDI will be well positioned to participate in the establishment of IHRCs in Australia.

The Institute is also committed to driving change and playing a leadership role in addressing the gap between the health of Indigenous and non-Indigenous Australians. As a sign of our commitment, the Institute's Indigenous health research team continues to operate a number of programs in this area. In October 2013, the Institute hosted a free educational symposium for health professionals in

Alice Springs. As part of that program, indigenous advocate and Chair of the Federal Government's indigenous Advisory Council, Mr Warren Mundine, delivered the Institute's inaugural indigenous health oration. It is encouraging to see Indigenous affairs given a high public profile and we welcome greater focus on evidence-based, sustainable health programs.

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 assists the Institute in its mission to be a global research leader.

In July 2013, the Institute implemented a review by an international scientific advisory panel. On behalf of the Institute, I would like to thank the panel for their time and advice, which have proved invaluable in the development of a strategic plan.

We are sincerely grateful for the support of our donors – in particular, I would like to acknowledge the support of The Baker Foundation since 1926. We owe them a great debt of gratitude for their commitment and generosity.

I would like to acknowledge the important contributions of the Federal and State governments in supporting the Institute's mission. Funding provided by Australian

governments is crucial to the feasibility of our work and we are very grateful for their support.

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

I would also like to thank the Director of Baker IDI, Professor Garry Jennings. As a clinician, researcher, mentor and leader, Garry leads by example, ensuring that the Institute's staff achieve the very highest standards.

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

Peter Scott
Chairman,
Baker IDI Heart
& Diabetes Institute

1 Intergenerational Report, 2010, Commonwealth Government Department of Treasury

2 Funding the Future, The case for increased indirect cost funding for Victorian MRIs, LEK Consultancy (2009)

3 Australian Institute of Health and Welfare (AIHW), Changes in life expectancy and disability in Australia 1998 to 2009, Bulletin III, November 2012

4 NSW Health and Medical Research Strategic Review, Fact Base, September 2011

5 Australian Bureau of Statistics: International Trade in Goods and Services, Australia, June 2012, Catalogue No. 5368.0, ABS, Canberra

6 Strategic Review of Health and Medical Research – Better Health Through Research. Commonwealth of Australia, February 2013

7 Bioshares quarterly review – edition 546, April 2014

DIRECTOR'S REPORT

For 88 years, Baker IDI has been a global research leader, and the Institute is committed to enhancing its position in the cardiovascular and diabetes research arena. We do this against a backdrop of intense national and global competition. Baker IDI continues to thrive by recruiting and retaining the best people, having the most advanced technologies to nurture talent and productivity, and identifying new ways to translate the Institute's work for better health.

Like good science, rigorous analysis and a robust peer-review process are important in ensuring that Baker IDI is well positioned to achieve its vision.

We were therefore extremely pleased to attract several of the world's pre-eminent experts across cardiovascular and diabetes research and public health to Baker IDI last year to be part of a scientific advisory board to provide guidance on the Institute's 5–10 year strategy.

The expert panel was headed by Medical Director of the British Heart Foundation, Professor Peter Weissberg, and included Professor Michael Simons, Yale University, US; Professor Erik Richter, University of Copenhagen, Denmark; and Professor Nick Wareham, University of Cambridge, UK.

SUPPORTING GLOBAL RESEARCH EXCELLENCE

The scientific board provided strong endorsement of the Institute's work as a national and global player in the chronic diseases space and noted the enthusiasm, commitment and engagement of staff.

The panel confirmed that the Institute is a national leader in cardiovascular and diabetes research, as measured by grant income and number of publications, and an international leader in some areas of its research. The release of data in 2014

by the National Health and Medical Research Council is further endorsement of the Institute's strong global position, with the relative citation impact of our NHMRC-funded work 62 per cent above the world average for biomedical publications.

In facilitating our pursuit of global excellence, the scientific board provided advice on areas in which the Institute can focus attention to make even bigger impacts on the international scene.

The panel also commented on the considerable interaction and complementary nature of the Institute's combination of clinical services, basic and public health research. This is a hallmark that has distinguished the Institute since the merger of the International Diabetes Institute and Baker Heart Research Institute in 2008, providing a solid clinical translational foundation.

FOSTERING COLLABORATION

To do good science in the 21st century, it is necessary to collaborate, participate in networks, access large populations and utilise the right technical infrastructure to generate significant scientific advances. Being a global leader means playing a leadership role in establishing and partnering in global consortia. Baker IDI scientists, like many Australian colleagues, rate highly in this area as evidenced through data from the US National Science Foundation, which found that more than 52 per cent of published papers in Australia in 2012 had international co-authors: well above the 25 per cent global rate.

As well as cross-border collaboration, the need to foster collaboration across disciplines is critical as scientific understanding about the intersection of communicable and non-communicable diseases continues to evolve at an increasing rate. This is already happening across the Institute, including in the Indigenous health

program, where Baker IDI researchers are examining HIV and sexually transmitted infections in Indigenous communities, which contribute to a greater chronic diseases burden in rural and remote communities. But more can be done, and the Institute aims to take a leadership role in this area.

BUILDING CAPACITY AND LEADERSHIP

Baker IDI's strong culture of research excellence, which has been cultivated over many decades by my predecessors, is helping to ensure that the Institute is well positioned to produce leaders for the future. Mentoring of staff, particularly students and junior researchers, attracted special mention by the scientific panel. Recruitment and retention of scientists is critical in enabling us to compete internationally, and it is rewarding to see early career scientists who are becoming leaders in their fields return to Baker IDI to continue their careers after working at the most prestigious research and academic institutions around the globe.

Recently, Baker IDI welcomed back Dr Anna Calkin and Dr Brian Drew, who returned as Group Leaders of the Diabetes and Dyslipidaemia laboratory, bringing with them their ongoing collaborations with high-profile researchers at UCLA. While Dr Andrew Murphy, who spent four years with Professor Alan Tall at Columbia University in New York, a leader in metabolism and HDL research, returned as Group Leader of the Haematopoiesis and Leukocyte Biology laboratory.

The significant contribution of early career researchers like Dr Andris Ellims is also indicative of a framework that encourages vision and ingenuity. As part of his PhD research project, Dr Ellims established the first specialised clinic in Victoria for patients with the most common

Like good science, rigorous analysis and a robust peer-review process are important in ensuring that Baker IDI is well positioned to achieve its vision.



inherited cardiac disease, Hypertrophic Cardiomyopathy, while publishing papers in the highest-ranked cardiology journals. The clinic aims to improve the management of these patients and encourage further research into this potentially fatal condition.

INDIGENOUS RESEARCH TEAM

In a sector in which it is traditionally hard to recruit and retain staff, Baker IDI is making significant advances as the Institute moves to an Aboriginal-led research team. Baker IDI recently welcomed back Indigenous maternal and child health expert, Professor Sandra Eades, as the Indigenous health lead. She joins Indigenous researcher and Deputy Director of this program, Associate Professor James Ward. Thanks to Professor Graeme Maguire and the team for the significant amount of work that has gone into the strategic development of the Indigenous health program, it is continuing to grow in both size and stature. The Indigenous health program now supports four higher-degree research students undertaking PhDs and three new post-doctoral fellows, including researchers of Aboriginal and Maori origin. The expanded team, including Sandra, James and Graeme, will enable Baker IDI to implement a national Indigenous health program whilst still maintaining a strong focus on Central Australia, where the Institute has a research facility and extensive community, health and academic links.

BOOSTING POST-GENOMIC CAPABILITIES

Hand in hand with nurturing talent and productivity is the provision of technical infrastructure to allow scientists to achieve their potential. In 2013, business planning

was carried out for a new Clinical Research Centre that promises to be transformational in driving the scale and speed of the Institute's research into clinical practice. The facility, which will incorporate MRI and echocardiography, will enable Baker IDI to become a leader in cardiac, diabetes and metabolic imaging. The co-location of this centre with the Institute's diabetes clinics and Healthy Lifestyle Research Centre paves the way for a broad-based preventative health and clinical research centre. The centre is expected to be operational in early 2015 and will build on the Institute's unique blend of clinical, research and public health expertise. This exciting development adds to Baker IDI's post-genomic capabilities and positions it as one of the few facilities around the world with such a broad range of clinical research competencies, including high-end imaging.

EMBEDDING TRANSLATION ACROSS ALL ACTIVITIES

Greater collaboration, cross-discipline research and more powerful technologies are all critical to our work, but it is simply not enough to generate excellent scientific output. It is the translation of this research that remains an important objective across all of the Institute's activities. Our work informing policy, developing best-practice guidelines, public health advocacy, establishing government and industry partnerships, and providing credible health information to the community all aim to contribute to better health. A series of health and lifestyle books written by the Institute's scientists on topics such as diabetes and blood pressure – providing people with accessible, evidence-based health information, as well as practical advice around lifestyle and diet – is evidence of this translation in action.

YOUR SUPPORT IS CRITICAL

Our work to deliver better health for the community requires not only widespread support, but a belief in the organisation's ability to achieve its goals. As we forge ahead in 2014 with optimism, we are most grateful to the individuals, philanthropic trusts and foundations who support us financially; to our wonderful volunteers, the dedicated Friends of Baker IDI; to the patients at our clinics; to the trial participants engaged in our clinical research; and to our highly talented and dedicated staff – all of whom are critical in providing the support we need to do our work.

I would like to acknowledge the strong support of an active and highly visible board, including Chairman Peter Scott, who tackled Africa's highest peak to raise awareness and funds for the Institute, and the much-needed support we receive from the Victorian, Northern Territory and Federal governments.

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

Professor Garry Jennings AO

Director,
Baker IDI Heart
& Diabetes Institute

TACKLING CHRONIC DISEASE FROM BIRTH TO END OF LIFE

0-18

PRENATAL TO 18 YEARS



MATERNAL HEALTH, PREGNANCY, EARLY CHILDHOOD AND ADOLESCENCE

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

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

18-30

COMMON AT 18 TO 30 YEARS



ADULTS WITH RISK FACTORS

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

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

30-45

COMMON AT 30 TO 45 YEARS



SUB-CLINICAL ORGAN DAMAGE

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

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

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

45-60

COMMON AT 45 TO 60 YEARS



ACUTE COMPLICATIONS

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

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

60-70

COMMON AT 60 TO 70 YEARS



CHRONIC CLINICAL COMPLICATIONS

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

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

70+

COMMON AT 70+ YEARS



HEART FAILURE AND ADVANCED DISEASE

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

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

MEET OUR RESEARCHERS

The combination of basic scientists with clinicians and population health researchers is central to Baker IDI's approach, and is a unique feature that sets it apart from many other research organisations. This structure 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 who work across the Institute.

RESEARCH FOCUS: CELL SIGNALLING AND METABOLISM



Researcher in Focus
Professor
Mark Febbraio

Investigating the metabolic changes that lead to type 2 diabetes and obesity to develop targeted treatments for these diseases

Professor Mark Febbraio heads a team of scientists investigating cellular and molecular mechanisms associated with obesity and type 2 diabetes. The team aims to identify genes and proteins that may impair insulin action, and to develop pharmaceutical therapies to activate or block these pathways. His long-time interest in competitive sport and the impact of exercise on the body led him to a career in basic science, enabling him to deepen his understanding of the cell biology of diabetes and obesity. As well as pursuing greater understanding of the underlying mechanisms of chronic diseases, Mark also has an impressive track record in the development of drugs to tackle these diseases. His discovery that heat shock protein (HSP) 72

protects against obesity-induced insulin resistance in pre-clinical studies has led his group to focus on developing a drug for human use based on these findings, which has entered Phase 2b human clinical trials. He has also filed a patent for the use of synthetic protein, IC7, as a potential treatment for obesity and diabetes.

RESEARCH FOCUS: DIABETIC COMPLICATIONS



Researcher in Focus
Professor
Merlin Thomas

Committed to the translation of science to improve the health of our community

Professor Merlin Thomas is a kidney specialist and a medical scientist, which means that part of his time is spent with renal patients in a clinical setting, as well as working as a basic scientist in a laboratory. This dual role informs his work so that the health needs of people with diabetes are a driving force in his research. Merlin's scientific work aims to address questions around the mechanisms of vascular and kidney damage in people with diabetes. He heads the Biochemistry of Diabetic Complications laboratory and he has published extensively in the scientific arena. Merlin is equally passionate about translating the Institute's science to the broader community. He is the author of many book chapters and books on diabetes management, which deal with the practical application of research on healthy living for the general public, and he regularly writes and comments on health issues in the media.

RESEARCH FOCUS: VASCULAR LIPIDS AND LIPOPROTEINS



Researcher in Focus
Professor
Jaye Chin-Dusting

Committed to advancing Australian science and developing researchers of tomorrow

A cardiovascular pharmacologist, Professor Jaye Chin-Dusting oversees five laboratories of scientists studying the mechanisms and treatments for vascular disease, including risk factors such as lipids and lipoproteins. She plays a strategic role in growing and supporting the Institute's research program by ensuring that the Institute maximises its funding opportunities. She sits on several international editorial boards and peer-review panels, and is President of the High Blood Pressure Research Council of Australia. Jaye is an Adjunct Professor in the Faculty of Medicine at Monash University, a Visiting Professor at UCSI University, Malaysia and an Honorary Professorial Fellow at the University of New South Wales. She has also mentored many PhD, Masters and Honours students as part of her commitment to cultivating excellence in young scientists.

RESEARCH FOCUS: CELL BIOLOGY AND ATHEROSCLEROSIS



Researcher in Focus
Dr Christoph
Hagemeyer

Utilising the most advanced imaging and drug-delivery technology to treat blood clots

German-trained biochemist, Dr Christoph Hagemeyer, has been working in the field

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

of cardiovascular science for more than a decade, with a particular focus on the use of nanotechnology and molecular imaging such as Magnetic Resonance Imaging (MRI) to improve the health of blood vessels. He heads the Vascular Biotechnology laboratory, which utilises antibody technology to develop fast, safe and effective techniques to dissolve clots in blood vessels (thrombosis). This work is compounded by the fact that a traditional hallmark of anti-clotting drugs has been excessive bleeding complications. His work in Germany, France and Melbourne has focused on smart delivery of 'super' antibodies with added functionality to safely treat people suffering from potentially deadly conditions such as heart attack and stroke.

RESEARCH FOCUS: BASIC AND CLINICAL CARDIOLOGY



Researcher in Focus
Associate Professor
Andrew Taylor

Helping to cement Australia's position as a cardiac centre of imaging excellence

Associate Professor Andrew Taylor wears many hats, including those of cardiovascular scientist at Baker IDI and consultant cardiologist with the Heart Failure and Transplant Unit at The Alfred hospital. As the Head of Non-invasive Imaging at the Institute, Andrew's main interests are in cardiac imaging and heart failure. His team's pioneering research in developing novel imaging techniques for the characterisation of cardiac fibrosis (believed to be a major contributor to increased cardiac stiffness, hindering the heart's ability to fill with blood after each contraction) is now being used by international health centres

to improve patient treatment and care. Andrew's team is one of the biggest users of Cardiac Magnetic Resonance Imaging (CMRI) for clinical applications in Australasia, and Andrew is now working with Baker IDI staff to develop the first comprehensive cardiac centre of imaging excellence in this region.

RESEARCH FOCUS: PREVENTATIVE CARDIOLOGY



Researcher in Focus
Dr Melinda Carrington

Working with vulnerable communities to help people identify and address their risk of developing heart disease

Dr Melinda Carrington heads the Primary Care and Risk Surveillance Unit, which forms part of a broader focus on preventative cardiology. She is a health services researcher specialising in comprehensive risk assessment and nurse-led interventions to prevent cardiovascular disease and diabetes in settings where there is disadvantage, such as regional and remote communities and Indigenous Australians. A key area of research involves an examination of trends in risk factor levels and management from a primary care perspective Australia-wide. In support of this, Melinda and her team aim to develop structured management programs for optimal risk factor control to support general practitioners. Melinda also oversees the Healthy Hearts Clinic, a free service that helps people identify and address their risk of developing cardiovascular disease and diabetes.

RESEARCH FOCUS: ABORIGINAL HEALTH



Researcher in Focus
Associate Professor
James Ward

Committed to building capabilities in Aboriginal and Torres Strait Islander communities to enable control of their health

An Aboriginal health researcher with more than 15 years' experience working within Aboriginal health and communities in Australia, Associate Professor James Ward plays a strategic role in driving the Institute's Aboriginal health research program as Deputy Director of Baker IDI Central Australia. James is a descendant of the Pitjantjarra and Nurrunga clans of Central and South Australia and is committed to capacity building within Aboriginal communities to ensure that they play a central role in strategies to improve Indigenous health. He has a strong background in community-based research in urban, regional and rural Australia, specialising in sexual and adolescent health – an important area of study given the close link between infectious diseases and chronic diseases like heart disease and diabetes. James is regularly sought after to provide policy and strategic advice to various tiers of government about STIs in Indigenous communities, as well as issues around building a sustainable health workforce and barriers to care in rural and remote communities.

SPECIALIST DIABETES CLINIC DELIVERING WORLD-CLASS CLINICAL CARE

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



Head of Diabetes Clinics, Associate Professor Neale Cohen with a patient.

Baker IDI's Specialist Diabetes 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, and via a telehealth service that has commenced in collaboration with the Royal Flying Doctor Service in Mildura.

The Clinic team combines specialist diabetes physicians; endocrinologists; dietitians; ophthalmologists; renal and respiratory specialists; and diabetes nurse educators. The close collaborative link with the Institute's researchers ensures that health professionals offer evidence-based care and the most progressive therapies, which are complemented by facilities such as on-site pathology.

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

2013 HIGHLIGHTS

Expanding the range of clinical specialties

The Specialist Diabetes Clinic has expanded its range of clinical specialties. The Prahran Clinic is now offering services for diabetes patients with respiratory and sleep-related problems and a weight assessment and management clinic for people with severe obesity. Patients at the Footscray clinic can now access health education specialists, including dietitians and diabetes educators and endocrinologists who have a special interest in gestational diabetes and body-weight regulation.

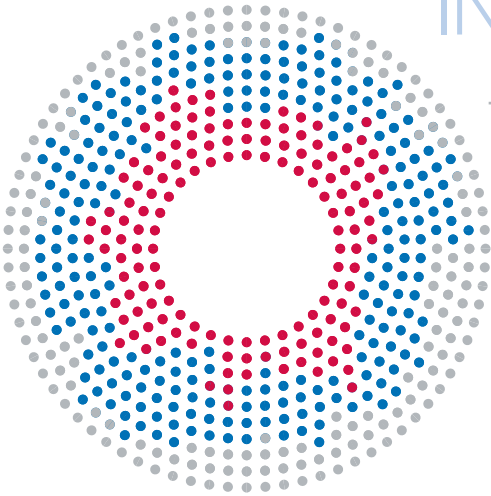
Supporting better diabetes care in remote communities

Since 2010, Baker IDI has delivered diabetes outreach services to 10 remote Aboriginal communities in Central Australia. The project, led by Head of Baker IDI's Diabetes Clinics, Associate Professor Neale Cohen, is now funded through to 2016. This will allow the Institute's endocrinologists and diabetes nurse educators, along with a new diabetes specialist and registrar, to support clinical services and research in communities that experience high rates of diabetes.

Healthcare backed by the latest clinical research

There were a number of publications from research performed in the Clinic in 2013, including a study on insulin injections without needles; the effects of hypoglycaemia on psychological distress; and a study on the effects of gastric banding surgery on kidney disease. The Institute also hosted the 13th symposium of the International Diabetes Epidemiology Group, an official satellite meeting to the World Diabetes Congress.

ADDRESSING THE HEALTH DISADVANTAGE IN INDIGENOUS COMMUNITIES

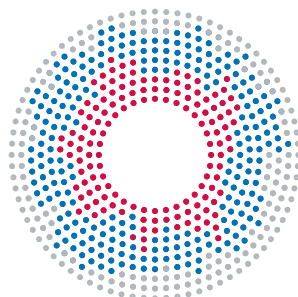


Baker IDI's Indigenous health program aims to harness the Institute's resources to enhance the health of Aboriginal Australians and Torres Strait Islanders.

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 program aims 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 program's unique combination of health research, capacity building, clinical service provision, policy development and advocacy are all integral to the development of effective, sustainable and appropriate solutions to Indigenous Australian health.

The Institute's program focuses on working with existing services and 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 program is based on a whole-of-life approach to understanding and responding to chronic and infectious diseases in Indigenous Australians, with a particular focus on cardiovascular disease and diabetes. This means identifying and addressing the drivers of disease development from social and environmental health determinants and risk factors, including food supply to remote communities and poor nutrition; obesity, alcohol and tobacco use; and healthcare utilisation.



2013 HIGHLIGHTS

Better utilisation and access to healthcare services

Access to appropriate and high-quality primary and hospital-based healthcare services is a key factor in facilitating early diagnosis and the prevention and management of complications of infectious and chronic diseases. Working with Alice Springs Hospital, Tangentyere Town Camp Council, Central Australian Aboriginal Congress and the St John Ambulance service, Baker IDI's Indigenous health program has secured government and philanthropic funding to undertake projects to better understand how Aboriginal people access healthcare services.

Building capacity and leadership in Indigenous health research

The ongoing development of capacity to support Indigenous health research is a priority. The program now supports four higher-degree research students undertaking PhDs and three new post-doctoral research fellows, including Aboriginal and Maori researchers. Indigenous maternal and child health expert, Professor Sandra Eades, has been appointed as the Indigenous program lead.

Understanding the intersection of communicable and non-communicable diseases

Indigenous researcher, James Ward, was the local convenor of the 2013 Australasian HIV/AIDS Conference in Darwin, which examined the experiences of Aboriginal and Torres Strait Islander people affected by HIV. This research is important in understanding the intersection of communicable and non-communicable diseases, which contributes to a greater disease burden in rural and remote communities.



(R to L) Head of Diabetes and Population Health, Associate Professor Dianna Magliano, with PhD student, Jessica Harding.

Dianna is one of a few researchers in the world looking at the role of a common chemical, Bisphenol A, and other environmental toxicants, in the development of diabetes, heart disease and obesity.

BUILDING CAPACITY, KNOWLEDGE AND STRATEGIC COLLABORATIONS

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

SUPPORTING DISEASE PREVENTION AND MANAGEMENT IN THE COMMUNITY

Royal Flying Doctor Service Victoria (RFDS) delivers a range of primary healthcare services, including health screening at rural and regional country shows and the Royal Melbourne Show to help people understand their risk of disease and promote better health. The RFDS engaged Baker IDI to review and develop their health screening program, ensuring the inclusion of appropriate tests and protocols. The review was also used as an opportunity to up-skill the agency's volunteers in order to maintain the accuracy of testing.

In a separate project, Baker IDI and RFDS joined forces to offer a telehealth service run by clinicians from the Institute's Specialist Diabetes Clinic for patients with diabetes in Mildura and its surrounds. Coordinated by the RFDS, the service is being run in conjunction with local hospital and health services to address the need for endocrinologist support in the area.



PUTTING DIABETIC EYE DISEASE ON THE AGENDA

The Institute's diabetes experts co-authored 'Out of Sight: a report into diabetic eye disease in Australia' in partnership with the Centre for Eye Research Australia (CERA). Sponsored by an unrestricted educational grant from Novartis Pharmaceuticals Australia, the report was released in October to coincide with World Sight Day. The report aimed to provide a better understanding of diabetic eye disease, particularly its prevalence and impact as well as potential options to improve treatment. It received extensive media coverage and helped promote a key message about the need for individuals with diabetes to have regular eye tests.

SUPPORTING HEALTHY LIFESTYLES

Following the successful publication of the *CSIRO and Baker IDI Diabetes Diet and Lifestyle Plan*, a companion book was released in September, which featured more than 100 recipes. *The Diabetes Recipe Book* is designed to complement the original Lifestyle Plan, which is a comprehensive resource to support a healthy lifestyle, covering every aspect of diabetes prevention and control. The publications have provided a platform for internationally renowned Australian researchers and clinicians to share effective strategies for diabetes prevention and management with the community.

FROM DISCOVERY TO DEVELOPMENT

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

Projects under development include:

More convenient and cost-effective drug administration for people with heart failure: Professor David Kaye is developing an investigative drug that, if successful, could enable patients with advanced heart failure to receive a treatment at home, thus obviating the prolonged in-hospital care required at present. In the current formulation, the drug is administered by continuous infusion. In the investigative product, the drug has been reformulated into an extended-release oral product. Professor Kaye has received NHMRC funding to support the clinical development of the drug and the first stage of clinical testing is currently underway.

Life-saving breakthrough in clot-busting drug treatment:

With funding support from the National Heart Foundation, NHMRC and ARC, Dr Christoph Hagemeyer has developed a potentially safer and more effective way to treat heart attack and stroke via a new clot-busting drug. This novel, targeted drug offers a safer alternative with fewer side-effects for people suffering a heart attack or stroke. Most importantly, it offers hope for patients who currently miss out on the available drugs because of their associated risks. Baker IDI will now seek further funding to manufacture the investigative drug and prepare for clinical trials to demonstrate safety and efficacy.

Top: Photo by Hann Low.

INTERNATIONAL COLLABORATION SCIENCE WITHOUT BORDERS

SIGNIFICANT INTERNATIONAL RELATIONSHIP

Baker IDI has a long-established and important collaborative relationship with cardiology researchers at Peking University in Beijing, China. The University is a major research university and is frequently placed as one of the top universities in China by domestic and international rankings. For more than a decade, the two organisations have participated in joint conferences, exchange visits and research agreements. In July 2013, a delegation of Baker IDI staff travelled to Beijing to participate in a scientific meeting to discuss the establishment of a core centre for hypertension research. The visit was reciprocated in November, when a delegation of 12 academic cardiologists from the Faculty of Cardiology at Peking University toured the Institute's Melbourne facilities, received research training, and met with scientists and clinicians to discuss a range of collaborative research projects. This is an ongoing partnership that seeks to conduct large-scale clinical research.

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 Universiti Teknologi 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.

PEKING COLLABORATION SPEEDS UP RESEARCH PROGRESS

At a laboratory level, researchers in the Experimental Cardiology group are collaborating with scientists at Peking University in the Faculty of Cardiology to evaluate a new biomarker in the diagnosis of acute heart attack. Baker IDI and Alfred Health researchers have identified a protein called MIF that may be an early biomarker for the severity of heart damage. This discovery is currently being explored as a potential new test to rapidly diagnose heart attacks and estimate the extent of damaged heart muscle. The collaboration has proven particularly effective in establishing access to a high volume of patients at a Peking University teaching hospital in Beijing. This has enabled the research to progress quickly, resulting in an important publication in the *Journal of the American Heart Association* in October 2013.

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 by NIH and NHMRC Project Grants and has resulted in six publications to date.

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.

COMPARISON OF TYPE 2 DIABETES AMONG ETHNIC GROUPS

Dr Elizabeth Barr and Director Emeritus Paul Zimmet 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 that 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.

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.

PRECISION DRUG DELIVERY TARGETS HEART ATTACK AND STROKE

The Vascular Biotechnology lab is collaborating with researchers from the Chemistry Department at Vanderbilt University in the United States in the area of Nanomedicine. The collaboration is exploring the development of targeted nanosponge particles for specific drug delivery to prevent plaque rupture and, ultimately, to prevent heart attack and stroke. Preliminary results show this exciting technology can be used specifically to block dangerous enzymes that are responsible for plaque rupture, without causing systemic toxicity.

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 maximal 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.

RELATIONSHIP BETWEEN INFECTIOUS DISEASE AND RISK OF CARDIOVASCULAR DISEASE

The Lipoproteins and Atherosclerosis lab has been collaborating with the Department of Microbiology, Immunology and Tropical Medicine, and the Division of Cardiology at George Washington University in the United States 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 project has resulted in 14 publications, including one in the prestigious *PLOS Biology* journal.

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 that 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* in 2013. 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*.

INSULIN RESISTANCE AND CELL METABOLISM

The Cellular and Molecular Metabolism lab 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 Freiburg and Cologne, Germany, which have resulted in papers in journals such as *Cell*, *Nature Immunology* 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* and *Diabetes*.

TYPE 2 DIABETES IN SOUTH ASIAN POPULATIONS

Kiyomet Bozaoglu and Paul Zimmet are participating in a major European Union/NHMRC-funded collaboration examining genetic and epigenetic links to type 2 diabetes in South Asian populations. The study is coordinated by Imperial College in London with samples provided by Baker IDI and the Mauritius Ministry of Health and Quality of Life. The project may lead to the development of novel biomarkers and therapeutic strategies to reduce the burden of type 2 diabetes among South Asians worldwide.

INTERNATIONAL COLLABORATION SCIENCE WITHOUT BORDERS

CONTINUED.

FIRST STUDY OF DIABETES IN THE UNITED ARAB EMIRATES

Researchers in the Clinical Diabetes and Epidemiology group are collaborating with the University of Sharjah in the first national study of diabetes in the United Arab Emirates. The initial phase of the study involving collection of data on over three thousand participants from the expatriate population has concluded. The next phase will involve data collection on local Emiratis. The Baker IDI team will play an important role in data analysis, report writing and future publications.

SEDENTARY BEHAVIOUR RESEARCH EXPANDS TO EU

The Physical Activity lab is collaborating with the School of Sport, Exercise and Health Sciences at Loughborough University, UK, following the appointment of Associate Professor David Dunstan as a visiting Professor. This has led to collaborative projects with the University's Physical Activity and Health unit, as well as opportunities for mentoring early career scientists within the school on projects relating to sedentary behaviour and health. To date, the collaboration has led to the development of competitive funding opportunities within the UK and EU systems, publication of scientific manuscripts and the establishment of national guidelines on sedentary behaviour.

UNDERSTANDING WHAT CAUSES MATURITY-ONSET DIABETES IN YOUNG PEOPLE

The Genomics and Systems Biology lab is collaborating with the University of Sharjah in the United Arab Emirates to describe genetic mutations in maturity-onset diabetes in the young. Treatment of diabetes in these individuals can be different to that for the majority of patients with type 2 diabetes, and discovering the mutations involved will permit more rational and targeted therapies.

DEFINING THE RELATIONSHIP BETWEEN SITTING TIME AND CARDIOVASCULAR DISEASE

The Behavioural Epidemiology lab is collaborating with researchers in the Faculty of Sport Sciences at Waseda University in Tokyo on a large-scale prospective cohort study of Waseda University alumni, with initial scientific-exchange support from the Australian Academy of Sciences. It builds on objective-measurement methodologies developed through the AusDiab3 study and is examining whether physical activity, sitting time and adiposity impact cardio-metabolic risk markers. This collaboration also links to the Department of Preventive Medicine and Public Health at Tokyo Medical University. It will involve research translation to inform public campaigns and workplace programs targeting the metabolic syndrome.

INFORMING HEALTHCARE POLICY IN SOUTH AFRICA

The Baker IDI/NHMRC Centre of Research Excellence to Reduce Inequality in Heart Disease continues to collaborate with the Hatter Institute, University of Cape Town in South Africa and other Africa-based institutions to document and respond to emergent heart disease in Sub-Saharan Africa. Data from the Heart of Soweto Study (including high-impact reports focusing on more than 6000 hospital cases and 1300 primary care cases published in *The Lancet* and *Circulation*) has resulted in unique insights into the rise of non-communicable diseases – informing and influencing healthcare policy in South Africa and beyond. 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 in Africa's largest urban community in Soweto.



(R to L) Head of the Lipoproteins and Atherosclerosis laboratory, Professor Dmitri Sviridov, with Research Assistant, Ms Leah Cui.

In 2013, Dmitri visited Sweden's Karolinska Institute, developing new collaborations in the laboratory of Göran Hansson, Secretary of the Nobel Prize Committee for Physiology or Medicine.

BAKER IDI IN THE COMMUNITY

EXPLORING PERSPECTIVES ON THE GLOBAL HEALTH EPIDEMIC

In July, the Institute hosted a public forum that examined the opportunities and challenges of tackling chronic diseases, including type 2 diabetes, heart disease and obesity. An esteemed international panel addressed the topic, drawing on the innovative research, initiatives and programs in which they are involved. The panel included Professor Erik Richter (the University of Copenhagen researcher has helped to explain why patients with type 2 diabetes can improve their condition by being physically active); Professor Nick Wareham (a Cambridge-based lead researcher in the largest study of diet and health ever undertaken); Professor Michael Simons (recruited to Yale as a Chief of Cardiovascular Medicine and the Yale Cardiovascular Research Centre); and Professor Peter Weissberg (responsible for the allocation of more than £88 million of research funding annually as Medical Director of the British Heart Foundation). The event was moderated by award-winning producer and broadcaster, Dr Norman Swan.

EDUCATIONAL SYMPOSIUM FOR HEALTH WORKERS IN REMOTE SETTINGS

The Institute hosted a free educational symposium in Alice Springs in October for health professionals working with the impact of chronic disease in Indigenous communities, particularly in remote settings. The symposium, titled 'Heart of the Centre', focused primarily on cardiovascular disease, and attracted more than 170 health professionals, educators, researchers and policy makers. The forum was part of a series of educational events that have been delivered by Baker IDI in the Northern Territory to promote engagement between local healthcare providers and educators, and to provide practical and sustainable care options for local healthcare workers.



Deputy Director Aboriginal Health, Associate Professor James Ward

KILIMANJARO CLIMB FOR HEART DISEASE AND DIABETES

A group of dedicated fundraisers and adventurers – including Baker IDI scientist, Associate Professor Peter Meikle, his son Lachlan, and the Institute's Chairman, Mr Peter Scott – set out to summit Mt Kilimanjaro,

Africa's highest peak, in November. The group successfully summited the East African mountain, which stands 5895 metres above sea level. The climb, which saw participants cross ice fields, witness volcanic landscapes and camp beside remote lakes in Tanzania, raised \$80,000 to support the Institute's research into heart disease and diabetes and their complications, such as kidney disease.

PUBLIC LECTURE BY INDIGENOUS LEADER

The inaugural Baker IDI Central Australia oration was delivered by Indigenous advocate and Chair of the Federal Government's Indigenous Advisory Council, Mr Warren Mundine, in Alice Springs in October. The event was initiated by the Institute to encourage thoughtful debate about themes and topics important to the health of Aboriginal and Torres Strait Islander people. A packed room heard Mr Mundine outline his vision for land rights, education, social services and, in particular, health.

ENCOURAGING HEALTHY LIFESTYLES AT FAMILY FUN DAY

Friends of Baker IDI hosted the annual open garden and family fun day at the late Dame Elisabeth Murdoch's historic Cruden Farm in March. Hundreds of people delighted in a stroll through the magnificent gardens, perused the produce and wine stalls and enjoyed a picnic in the grounds. Baker IDI experts were also on hand to provide health information about diabetes and heart disease.

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 participants who completed the Kilimanjaro climb for heart disease and diabetes

TRANSLATING THE INSTITUTE'S RESEARCH

Baker IDI is actively engaged in public health advocacy and education, ensuring that the Institute's research is translated in a way that is accessible to the wider community. As well as publishing lifestyle, health and cookbooks authored by Baker IDI experts, the Institute's preventative health team authored an updated suite of preventative health brochures on key health topics, including blood pressure, weight, cardiovascular disease, diabetes, cholesterol and triglycerides, and wise use of medicines. These brochures, which provide accessible, evidence-based information for the community, are available for download on the Institute's website, or for bulk purchase by pharmacies, GPs, community health and allied health centres. The Specialist Diabetes Clinic's health education team also produce a variety of online fact sheets and resources canvassing diabetes-specific topics, as well as topics such as healthy eating and label reading.

SHOWCASING INTERNATIONAL DIABETES RESEARCH

Baker IDI researchers played a lead role in the International Diabetes Federation's World Diabetes Congress, which was held in Melbourne in December and attracted around 10,000 delegates. The scientific program was chaired by Professor Paul Zimmet AO, with Associate Professor Jonathan Shaw and Professor Mark Cooper leading scientific streams. For the first time, people with diabetes, their families and their carers were able to attend the Congress to hear about the latest findings in diabetes research; gain access to a wide range of diabetes-related healthcare professionals, policy makers and support networks; and learn more about diabetes self-management programs from around the world. Baker IDI worked closely with the Victorian Department of Health, Diabetes Australia and the Melbourne Convention and Exhibition Centre to facilitate one of the nation's largest meetings of international healthcare professionals.

\$80k

**KILIMANJARO CLIMB FOR
HEART DISEASE AND DIABETES**

RAISED \$80,000 TO SUPPORT THE INSTITUTE'S RESEARCH
INTO HEART DISEASE AND DIABETES AND THEIR COMPLICATIONS

SUPPORTERS AND ACKNOWLEDGEMENTS

1 JANUARY–31 DECEMBER 2013

MAJOR INSTITUTIONAL SUPPORT

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

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

Juvenile Diabetes Research Foundation
National Heart Foundation
National Institutes of Health (USA)
Victorian State Government

- Department of State Development,
Business and Innovation
- Department of Human Services
- VicHealth
- Victorian Cancer Agency

MAJOR GIFTS

Advantage Salary Packaging
Mr Robert Albert AO
Anonymous
Casella Wines Pty Ltd
The CASS Foundation
Mr Stephen Cook
Dairy Innovation Australia Ltd
Mrs Jean E Drury
Diana Gibson AO
Heartbeat Victoria Council Inc.
Meydan Family Foundation
The Miller Foundation
Mr Philip & Mrs Sylvia Munz
Mr Baillieu S Myer AC
Prescott Family Foundation
Reece Australia Limited
Mrs June Ross

Margaret S Ross AM
The Search Foundation
Texas Biomedical Research Institute
Victorian Lions Foundation Inc.
The G W Vowell Foundation Ltd

SPECIAL GIFTS

The Abercrombie Family Foundation
Anonymous
The L R Cazaly Trust Fund
CSYS Consulting Services Pty Ltd
Mr John Eastment
Mr Melville & Mrs Suzanne Edwards
In memory of Mr Les Erdi OAM
Eva & Tab Fried
(in memory of Helen & Henrik Aroni)
Dina and Ron Goldschlager Family
Charitable Foundation
Miss Thelma Handreck
The Harbig Family Foundation
In memory of Izzy Herzog AM
H & K Johnston Family Foundation
Kilwinning Nominees
Mrs Patricia M Lee
Mr R & Mrs M Macdonald
Mr Lindsay Maxsted
Mrs Marie Morton
Mrs Dina Munzer
Mr Dennis & Mrs Fairlie Nassau
Mr Robert & Mrs Sue Nicholson
Family of George R Peggie
Mr Michael & Mrs Rosalba Renzella
John & Lesley Roche
Mr Behnam Roohizadegan
Dr Ian Ross
George (Vic) Rumbold
Peter & Anna Scott
Mr Rob Stewart AM
Mr Peter Twomey
Richard Willison

BRIGHT SPARKS PROGRAM

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

BEQUESTS

Estate Pauline Marie Johnston
Estate Stefan Matko
Estate Victor John McLeod
Estate Vera Dalgleish Phillips
Estate Raymond George Reynolds
Estate Grace Saunders
Estate Ian Weir Sutherland
Estate Barbara Frances Sutton
Estate Ruth Webster

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

BEQUESTS IN PERPETUITY

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

SIR LAURENCE MUIR PRIZE

The Angus Family
Anonymous
Mr and Mrs Michael and Mim Bartlett
John Bate OAM
Di Bertalli
Neville Bertalli
John & Janet Calvert-Jones
Mr Ian & Mrs Maria Cootes
Thelma Handreck
Tom Hogg
David & Berna Hume Family
Mrs Norma Lithgow
Mrs J F Logan
The Miller Foundation in Memory of Noel Miller
Gordon Moffatt AM
Portland House Foundation
Lady Potter AC
Brian Randall OAM
Margaret S Ross AM
Scanlon Foundation
Mr Colin & Mrs Carolyn Stubbs
Mr John Thomson
Mr David Wallace-Smith
Geoffrey Webb
Estate of the Late Edward Wilson
Jane S Wilson

TRUSTS & FOUNDATIONS

Percy Baxter Charitable Trust
James and Elsie Borrowman Research Trust
Harold and Cora Brennen Benevolent Trust
Bupa Health Foundation
The Marian & E H Flack Trust
Ernest Heine Family Foundation
The Fred Hollows Foundation
The Lin Huddleston Charitable Foundation
Medtronic Foundation
The Ian Potter Foundation
John T Reid Charitable Trusts
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 Richard & Mrs Bernadette Brodrigg
Mr Stephen Cook
Mr Robert & Mrs Jan Lyng
Mrs Vivienne Ritchie
Mr Richard & Mrs Jan Santo

COMMUNITY SUPPORT

Nicole Armitage (Kilimanjaro Climb)
Blue Illusion (Community Day)
Peter & Lachlan Meikle (Kilimanjaro Climb)
Paceline Inc. (Cycling Adventure)
Peter Scott (Kilimanjaro Climb)
Kelly Thistlewaite (Kilimanjaro Climb)
David Williamson (Kilimanjaro Climb)

EDUCATIONAL SUPPORT

Abbott Australasia
AstraZeneca & Bristol-Myers Squibb
Diabetes Alliance
Boehringer Ingelheim
iNova Pharmaceuticals (Australia)
MSD (Merck Sharp & Dohme Australia)
National Heart Foundation of Australia (Northern Territory Division) Inc.
Novartis Pharmaceuticals Australia
Novo Nordisk Pharmaceuticals
Sanofi Diabetes
Takeda Pharmaceuticals

BOARD OF DIRECTORS



Board of Directors from left to right: Professor Christina Mitchell; Dr David Thurin; Ms Kate Metcalf; Mr David Gilmour; Professor Garry Jennings AO; Mr Peter Scott (Chairman); Associate Professor Andrew Way; Mr Ian Smith; Ms Christine O'Reilly; Mr Robert Nicholson. Mr Lindsay Maxsted (Treasurer); Mr Justin Arter and Professor Paul Zimmet AO are not pictured.

PETER SCOTT

Chairman

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

PAULA DWYER

Deputy Chairman (retired June 2013)

Paula Dwyer's background is in investment management and investment banking. She is Chairman of Tabcorp Holdings Ltd and was Deputy Chairman of Leighton Holdings Ltd. Paula is a Director of Australia and New Zealand Banking Group Ltd, Lion Pty Ltd, and is also a member of the Takeovers Panel and of 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. Garry 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 as Country Head in September 2012 after three years as Chief Executive Officer of Victorian Funds Management Corporation (VFMC) and an 18-year career with Goldman Sachs JBWere. He also serves on the council of Geelong Grammar School.

DAVID GILMOUR

Non Executive Director

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

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

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 was a member of the Herbert Smith Freehills board from 2000 to 2011 and chairman from 2008 to 2011. He is also chairman of Nucleus Network Limited.

CHRISTINE O'REILLY

Non Executive Director

Christine O'Reilly joined the Board on 11 June 2013. Christine is the Deputy Chair of CARE Australia, a director of CSL Limited, Transurban Group and Energy Australia and a member of the Loreto Mandeville Hall Finance Committee. She was formerly Co-head of Unlisted Infrastructure at Colonial First State Global Asset Management from 2007 to 2012.

IAN SMITH

Non Executive Director

Ian Smith is a partner of Bespoke Approach, a corporate and political advisory firm. He is a board member of the Committee for Adelaide, sits on the Northern Territory Government's economic development panel and is a member of the NAB Private Wealth Advisory Council. He is an ambassador for ENUF (a program to remove the stigma of HIV) and The Orangutan Project, and sits on the advisory board of the *Big Issue*.

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 CFS Retail Property Trust as well as 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 is a member of the diabetes advisory boards for Novo Nordisk, Janssen Cilag and Novartis.

Baker IDI's Company Secretaries are David Lloyd (Deputy Director and Chief Operating Officer) and Anita Furnell (Chief Financial Officer).

ORGANISATIONAL CHART

CORRECT AT JUNE 2014

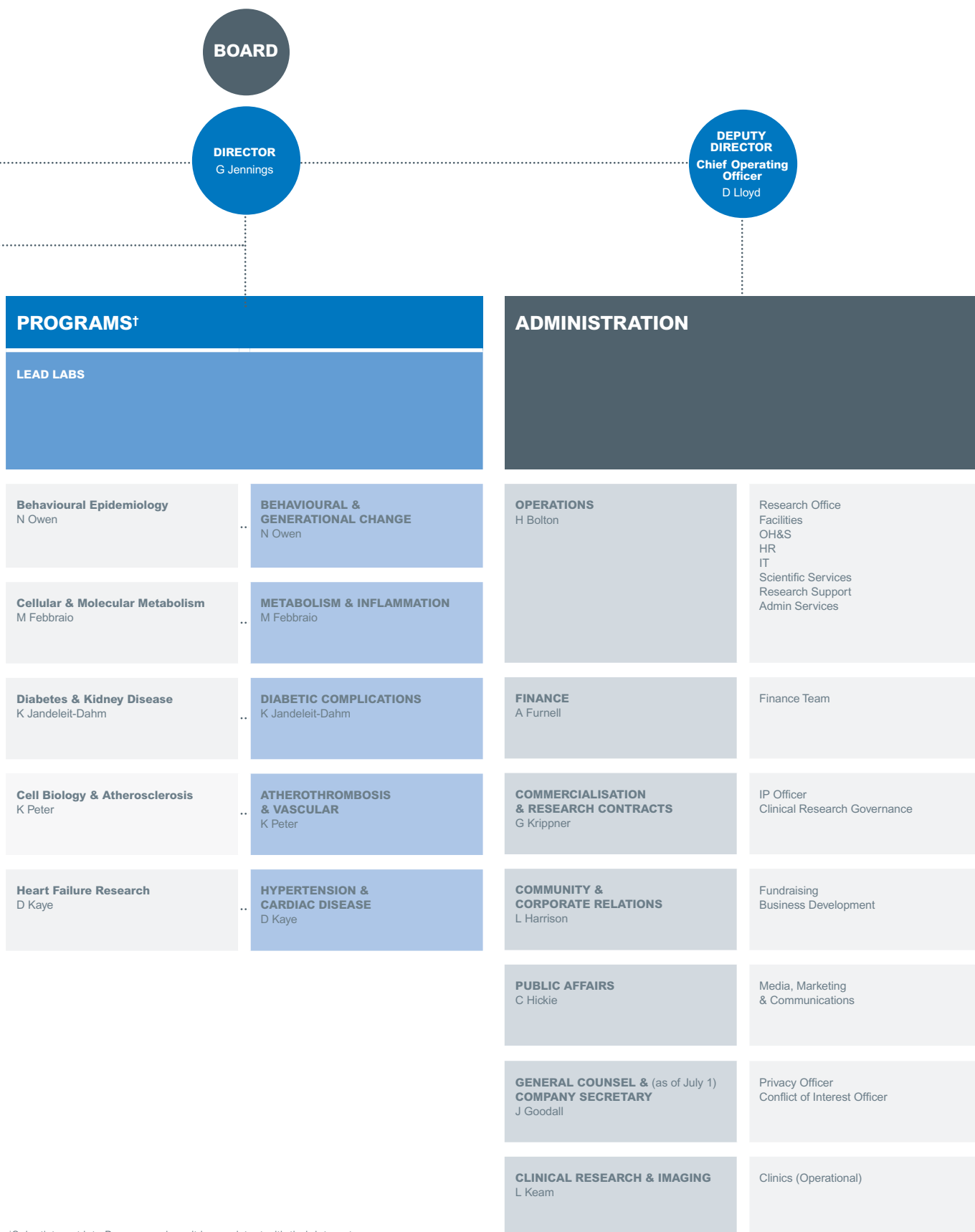


DOMAINS – fixed structure for line management*

Clinical Research Centre <i>To be appointed</i>	Prevention B Kingwell <i>Science Policy portfolio</i>	Cardiometabolic Risk J Shaw <i>Enablers & Platforms portfolio (clinical to population health research)</i>	Diabetes M Cooper <i>International & Commercial portfolio</i>	Vascular Disease J Chin-Dusting <i>Funding Diversity portfolio</i>	Heart Disease G Head <i>Enablers & Platforms portfolio (basic to clinical research)</i>	Aboriginal Health S Eades <i>Disadvantaged Communities portfolio</i>
Diabetes Clinics N Cohen	Metabolic & Vascular Physiology B Kingwell	Clinical Diabetes J Shaw	Molecular Group M Cooper	Vascular Pharmacology J Chin-Dusting	Neuropharmacology G Head	Aboriginal Population Health Research S Eades
Cardiovascular Clinics A Ellims	Genomics & Systems Biology K Bozaoglu	Clinical Obesity J Dixon	Biochemistry of Diabetic Complications M Thomas	Computational Biology R Lazarus	Cardiac Hypertrophy J McMullen	Assoc. Director Aboriginal Health G Maguire
Clinical Imaging A Taylor	Metabolomics P Meikle	Diabetes & Population Health D Magliano	Diabetes & Atherosclerosis T Allen	Lipoproteins & Atherosclerosis D Sviridov	Experimental Cardiology X Du	Deputy Director Aboriginal Health J Ward
Education Services M Mack	Muscle Research & Therapeutics P Gregorevic	Obesity & Population Health A Peeters	Human Epigenetics A El-Osta	Vascular Biology & Atherosclerosis A Bobik	Heart Failure Pharmacology R Ritchie	General Manager Aboriginal Health G Cheema
Healthy Hearts E Jenkins	Physical Activity D Dunstan		Epigenomic Medicine T Karagiannis	Vascular Biotechnology C Hagemeyer	Human Neurotransmitters G Lambert	
			Nutrition, Glycation & Metabolism M Coughlan		Molecular Cardiology E Woodcock	

*Each Domain is led by a Lab Head. With the exception of labs responsible for Programs, labs are allocated to Domains for line management.

In 2013, Baker IDI engaged a panel of pre-eminent experts across cardiovascular disease, diabetes and public health to guide the Institute on its 5–10-year scientific strategy. This was part of a wider review of the Institute’s research program and, from this work, a new organisational structure has been developed. This structure aims to foster greater collaboration across disciplines; a strong focus on answering critical questions in human health; and the ability to respond to new developments in medical research and the changing health needs of our community.



†Scientists opt into Programs where it is consistent with their interests



(R to L) Head of Epigenomic Medicine, Dr Tom Karagiannis, with Honours student, Ms Runa Lindblom.

Tom and his team are using genetic and epigenetic models to discover the mechanisms behind the cardioprotective effects of olive oil.

Fundraising and support from donors is critical to Baker IDI's success. In 2013, the Institute raised \$12.35 million through a combination of appeals, regular giving, community events, major gifts, trusts and foundations and bequests.

The Institute's 2013 fundraising income was inflated by a number of extraordinary one-off donations. Of particular note were two major gifts earmarked for a critical infrastructure project. The Institute is very grateful for donations totalling more than \$3 million towards the construction of Australasia's first comprehensive research centre of excellence in cardiac, diabetes and metabolic imaging, which will incorporate MRI and echocardiography.

We were also fortunate to be remembered in the will of a generous bequester, with the funds being held in perpetuity in support of our scientists and new research projects. People who remember Baker IDI in their will through a bequest leave an important legacy to the scientific community.

The Baker Foundation generously provided \$2 million to the Institute in 2013 as well as ongoing research funding for a musculoskeletal 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.

In 2013, the Victorian Government changed the payment schedule for capped Operational Infrastructure Support (OIS) funding. As a result, Victorian MRIs received 40 per cent

of funding for 2014 in advance. In 2013, this appeared on the Institute's income statement as a forward payment of \$1.4 million. This is a one-off benefit that will not be replicated.

The Institute was also awarded \$4.6 million through the Federal Government's Independent Research Institute Infrastructure Support Scheme (IRIISS). The Institute is grateful for the support of State and Federal governments, which contributes to the indirect costs of grant-funded research activities.

Baker IDI's researchers were awarded \$21.65 million in the 2013 round of National Health and Medical Research Council Grants for 26 grants scheduled to commence in 2014. 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.

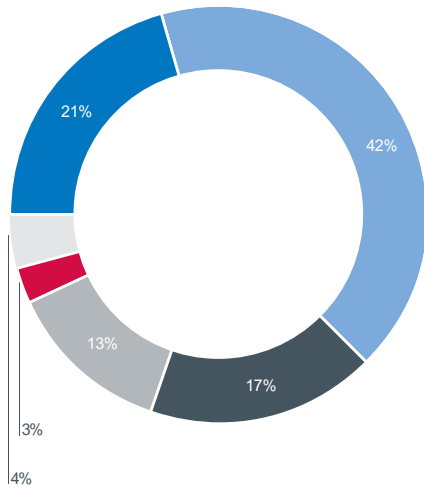
\$21.65m

**TOTAL GRANTS AWARDED TO BAKER IDI'S
RESEARCHERS FOR COMMENCEMENT IN 2014**

2013 ROUND OF NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL GRANTS

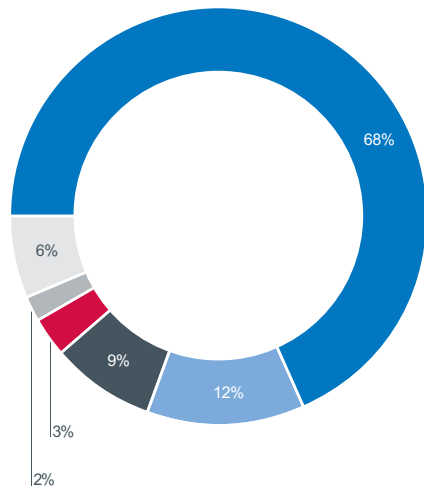
FINANCIAL PERFORMANCE AT A GLANCE

CONSOLIDATED REVENUE



Service and clinical income	\$15,149,059
Competitive grants	30,410,169
Fundraising, including bequests	12,351,825
Government support	9,501,631
Other income	1,954,523
Investment income	2,844,287
TOTAL	\$72,211,494

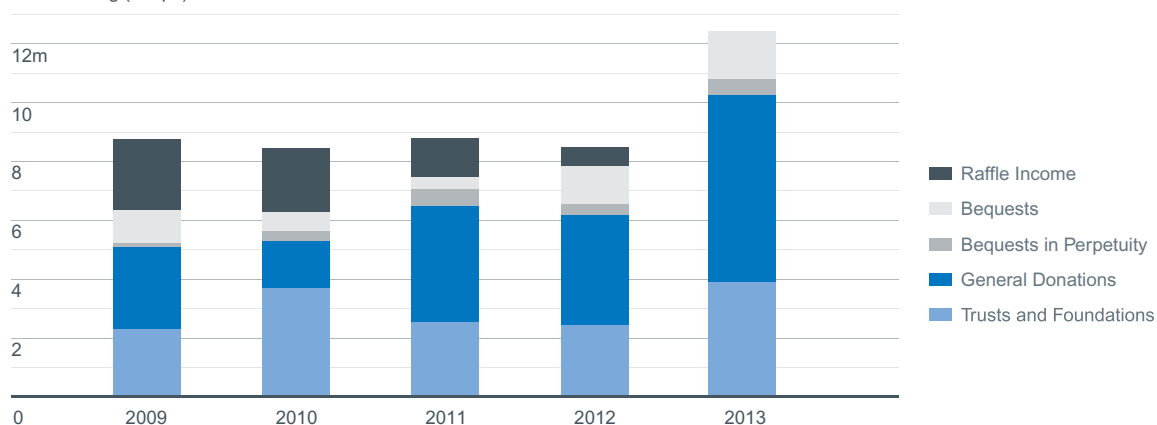
CONSOLIDATED EXPENDITURE



Research costs	\$45,462,259
Laboratory support	8,197,977
Administration	5,707,609
Building costs	2,192,255
Business development	1,654,328
Depreciation/amortisation	4,206,447
TOTAL	\$67,420,875

PHILANTHROPIC SOURCES

Total funding (\$m pa)



NOTABLE FINANCIAL INFORMATION

	2013 (\$)	2012 (\$)
Income for research and clinical trials	72,211,494	71,236,119
Expenditure on research and clinical trials	63,214,428	68,932,378
Net surplus from operations before depreciation and amortisation	8,997,066	2,303,741
Capital expenditure	3,383,194	1,718,689
Operational Infrastructure Support included in income	4,883,747	3,390,792
Number of full time equivalent staff and visiting scientists	421	443
Number of students	81	74
Scientific papers published	419	403

FINANCIAL STATEMENTS

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2013

	CONSOLIDATED		PARENT	
	2013 (\$)	2012 (\$)	2013 (\$)	2012 (\$)
ASSETS				
Current assets				
Cash and short term deposits	14,709,649	11,517,765	13,870,910	11,511,416
Trade and other receivables	4,458,221	5,089,716	2,825,690	2,079,977
Right to occupy	507,619	507,619	507,619	507,619
Prepayments	187,561	139,169	108,481	81,547
Other current financial assets	6,412	–	6,412	–
Total current assets	19,869,462	17,254,269	17,319,112	14,180,559
Non-current assets				
Property, plant and equipment	47,863,773	48,314,653	46,946,151	47,314,387
Right to occupy	8,210,602	8,718,221	8,210,602	8,718,221
Intangible assets	223,666	88,419	223,666	88,419
Investment in an associate	3,527,840	3,536,618	2,265,001	2,265,001
Available-for-sale financial assets	23,144,204	18,914,064	23,092,123	18,861,983
Other non-current financial assets	11,035	–	11,035	–
Total non-current assets	82,981,120	79,571,975	80,748,578	77,248,011
TOTAL ASSETS	102,850,582	96,826,244	98,067,690	91,428,570
LIABILITIES				
Current liabilities				
Trade and other payables	6,762,236	6,814,456	5,758,544	5,224,183
Interest bearing loans and borrowings	138,412	517,862	38,412	222,874
Lease incentive liability	1,635	–	–	–
Unearned income	7,817,529	8,121,856	7,728,484	7,863,496
Provisions	7,627,976	7,236,481	7,027,356	6,770,681
Total current liabilities	22,347,788	22,690,655	20,552,796	20,081,234
Non-current liabilities				
Interest bearing loans and borrowings	–	138,412	–	38,412
Lease incentive liability	97,370	94,262	–	–
Provisions	1,837,204	1,674,875	1,651,064	1,475,009
Total non-current liabilities	1,934,574	1,907,549	1,651,064	1,513,421
TOTAL LIABILITIES	24,282,362	24,598,204	22,203,860	21,594,655
NET ASSETS	78,568,220	72,228,040	75,863,830	69,833,915

\$78.6m

TOTAL NET ASSETS
STATEMENT OF FINANCIAL POSITION
AS AT 31 DECEMBER 2013

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2013 (CONTINUED)

	CONSOLIDATED		PARENT	
	2013 (\$)	2012 (\$)	2013 (\$)	2012 (\$)
EQUITY				
Equity attributable to equity holders of the parent				
Restructure reserve	–	–	5,578,233	5,578,233
Retained earnings	75,026,562	70,235,943	66,743,939	62,263,585
Available-for-sale reserve	3,541,658	1,992,097	3,541,658	1,992,097
Parent interests	78,568,220	72,228,040	75,863,830	69,833,915
Non-controlling interests	–	–	–	–
TOTAL EQUITY	78,568,220	72,228,040	75,863,830	69,833,915

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

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

FINANCIAL STATEMENTS

CONTINUED

INCOME STATEMENT FOR THE YEAR ENDED 31 DECEMBER 2013

	CONSOLIDATED		PARENT	
	2013 (\$)	2012 (\$)	2013 (\$)	2012 (\$)
Continuing operations				
Grants supporting research activities	30,410,169	32,251,438	30,410,169	32,251,438
Infrastructure funding	9,501,631	8,178,189	9,501,631	8,178,189
Fundraising, corporate and private support	12,351,825	8,420,598	12,351,825	8,420,598
Service and clinical income	15,149,059	17,774,567	5,269,826	5,070,571
Investment income	2,844,287	2,468,042	2,831,945	2,475,618
Other revenue	1,954,523	2,143,285	2,544,698	2,723,346
Revenue	72,211,494	71,236,119	62,910,094	59,119,760
Employee benefits expense	40,591,951	43,189,833	36,058,944	36,380,979
Research, service and clinical expense	14,524,986	15,737,550	10,878,367	11,721,209
Depreciation and amortisation expense	4,206,447	4,362,298	3,962,188	4,114,666
Share of profit/(loss) in associate	8,778	(5,616)	–	–
Impairment of assets	–	418,686	–	418,686
Loss on decommissioning of asset	–	281,006	–	–
Building overheads	1,309,502	1,250,634	1,181,312	1,281,373
Borrowing costs expense	16,862	62,752	9,266	20,967
Laboratory support expense	1,889,841	2,087,260	1,889,841	2,087,260
Donor acquisition expense	1,394,778	1,707,100	1,394,778	1,707,100
Other expenses from ordinary activities	3,477,730	4,203,173	3,055,044	3,475,476
Expenditure	67,420,875	73,294,676	58,429,740	61,207,716
Surplus/(deficit) before tax	4,790,619	(2,058,557)	4,480,354	(2,087,956)
Income tax expense	–	–	–	–
Surplus/(deficit) for the year	4,790,619	(2,058,557)	4,480,354	(2,087,956)
Surplus/(deficit) attributable to:				
Non-controlling interest	–	–	–	–
Members of the parent	4,790,619	(2,058,557)	4,480,354	(2,087,956)
	4,790,619	(2,058,557)	4,480,354	(2,087,956)



(R to L) Head of Clinical Atherosclerosis Research, Dr James Shaw, with Alfred hospital medical registrar, Dr Meenal Sharma.

James is an interventional cardiologist who undertakes research in Baker IDI's scientific laboratories and treats patients in The Heart Centre at The Alfred hospital, adjacent to the Institute's labs.

THE HEALTHY HEARTS CLINIC

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.

THE HEALTHY HEARTS CLINIC

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

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, measures blood pressure, height and weight, and checks 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.

TRACKING THE COMMUNITY'S HEART HEALTH

Since it first opened its doors more than 25 years ago, the Clinic has screened over 15,000 people to assess their risk of cardiovascular disease. Approximately 60 per cent of visitors to the Clinic return for a follow-up assessment, accounting for more than 25,000 Clinic visitations since the start of operations. In 2013, the Clinic performed 183 risk assessments.

As a research facility, 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 fewer people who smoke: with blood pressure and smoking two critical risk factors contributing to CVD. However, there remain some big challenges to the cardiovascular health of Australians, with an ageing population and significant weight gain among adults in the community, highlighting the need for continued risk monitoring and prevention strategies.

Location:

The Alfred Centre
4th Floor, 99 Commercial Road,
Melbourne VIC 3004
Australia

Telephone:

+61 3 8532 1999

Email:

HealthyHeartsClinic@bakeridi.edu.au



Research nurses in the Healthy Hearts Clinic, Liz Jenkins and Jan Jennings.

Liz and Jan help people identify and address their risk of developing cardiovascular disease. This nurse-led screening Clinic serves as a cornerstone of the Institute's preventative health programs, including the establishment of workplace screening models.

Melbourne

75 Commercial Road, Melbourne
VIC 3004 Australia

T. +61 3 8532 1111

F. +61 3 8532 1100

PO Box 6492, Melbourne,
VIC 3004 Australia

Alice Springs

Baker IDI Central Australia
W&E Rubuntja Research and Medical Education Building
Alice Springs Hospital Campus
Gap Road, Alice Springs
NT 0870 Australia

T. +61 8 8959 0111

F. +61 8 8952 1557

PO Box 1294, Alice Springs,
NT 0871 Australia

www.bakeridi.edu.au

