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Baker IDI  
HEART & DIABETES INSTITUTE

# BIENNIAL REPORT

1 JANUARY 2009 – 30 JUNE 2010

RESEARCH. TRANSLATION. PREVENTION.

# BAKER IDI HEART AND DIABETES INSTITUTE

## RESEARCH. TRANSLATION. PREVENTION.

Baker IDI Heart and Diabetes Institute is an independent, internationally renowned medical RESEARCH facility. Our work extends from the laboratory to wide-scale community studies with a focus on diagnosis, prevention and treatment of diabetes and cardiovascular disease.

Our mission is to reduce death and disability from cardiovascular disease, diabetes and related disorders; two insidious and complex diseases responsible for the most deaths and the highest costs in the world in terms of treatments and hospitalisation.

Our main laboratory facilities located on the Alfred Medical Research and Education Precinct (AMREP) in Melbourne are complemented by a national network that includes a research facility in Alice Springs dedicated to Indigenous health, and a PREVENTATIVE health laboratory in South Australia with a focus on nutrition and community intervention research.

The Institute's work covers five broad themes of research, each of which supports groups of scientists who work in a laboratory setting as well as researchers who work in the community. This integration of basic scientists with epidemiologists, clinicians and public health professionals is central to Baker IDI's strategy to perform research that is directly informed by community needs and to TRANSLATE discoveries into everyday clinical practice.



Senior Laboratory Technician, Steve Risis and Head of Cellular and Molecular Metabolism, Professor Mark Febbraio.

Postdoctoral Scientist, Dr Nina Eikelis with Head of the Vascular Biology and Hypertension research group, Professor Murray Esler AM.



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# HIGHLIGHTS

## DISCOVERED WORLD-FIRST TREATMENT FOR SEVERE HIGH BLOOD PRESSURE

A world-first breakthrough in the treatment of high blood pressure pioneered at Baker IDI is expected to revolutionise treatment options for patients suffering severe and resistant hypertension. Research demonstrated a remarkable improvement in blood pressure levels for participants in a clinical trial that used a new catheter-based treatment for life-threatening high blood pressure. High blood pressure is a major health burden in Australia and around the world, and is the cause of many debilitating health problems and even sudden death. It is estimated that 30-40 per cent of the population suffer from high blood pressure and of that group, 15 per cent are resistant to traditional therapies.

## NEW INSIGHT INTO THE ROLE OF GOOD CHOLESTEROL IN DIABETES

A new insight into the role of good cholesterol in diabetes was discovered by researchers in the Metabolic and Vascular Physiology Laboratory, headed by Professor Bronwyn Kingwell. The group demonstrated that HDL cholesterol (good cholesterol) has an important role in glucose and fat metabolism. This work represents a paradigm shift from HDL being a bystander to an active player in glucose intolerance of the metabolic syndrome, and is critical to the rising epidemic of diabetes and its dramatic impact on cardiovascular disease. Continuing research will examine whether prolonged HDL elevation produces a sustained benefit on blood glucose control which may translate to a new therapeutic approach in the prevention and treatment of type 2 diabetes.

## IDENTIFIED IMPORTANT LINK BETWEEN PROLONGED TV VIEWING AND MORTALITY

A stark warning – not just for couch potatoes but even those who exercise regularly – that the risk of death increases the longer people spend in front of the television. A pioneering study led by Baker IDI's Head of Physical Activity research, Associate Professor David Dunstan found that watching television for prolonged periods can be bad for your health, with each hour spent in front of the television each day associated with an 11 per cent increased risk of death from all causes; a 9 per cent increased risk of cancer death; and an 18 per cent increased risk of cardiovascular disease-related death. The results are supported by an emerging field of research that demonstrates how prolonged periods of inactivity affect the body's processing of fats and other substances that contribute to heart disease risk. The research has broader health implications for other types of sedentary behaviour such as sitting in front of a computer, reading a book, driving or sitting on public transport.

## DEVELOPING TEST TO SCREEN FOR HEART DISEASE BEFORE SYMPTOMS APPEAR

A new test to identify people who will suffer heart disease years before they die of a heart attack is being developed by Baker IDI researchers. The test has the potential to screen for heart disease long before symptoms appear by pin-pointing patterns in proteins contained in urine. Currently, there are no tests to screen for atherosclerotic cardiovascular disease – which is responsible for 80 per cent of heart conditions – and the first sign of illness for many people is a fatal or near-fatal heart attack. Researchers, led by Professor Karlheinz Peter, developed a urine test with the German biotech company, Mosaiques and the University of Freiburg. Early diagnosis

of coronary artery disease would allow preventative measures such as lifestyle improvements and medical treatments to save millions of lives around the world.

## PLAYING A PIVOTAL ROLE IN DEVELOPING NATIONAL HEALTH GUIDELINES

The specialised clinical skills of Baker IDI staff have been recognised, with a successful tender led by our Adelaide facility to review and update four national guidelines relating to type 2 diabetes. The four areas are in foot disease and secondary prevention and management of cardiovascular disease (lipid control, hypertension and macrovascular disease). The guidelines are national and will be endorsed by the National Health and Medical Research Council in 2011 and 2012. The team is headed by Associate Professor Jonathan Shaw and is a collaboration with The George Institute and the University of Adelaide.

## COMMERCIALISATION OF INTELLECTUAL PROPERTY DELIVERING BENEFITS TO PATIENTS AROUND THE WORLD

Baker IDI's spin-off company, Osprey Medical Inc., founded by Professor David Kaye and his colleagues has continued to go from strength to strength. Osprey Medical, now based in Minneapolis in the United States, is focused on developing innovative catheter systems to address clinical needs. Osprey has raised a further US\$4m in funding to progress with a pivotal study for the prevention of contrast-induced nephropathy (toxicity to the kidneys as a result of the use of contrast agents for coronary angiograms). A successful feasibility study of 40 patients was recently completed by Professor Kaye and his colleagues, with Osprey now looking to undertake a large clinical trial and seek regulatory approval in Europe and the United States.

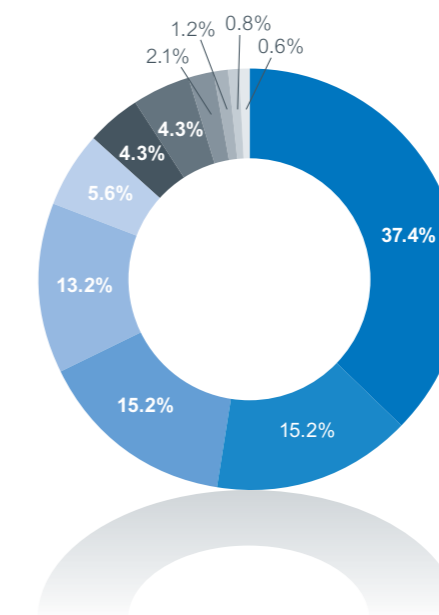
# RESEARCH OUTPUT: PUBLICATIONS & GRANTS

## PUBLICATIONS

In 2009, the work of Baker IDI researchers was published in a range of international peer reviewed journals, including:

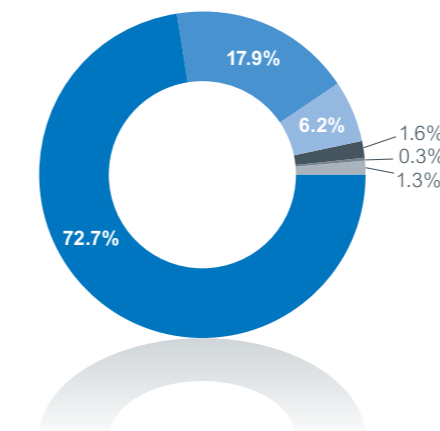
Publication Name	Impact Factor
<i>New England Journal of Medicine</i>	50.017
<i>Nature Reviews Drug Discovery</i>	28.690
<i>The Lancet</i>	28.409
<i>Cancer Cell</i>	24.962
<i>Annals of Internal Medicine</i>	17.457
<i>Cell Metabolism</i>	16.107
<i>Circulation</i>	14.595
<i>British Medical Journal</i>	12.827

## NATIONAL HEALTH & MEDICAL RESEARCH COUNCIL GRANTS 2009



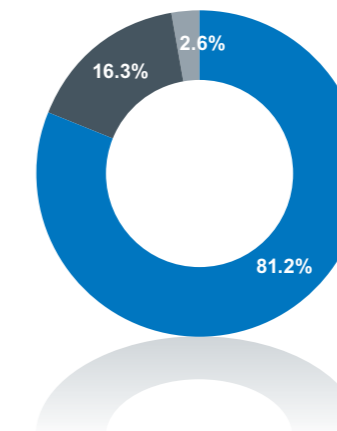
Project Grants	\$6,967,713
IRISS	\$2,839,310
Research Fellowships	\$2,838,000
Program Grants	\$2,456,351
Training Fellowships	\$1,052,112
Career Development Awards	\$805,500
Australia Fellowships	\$800,000
Development Grants	\$389,688
Equipment Grant	\$222,852
Postgraduate Scholarships	\$144,233
Health Services Research Grant	\$114,677
<b>Total</b>	<b>\$18,630,436</b>

## PUBLICATIONS: TYPES & QUANTITY



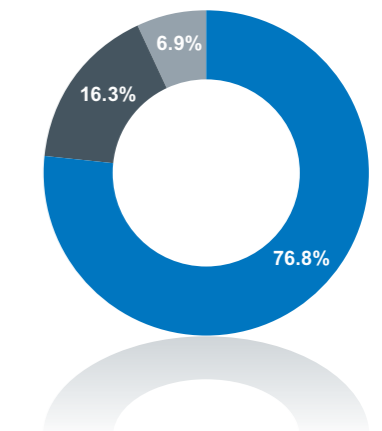
Original Research Articles	224
Reviews	55
Editorials & Comments	19
Letters	5
Author Replies	1
Book Chapters	4
<b>Total</b>	<b>308</b>

## HEART FOUNDATION GRANTS 2009



Grants-in-Aid	\$984,840
Postdoctoral Fellowships	\$197,250
Postgraduate Scholarships	\$31,294
<b>Total</b>	<b>\$1,213,384</b>

## INTERNATIONAL FUNDING



Juvenile Diabetes Research Foundation	\$1,741,884
National Institutes of Health	\$368,775
Muscular Dystrophy Association	\$157,143
<b>Total</b>	<b>\$2,267,802</b>

# CHAIRMAN'S REPORT



## DISEASE RISING AT ALARMING RATES

Cardiovascular disease, diabetes and obesity remain the biggest health challenges facing our society today, with rates of diagnosis rising at alarming rates. They threaten to significantly impair quality of life for millions of Australians.

Baker IDI Heart and Diabetes Institute is well placed to tackle this challenge in a comprehensive way, based on our expertise in producing high-end research that informs preventative health strategies as well as our ability to translate research into clinical care.

What makes Baker IDI unique is a continuum of research that extends from basic science conducted at the bench-top through to human clinical trials; the patient interface at our healthy hearts and diabetes clinics; and our interventional cardiology work in a hospital setting.

Our partnerships with hospitals, universities and healthcare agencies, along with the breadth of our work and our expertise, place us in the enviable position of having staff who not only understand the clinical setting but also have the expertise and resources to develop evidence-based solutions.

Throughout this report, you will see examples of our translational work – a core aim of our research.

Moving forward, the challenge is to continue leveraging our well-established collaborative links, expertise and resources to address some of the fastest growing non-communicable diseases in the world today against a backdrop of difficult worldwide financial conditions, tighter government budgets and a changing healthcare landscape.

## EXPANDING OUR SERVICES TO MEET GROWING HEALTHCARE NEEDS

Thanks to strong support from both State and Federal Governments, we have opened three new world-class facilities in 2010 – a Specialist Diabetes Clinic, a new building to house our Indigenous research in Alice Springs and the Healthy Lifestyle Research Centre. These state-of-the-art facilities demonstrate our commitment to creating a pre-eminent international research organisation, by enabling researchers from a variety of disciplines to work collaboratively to examine the genetic and environmental factors influencing disease.

The opening of the W & E Rubuntja Research and Medical Education Building in Central Australia in March 2010

represented an important milestone in our mission to address the health challenges faced by Australia's Indigenous communities. The expansion of our services in Alice Springs has been made possible with significant assistance from donors and we are grateful for their ongoing support of the Institute.

Our presence in South Australia is also gaining momentum. The team have spearheaded a number of exciting partnerships with both the academic and commercial sector, including a successful tender for the development of the Federal Government's type 2 diabetes guidelines.

Baker IDI's early phase clinical trials subsidiary, Nucleus Network, continues to go from strength to strength. Nucleus Network has established an outstanding reputation for clinical research, education and training since its establishment in 2002.

In 2009, it generated nearly \$17m in revenue, including more than \$12m in export earnings, significant recognition in the Governor of Victoria Export Awards and now employs more than 100 staff.

## ADDRESSING THE CHALLENGES

Despite our many accomplishments in 2009, it has been a challenging year in which the organisation suffered a drop in investment income and a decrease in philanthropic income from trusts and foundations, both as a result of the Global Financial Crisis. To respond to this drop in revenue, the Institute had to cut back its administrative staff costs and reduce somewhat its other support for scientists.

We still face many longer-term funding issues, with the level of infrastructure funding to medical research institutes falling behind the real cost of providing that infrastructure, and the level of NHMRC grants being held to current levels notwithstanding significant expansion in medical research facilities around the nation.

In association with relevant industry bodies, Baker IDI is actively involved in engaging with governments at both the State and Federal levels about the most appropriate means of addressing the need to increase indirect costs funding.

## A VOTE OF THANKS

On behalf of the board, I would like to acknowledge Baker IDI's long-standing patron, Sir Laurence Muir, who passed away in April 2010. Always positive and enthusiastic, Laurie responded to our requests with total commitment, delivering significant outcomes for the Institute.

Our thanks too, to Professor Graeme Ryan who retired from the Board in late 2009 after many years of service. Professor Ryan has been a distinguished leader in the field of medical research and education and we are grateful for the expertise and knowledge that he brought to the Board.

I would also like to acknowledge the contribution of John Allen who retired in May 2010 after five years service on the board. We have greatly valued the considerable commercial acumen that John brought to the organisation.

We are delighted to welcome Andrew Way, Chief Executive of Alfred Health to the Institute's Board. Andrew boasts an extensive career in the National Health Service in the UK, most recently as CEO of Royal Free Hampstead NHS Trust, a major London teaching hospital associated with University College London.

I would also like to thank my fellow board members including Paula Dwyer, our Deputy Chair and Chair of the Investment Committee; Peter Scott, Chair of the Commercialisation Committee; and Lindsay Maxsted, our Treasurer and Chair of the Audit and Risk Management Committee. We are grateful for the Board's tireless commitment to the Institute's mission and enthusiasm for our work.

And finally, I would like to thank the Director of Baker IDI Garry Jennings and the inspiring and enthusiastic staff of Baker IDI as we pursue our journey toward better health.

Robert Stewart  
Board Chairman,  
Baker IDI Heart and Diabetes Institute

# DIRECTOR'S REPORT



## INNOVATION AND FLEXIBILITY ARE CRITICAL IN A CHANGING HEALTH LANDSCAPE

As the Institute approaches its 85th year, we have much to be proud of and many challenges ahead of us.

The release in 2009 of the National Preventative Health Strategy highlights the need for urgent, comprehensive and sustained action to address the rising incidence of preventable disease amongst Australians. This complements other reviews that are guiding the Government's health reform agenda. To deliver on the ambitious objectives we all share for our health system there will need to be a sustained and comprehensive approach to both prevention measures and to health innovation.

As an institute, we have the expertise and breadth to transform innovative laboratory research findings into new approaches in clinical care through to long-term preventative health and lifestyle strategies.

Innovation in the healthcare sector; from pioneering approaches to patient treatment through to new, research-based insights into lifestyle choices, is critical for healthy individuals and communities alike. Importantly, innovation holds the

key to stemming the dramatic increase in the incidence of cardiovascular disease, type 2 diabetes and obesity that we are witnessing today.

As we undertake our research in the context of a rapidly changing healthcare landscape, it is important that we remain agile and flexible to ensure we are able to respond appropriately to these changes, and that we leverage our skills and expertise to identify and capitalise on new research opportunities.

## RESEARCH, TRANSLATION AND PREVENTION IN CONJUNCTION ARE CENTRAL TO HEALTH INNOVATION

In a society facing an ageing population and escalating health burden from heart disease, diabetes and obesity, our work has never been more important. Researchers at Baker IDI have been responsible for a number of significant health developments in recent times, transforming clinical care and informing preventative healthcare. A selection of highlights includes:

- Landmark research into heart failure, with nurse-led follow-up programs making major inroads into rates of re-hospitalisation and reducing mortality by up to 50 per cent. This systems-approach to cardiovascular care is also being introduced in Indigenous communities around Alice Springs. Indigenous health is a major area of focus for Baker IDI, where we are driven by the enormous gulf in life expectancy that exists between Indigenous and non-Indigenous communities.
- A pioneering catheter system developed by Professor David Kaye which is close to going to market under US-based company, Osprey Medical Inc. Regulatory approval in Europe and the United States is the next step in making this new catheter-based

treatment available to heart patients around the world. The device, which aims to alleviate the damaging effects of contrast dye injected into the kidney of patients undergoing coronary angiography, is set to undergo a large clinical trial following a successful feasibility study carried out by Professor Kaye and his colleagues in 2009.

- Ground-breaking research into muscle-related diseases by Dr Paul Gregorevic and his colleagues which is shedding new light on the potential use of gene therapy to treat the complications of inactivity and advancing age, as well as a host of conditions that are caused or complicated by the loss of muscle mass and strength. We are thrilled to secure talented scientists like Dr Gregorevic from the United States, thanks to a Pfizer Australia Fellowship, to develop new approaches to these insidious multi-system disorders such as muscular dystrophy.

## HAVING THE VERY BEST STAFF AND FACILITIES IS KEY TO BEING INTERNATIONALLY-COMPETITIVE

Over the past year, our staff have worked extremely hard and have been rewarded for their diligence and commitment, with numerous awards both in Australia and overseas. While it is difficult to single out a few, I would like to congratulate:

- Professor Murray Esler, for being awarded Victoria's top science prize for pioneering new ways of treating heart failure, stress and blood pressure. This award recognises Professor Esler's world-leading work over more than 30 years.
- Professor Mark Cooper, who was awarded the National Health and Medical Research Council's highest award – an Australia Fellowship – to further his work into the complications

of diabetes. This capped off a busy 2009 for Professor Cooper, who was also appointed Deputy Director (Research) at Baker IDI following an extensive international search.

Expansion of our facilities and programs has flourished. In early 2010, Warren Snowden, Minister for Indigenous Affairs opened the W & E Rubuntja Research and Medical Education Building in Alice Springs. Located within the grounds of the Alice Springs Hospital, the new building provides a base for our efforts to develop effective chronic disease prevention and management programs, as well as building capacity amongst local health care workers. The building, which will also house Flinders University's Northern Territory Rural Clinical School, has been named in honour of W & E Rubuntja – two distinguished Aboriginal leaders who were committed to the advancement of Indigenous people through their work in the areas of land rights, health, education and reconciliation.

In May 2010, we opened our new custom-built Specialist Diabetes Clinic located on the Alfred Medical Research and Education Precinct (AMREP). Diabetes is one of the most common chronic diseases in nearly all countries and continues to increase in numbers and significance as changing lifestyles lead to reduced physical activity and increased obesity. Approximately 1.4 million Australians have been diagnosed with diabetes. The Baker IDI Specialist Diabetes Clinic will ensure our doctors, nurse educators, dietitians and other health specialists continue to provide the most advanced treatment and services for people living with, or at risk of, diabetes. Critically, the new clinic will combine world class facilities with the familiar faces our patients have come to know and trust.

Another exciting development is the opening of our Healthy Lifestyle Research Centre in the same building as the Specialist Diabetes Clinic. The Centre will allow researchers from a variety of disciplines to focus on areas such as lifestyle, nutrition and physical activity to examine the genetic and environmental factors influencing disease. The Centre is a preeminent international research resource in the fight against diabetes and cardiovascular disease. Our aim is that the Centre's research will inform lifestyle intervention programs and contribute to the translation of research into new drugs, devices and treatment options for patients as well as influencing public health policy and practices.

The co-location of our Melbourne groups on the AMREP campus represents an important strategic step in realising our vision to deliver an ambitious range of programs aided by access to the facilities of a world-class acute hospital campus and a rich source of new patients and research opportunities.

## THANK YOU TO ALL WHO SUPPORT US IN OUR MISSION TO BE AUSTRALIA'S PREMIER CARDIOVASCULAR AND DIABETES RESEARCH INSTITUTE

The breadth of our programs requires significant resource and we are extremely grateful for the commitment and support we receive from so many people.

In particular, I would like to acknowledge our long-serving patron, Sir Laurence Muir who sadly passed way in April 2010. Sir Laurence, or Laurie as he was known to us, was a modest fellow, belying the enormous contributions he made – both to Baker IDI and to a host of other not-for-profit organisations in Australia, alongside his dedicated and visionary work in the government and corporate sectors.

Laurie's association with this Institute extends more than two decades and on behalf of Baker IDI, I would like to extend a heartfelt thank you to Laurie's family for his substantial contributions that have helped shape our organisation into an internationally-competitive and highly-regarded medical institute.

I would also like to thank the wider community that supports us in our ongoing mission to be an internationally renowned cardiovascular and diabetes research institute. Adequate funding is critical to our research. We are very grateful for the generous assistance of our donors as well as the dedicated volunteers, Friends of Baker IDI, patients at our clinics, trial participants engaged in our clinical research and our committed and highly talented staff – all of whom are essential in providing the support we need to do our work.

## OUR FOCUS ON COLLABORATION AND TRANSLATIONAL RESEARCH WILL ENSURE WE CONTINUE TO HAVE A LONG-TERM IMPACT ON HEALTH OUTCOMES

In the coming years, there will continue to be an increased focus on collaboration and translational research as government and agencies look to address the nation's preventative healthcare needs. I am confident that our excellent track record in partnering with hospitals, universities, governments and the community will foster our ongoing success and long term impact.

Professor Garry Jennings AM  
Director,  
Baker IDI Heart and Diabetes Institute

# RESEARCH FRAMEWORK

## MATERNAL HEALTH, PREGNANCY, EARLY CHILDHOOD AND ADOLESCENCE (PRENATAL TO 18)

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 providing better information on optimal diets and physical activity programs.

## ADULTS WITH RISK FACTORS (18-30)

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

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

## SUBCLINICAL ORGAN DAMAGE (30-45)

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 complications in the heart, brain, kidneys and eyes, in order to develop interventions which prevent progression to acute complications.

## ACUTE COMPLICATIONS (45-60)

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

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

## CHRONIC CLINICAL COMPLICATIONS (60-70)

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

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

## HEART FAILURE AND TERMINAL DISEASE (70+)

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

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



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 **PREVENTATIVE** health 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 the effects of cardiovascular disease and diabetes, two insidious and complex diseases wreaking havoc in our community.



# RESEARCH

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Head of the Metabolomics Laboratory, Associate Professor Peter Meikle and Research Assistant, Jacqui Weir.

# POPULATION STUDIES AND PROFILING



AN ILLUSTRATIVE CASE STUDY

## REDUCING RON'S CHANCE OF A FATAL HEART ATTACK

Proud grandfather of two and successful builder, Ron, 56, has a family history of heart disease. In fact, he could very well be the carrier of genes which make him susceptible to a sudden, fatal heart attack. Accurate identification of patients at risk of unstable coronary syndromes is still not possible. One collaborative **RESEARCH** project currently under way involving Baker IDI scientists and cardiologists could prove invaluable for people like Ron. Associate Professor Peter Meikle and his colleagues have identified a novel lipid biomarker profile using state-of-the-art analysis, which has

the power to differentiate between patients with stable and unstable coronary artery disease. The successful **TRANSLATION** of this laboratory-based research to a community setting will lead to greater understanding of people who are at high risk of plaque rupture. As a result, clinicians would be able to intervene at an early stage to reduce the chance of increased morbidity and mortality. This research also aims to guide community **PREVENTION** strategies through careful lifestyle and pharmaceutical management of people with a high-risk profile.

**The Population Studies and Profiling group works to understand the prevalence of disease and disease risk in the population. The focus is on prevention, education and the development of better profiling tools.**

Key research streams include:

- Bioinformatics & Systems Integration
- Genomics & Systems Biology
- Metabolomics
- Translational Proteomics
- DNA & Blood Profiling
- Indigenous Research
- Indigenous Maternal & Child Health
- Clinical Diabetes & Epidemiology; and
- Preventative Cardiology.

Several highlights within these streams include:

### IMPROVING CARE FOR INDIGENOUS AUSTRALIANS WITH TYPE 2 DIABETES

A five-year study to test the effectiveness of a collaborative approach to improving health outcomes for Indigenous Australians with type 2 diabetes is being spearheaded by Professor Sandra Eades, Head of the Indigenous Maternal and Child Health Research Program. Professor Eades was awarded a major National Health and Medical Research Council grant in 2009 to undertake this important research. This study will involve working with Aboriginal community-controlled health organisations to achieve best practice clinical guidelines for type 2 diabetes. Appointed to Baker IDI in 2008 with a diverse background spanning general practice, medical epidemiology, health policy and research, Professor

Eades continues to make a substantial contribution to Aboriginal health and research in Australia.

### NATIONAL STUDY TO TACKLE HYPERTENSION

Professor Simon Stewart's group is conducting one of the biggest studies into hypertension in Australia – VIPER BP – the Valsartan Intensified Primary carE Reduction of Blood Pressure Study. With the support of a major pharmaceutical company, Baker IDI commenced a study in 2009 to investigate whether a more intensive approach to blood pressure (hypertension) management will help patients reach their target levels more quickly than traditional approaches. The study, which involves a target of 2,500 Australians and more than 300 GPs from across Australia, monitors patients who have uncontrolled high blood pressure. In addition to using the latest available treatments, GPs will be provided with exclusive access to a new electronic management tool designed by Baker IDI, which will help calculate patients' long-term cardiovascular disease risk and direct more intensive disease management.

### AUSTRALIAN DIABETES, OBESITY AND LIFESTYLE STUDY

The Australian Diabetes, Obesity and Lifestyle Study (AusDiab) is the largest Australian longitudinal population-based study examining the natural history of diabetes, pre-diabetes (in which glucose metabolism is impaired but not to the level to cause diabetes), heart disease

and kidney disease in 11,247 participants. Plans are under way for a 12-year follow-up of AusDiab participants, allowing an unprecedented opportunity to map the changing impact that diabetes, heart disease and kidney disease have on the Australian population. The study has been funded by the Federal Government, the National Health and Medical Research Council, state governments, and academic and industry partners.

### THE DNA AND BLOOD PROFILING FACILITY

This facility, established in 2008 with the support of a major bequest and a Commonwealth grant, is unique in Australia in that it brings together the expertise of four research groups within Baker IDI – Genomics, Epigenomics, Proteomics and Metabolomics – together with the Bioinformatics group. Gene, protein and metabolite "profiling" will enable better understanding of an individual's disposition to diabetes and cardiovascular disease. This systems-biology approach enables the rapid collection of precise biological information about an individual, and aims ultimately to enable medicines to be 'personalised' to each individual's unique profile.

**The Metabolism and Obesity group works to understand the complex relationship between physical activity, weight regulation and the genetic and environmental underpinnings of metabolism to address the many complications of metabolic disorders and obesity.**

Key research streams include:

- Physical Activity
- Cellular & Molecular Metabolism
- Muscle Biology & Therapeutics
- Metabolic & Vascular Physiology
- Cardiac Hypertrophy
- Mouse Metabolomics Facility
- Viral Facility
- Clinical Endocrinology & Metabolic Studies
- Nutritional Interventions

Highlights from the work of this group include:

#### **LINK BETWEEN TELEVISION VIEWING TIME AND MORTALITY**

A study led by Head of Physical Activity Research, Associate Professor David Dunstan has found that watching television for prolonged periods can be bad for your health, with each hour spent in front of the television each day associated with an 11 per cent increased risk of death from all causes; a 9 per cent increased risk of cancer death; and an 18 per cent increased risk of cardiovascular disease-related death. The research, which attracted international media attention, explored for the first time the relationship between television viewing time and mortality.

#### **UNLOCKING THE MYSTERIES OF MUSCLE-RELATED DISEASE**

Head of the Laboratory for Muscle Research & Therapeutics Development, Dr Paul Gregorevic and his group aim to unravel the mysteries related to physical frailty caused by muscle-related diseases, such as muscular dystrophy. Their aim is to identify the key cellular processes that control skeletal muscle growth, and to clarify their role in the development of specific disease states. This research is shedding new light on the potential use of gene therapy to treat the complications of inactivity and advancing age, as well as a host of conditions that are caused or complicated by the loss of muscle mass and strength.

#### **METABOLIC CHANGES AND TYPE 2 DIABETES**

Professor Mark Febbraio and his group are at the forefront of research into the metabolic changes that lead to type 2 diabetes, with a focus on the development of drugs that will target obesity and obesity-induced inflammation. Among the important discoveries made by this group is the identification of a novel pathway that protects against inflammation, obesity and insulin resistance. The group has identified that a specific 'chaperone protein', heat shock protein 70 (HSP70), prevents obesity-induced insulin resistance. The group now plans to take a small molecule activator of HSP70 into human clinical trials.

#### **NUTRITION SOCIETY OF AUSTRALIA FELLOWSHIP**

Head of the Nutrition Intervention Laboratory, Professor Peter Clifton was awarded a Nutrition Society of Australia

Fellowship 2009 – the society's most senior award. A high-profile clinical and nutrition researcher for over 20 years with the CSIRO, Professor Clifton joined Baker IDI in July 2009 and is based in the Institute's Adelaide office.

#### **THE ROLE OF GOOD CHOLESTEROL IN DIABETES**

Investigations by the Metabolic and Vascular Physiology Laboratory headed by Professor Bronwyn Kingwell demonstrated that HDL cholesterol (good cholesterol) has an important role in glucose and fat metabolism. This work represents a paradigm shift from HDL being a bystander to an active player in the glucose intolerance of the metabolic syndrome, and is critical to the rising epidemic of diabetes and its dramatic impact on cardiovascular disease. The group is now examining whether prolonged HDL elevation produces a sustained benefit on blood glucose control.

#### **HEALTHY LIFESTYLE RESEARCH CENTRE**

A groundbreaking centre which allows researchers from a variety of disciplines to focus on areas such as lifestyle, nutrition and physical activity to examine the genetic and environmental factors influencing disease will be completed in 2010. The first of its kind in Australia, the Healthy Lifestyle Research Centre has the capacity to undertake research utilising a wide range of research methods. Importantly, this centre will serve as a hub for the translation of evidence-based programs designed to address lifestyle and behaviour changes with broad community health benefits.



### **GIVING DAVID MORE OPTIONS TO MANAGE HIS HEART FAILURE**

High-flying lawyer, David, 48, is among the 1-2 per cent of Australians who suffer from heart failure. His condition is being managed by specialists at a hospital clinic, which advocates, among other things, regular exercise. But just how and why exercise could hold the key to protecting the heart against conditions such as heart failure is at the centre of **RESEARCH** being conducted by Dr Julie McMullen and her group. They are working to identify the genes and proteins that mimic the protective effects of exercise with a focus on promoting "good" heart growth in the failing heart.

In a major boost to her research, Dr McMullen was awarded an inaugural Australian Research Council Future Fellowship to continue her investigations over the next four years. The **TRANSLATION** of this fresh approach could lead to promising new strategies for treating heart failure in people like David. Moreover, an increased understanding about how to protect the heart could one day set the stage for the **PREVENTION** of cardiovascular disease – welcome news when it comes to tackling Australia's biggest killer.

AN ILLUSTRATIVE CASE STUDY

# METABOLISM AND OBESITY

PhD Candidate, Kate Weeks and Head of Cardiac Hypertrophy Dr Julie McMullen.

Head of the Diabetes and Kidney Disease Laboratory, Professor Karin Jandeleit-Dahm with Postdoctoral researcher in the Proliferation and Fibrosis Laboratory, Yugang Tu (William).

# DIABETIC COMPLICATIONS



AN ILLUSTRATIVE CASE STUDY

## REDUCING PAMELA'S RISK OF DIABETES-RELATED COMPLICATIONS

Retired bookkeeper, Pamela, 61, has diabetes, which puts her at risk of complications including kidney disease, eye disease and heart disease. Just what drives the acceleration of these conditions in people with diabetes like Pamela is the major focus of **RESEARCH** being carried out by the Diabetic Complications group. In particular, researchers are examining the role of oxidative stress and related hormones in diabetes-associated atherosclerosis (the thickening of artery walls as a result of a build up of fatty materials) and kidney disease.

The **TRANSLATION** of this research will lead to the development of novel treatments including new drugs to interrupt the pathways which accelerate these complications. With greater understanding of the underlying nature of diabetes-associated atherosclerosis and kidney disease, the path toward the **PREVENTION** and reversal of these damaging stimuli could well be within our reach.

**Diabetes is a chronic, insidious disease and is currently the fastest growing disorder in Australia. Among its many debilitating complications are heart and vascular disease, kidney disease and eye disease. Understanding who is most at risk of the complications of diabetes and discovering ways to mitigate the effects of the disease is this group's focus.**

Key research streams include:

- Diabetes & Atherosclerosis
- Proliferation & Fibrosis
- Oxidative Stress
- Human Epigenetics
- Advanced Glycation
- Diabetes & Metabolism
- Genomics of Diabetes Complications
- Diabetes & Metabolism
- Diabetes & Kidney Disease
- Biochemistry of Diabetic Complications

Highlights from the work of this group include:

### PRESTIGIOUS AUSTRALIA FELLOWSHIP AWARDED

In 2009, Baker IDI Deputy Director (Research) and Head of the Centre for Diabetic Complications, Professor Mark Cooper was awarded a prestigious Australia Fellowship – the highest level fellowship awarded in the National Health and Medical Research Council (NHMRC) fellowship scheme. This will enable him to further his research examining the complications of diabetes, and the mechanisms responsible for those complications. Professor Cooper's award will enable him to continue this

research, which will assist with the development of new treatments to target and prevent the development of diabetes-related complications.

### AUSTRALIA'S LARGEST STUDY OF TYPE 2 DIABETES

A group headed by Associate Professor Merlin Thomas co-ordinated the NEFRON study, the largest study of patients with type 2 diabetes ever completed across Australia. NEFRON was a collaborative initiative of Baker IDI, Kidney Health Australia and Servier Australia that aimed to define the prevalence and severity of complications of diabetes in Australian general practice, including Indigenous Australians. This study has already been able to show that every second individual with type 2 diabetes in Australia has evidence of chronic kidney disease, with clear potential to have a detrimental effect on their health and wellbeing, as well as contributing to premature mortality. This study has generated a unique set of data which is providing a sound basis for an increasing number of research papers being written on diabetes and kidney complications.

### TOP AUSTRALIAN RESEARCHER RECOGNISED

Head of the Glycation and Diabetes Laboratory, Associate Professor Josephine Forbes was among 15 of Australia's most distinguished health and medical researchers recognised for their outstanding contribution to medical research in early 2010. In fact, Associate Professor Forbes was the highest ranked National Health and Medical Research Council (NHMRC) Career Development Award recipient in the 2010 funding round. This is only the third time that these

awards have been presented, but they have already become highly-regarded among the research community. Associate Professor Forbes' primary research focuses on the biochemical process of advanced glycation, a biochemical process where excess sugar, as is seen in people with diabetes, modifies the structure and function of important proteins thereby contributing to diabetes and specifically to its complications.

### REDUCING KIDNEY AND VASCULAR DAMAGE

The Diabetic Complications group several years ago identified a new protein which appears to promote scarring in various sites of the body, including the kidney and blood vessels. This phenomenon appears to be enhanced in the diabetic setting. Led by doctors Chai and Cao, the researchers have determined how this new protein damages organs and are developing new therapies to block the signalling effect of CDA1. Such innovative work has attracted the attention of the New York-based Juvenile Diabetes Research Foundation, which recently provided a grant for the researchers to develop a new drug to reduce kidney and vascular damage in people with diabetes.

This group brings together studies on high blood pressure, kidney disease, the neurobiology of the relationship between depression and heart disease, as well as research into the damage to arteries caused by atherosclerosis, and the damage caused by heart attack.

Key research streams include:

- Vascular Biology & Atherosclerosis
- Neuropharmacology
- Human Neurotransmitters
- Diabetes & Cell Biology
- Arterothrombosis & Vascular
- Hypertension & Kidney Disease
- Stroke Epidemiology

Several highlights within these streams include:

#### WORLD-FIRST TREATMENT FOR HIGH BLOOD PRESSURE

A world-first breakthrough in the treatment of high blood pressure was pioneered by Baker IDI researchers, with a study showing that a new catheter-based treatment is able to deliver remarkable improvements in blood pressure levels to clinical trial participants. The procedure involves the insertion of a catheter through the femoral artery, emitting radio frequency to "silence" sympathetic nerves in the renal artery, the artery which delivers blood supply to the kidneys. The results of this study, which was co-authored by Professor Murray Esler and Associate Professor Markus Schlaich and published in *The Lancet*, are expected to revolutionise treatment options for high blood pressure around the world.

#### RESEARCHER RECOGNISED WITH VICTORIA PRIZE

Internationally-renowned biomedical scientist, Professor Murray Esler was awarded the State of Victoria's top science prize in July 2009 for pioneering new ways of treating heart failure, stress and blood pressure. For more than three decades, Professor Esler has researched the sympathetic nervous system, establishing that the nerves that carry messages from the brain to the kidneys cause high blood pressure. This research had led to a world-first breakthrough in the treatment of resistant high blood pressure. In association with the Victoria Prize, Baker IDI was awarded the Anne & Eric Smorgon Memorial Award, acknowledging the important contribution made by scientific research institutes in Victoria. This memorial award, which will enable Baker IDI to further its expertise in biomedical research, clinical care and advocacy, complements the long history of support by the Jack and Robert Smorgon families for medical research in Victoria.

#### MAJOR FUNDING TO DRIVE RESEARCH

Professor Karlheinz Peter was awarded a four-year inaugural Australian Research Council Future Fellowship for research defining targets and generating tools and therapeutic agents for prevention, diagnosis and therapy of atherothrombosis. Associate Professor Amanda Thrift and her colleagues in stroke epidemiology were awarded a grant from the National Health and Medical Research Council for a project targeted at patients who have experienced a stroke. This project

will examine the impact of individualised education and management of stroke patients in a bid to prevent them from having a recurrent event. The study is being undertaken in response to evidence which shows the uptake of therapies is poor despite proven treatments for preventing people from having another stroke (such as maintaining blood pressure at acceptable levels).

#### UNDERSTANDING THE DEADLY NATURE OF ATHEROSCLEROSIS

Professor Peter Little's group is focused on understanding the causes of atherosclerosis: the build-up of fatty plaques in blood vessels, particularly in people with diabetes. The group is working towards the development of a drug that can prevent the formation of atherosclerotic plaques by preventing changes in proteoglycans – protein molecules that exist in the blood vessel wall. Professor Little and his group have discovered a new area of signalling molecules and in 2009 completed a study in atherosclerotic mice, giving them a specially-designed drug which stopped changes occurring in proteoglycans. They found a statistically significant reduction in the degree of atherosclerosis in those animals. Patents are in place and research is continuing on the development of this drug.



AN ILLUSTRATIVE CASE STUDY

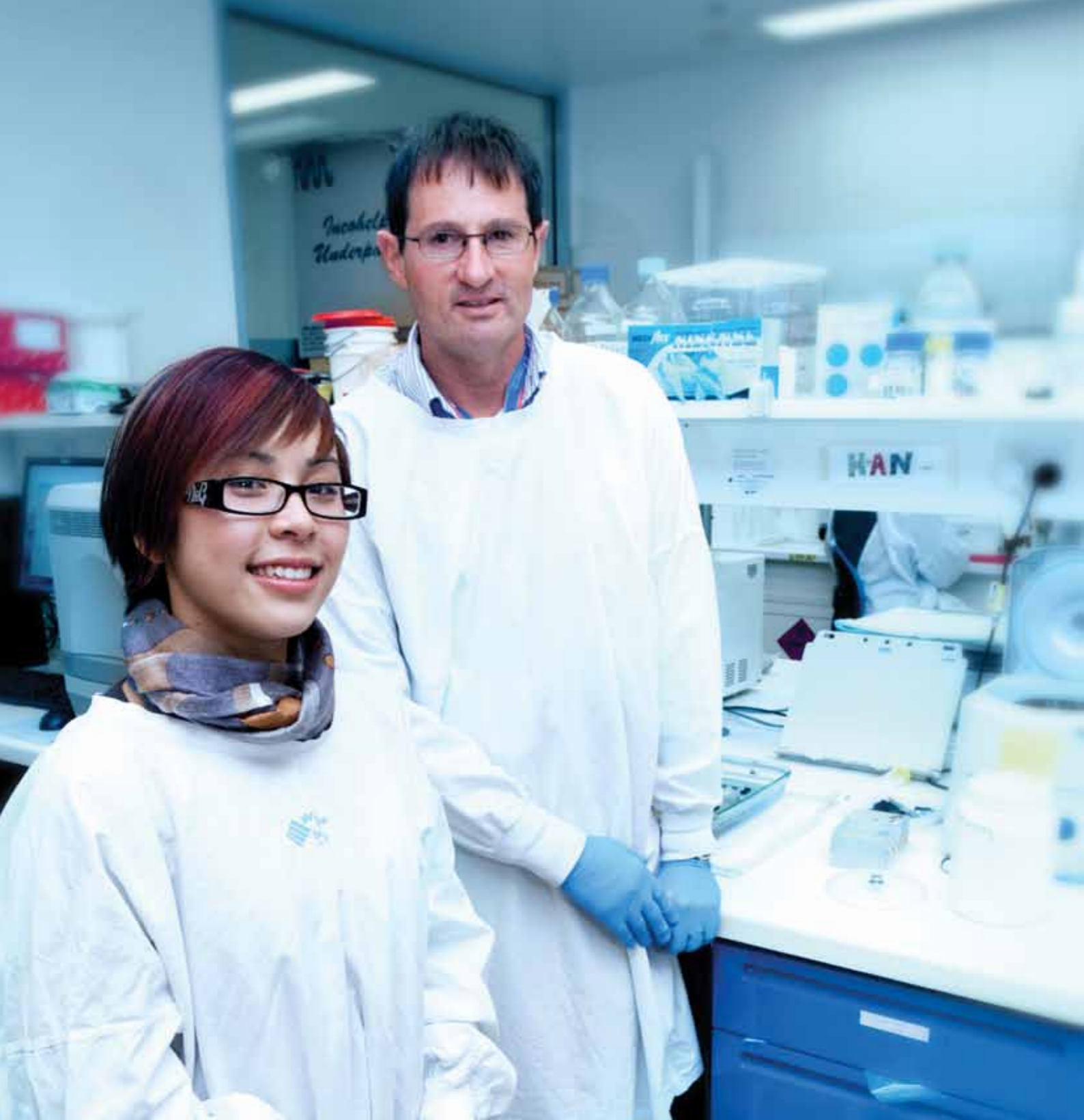
#### GIVING RYAN A FIGHTING CHANCE AGAINST HEART DISEASE

With a relatively slim build, no major health concerns and regular exercise, Ryan appears like many other 23-year-olds. But lurking within Ryan's body is the beginning of atherosclerotic cardiovascular disease. He doesn't know it yet – there are no tests for this disease and traditionally, the first sign of illness would be a fatal or near-fatal heart attack. But Baker IDI **RESEARCH**, led by Professor Karlheinz Peter has resulted in the development of a world-first urinary test which has the potential to screen for heart disease long

before any symptoms strike. Importantly for people like Ryan, the test could pinpoint patterns in proteins contained in urine which have now been shown to lead to atherosclerotic heart disease. The **TRANSLATION** of this research into the broader public health arena means that millions of patients can be treated early. And when it comes to putting in place strategies around **PREVENTION** of this form of heart disease, it could save millions of lives.

# VASCULAR BIOLOGY AND HYPERTENSION

Head of Atherothrombosis and Vascular Biology Laboratory, Professor Karlheinz Peter and PhD Candidate, Yung-Chih Chen (Ben).



# CARDIOLOGY AND THERAPEUTICS

Research Assistant, Ouda Khammy and Head of the Heart Failure Research Group, Professor David Kaye.

**Heart failure – a devastating complication of heart attack survival – and better treatment options for atrial fibrillation (where the chambers of the heart beat out of sync) are among the key research areas being investigated by the Cardiology and Therapeutics group. The focus is on taking laboratory findings and translating them into better surgical and therapeutic devices for people suffering from heart disease.**

Key research streams include:

- Heart Failure Research Group
- Vascular Pharmacology
- Heart Failure Pharmacology
- Lipoproteins & Atherosclerosis
- Molecular Cardiology
- Experimental Cardiology
- Clinical Electrophysiology
- Coronary Pathophysiology
- Vascular Intervention
- Magnetic Resonance Imaging (MRI)
- Echocardiography

Several highlights within these streams include:

## STEM CELLS, VASCULAR REPAIR AND OBESITY

While obesity is commonly associated with a higher cardiovascular risk profile, approximately 30 per cent of obese people intriguingly maintain a healthy cardiovascular and metabolic profile. On-going studies in Professor Jaye Chin-Dusting's laboratory demonstrate that one potential mechanism by which this may happen is in the generation of stem cells termed endothelial progenitor cells, which are responsible for vascular repair and growth. In a cohort of 64

severely obese patients, endothelial progenitor cell number and function, commonly much lower in patients at high cardiovascular risk, were significantly higher in the obese patients than in a lean cohort. These findings were reported at the High Blood Pressure Research Council of Australia meeting in December 2009.

## NOVEL TREATMENT FOR HEART ARRHYTHMIA

Head of Clinical Electrophysiology Research, Associate Professor Peter Kistler and his colleagues have found they can successfully treat patients with focal atrial tachycardia. By passing wires up from the leg into the heart, the abnormal focus for the arrhythmia was ablated and their heart function returned to normal within three months. This discovery was published in 2009 in the world's leading cardiology journal, *Journal of the American College of Cardiology*.

## NEW CATHETER SYSTEM REDUCES SIDE EFFECTS

The success of Baker IDI's spin-off company, Osprey Medical Inc., founded by Professor David Kaye and his colleagues has continued to go from strength to strength. Professor Kaye and his colleagues conducted a 40-patient multi-site international study of their pioneering catheter system, which aims to alleviate the damaging effects of contrast dye injected into the kidneys of patients undergoing coronary angiography. This work, which significantly reduced injury to the kidney, was presented at the American College of Cardiology meeting in early 2010.

## CARDIOVASCULAR EFFECTS OF RELAXIN

The Experimental Cardiology Unit has extensive experience studying the cardiovascular effects of the peptide hormone relaxin, which is produced during pregnancy. In animal studies researchers found that a short course of relaxin treatment in older rats with hypertension led to marked changes in the large artery structure and a reduction in blood pressure. This suggests that a therapy in humans with stiffened large arteries is possible. It is hoped that joint studies with the Alfred Baker Medical Unit will develop this approach through human clinical studies in the near future.

## PIONEERING APPROACH UTILISING CARDIAC MRI

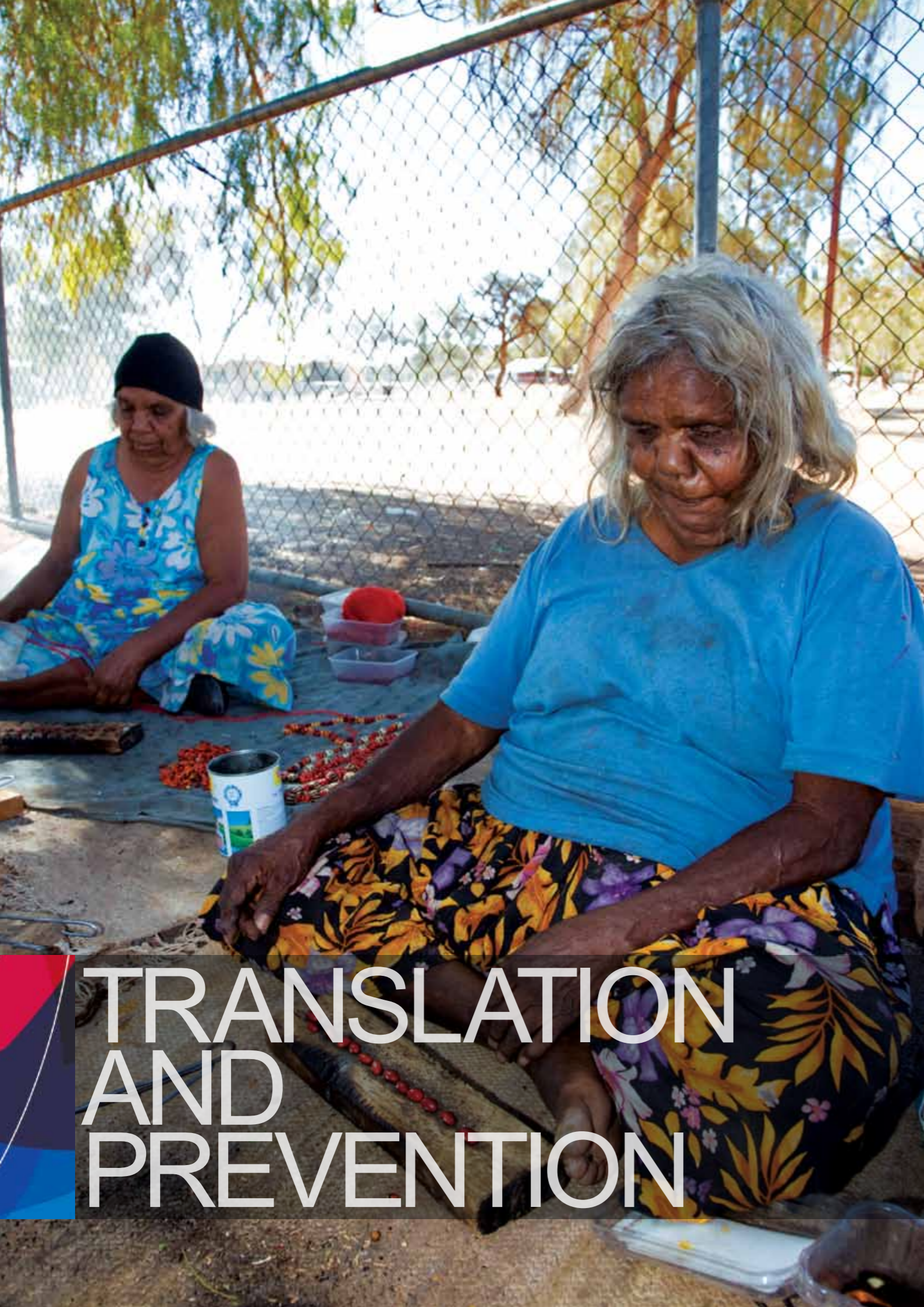
A non-invasive approach utilising Cardiac Magnetic Resonance Imaging (CMRI) has now made it possible for the first time to quantify diffuse myocardial fibrosis, thanks to pioneering work by Dr Andrew Taylor and his colleagues from the Alfred Baker Medical Unit. Diffuse myocardial fibrosis is believed to be a major contributor to increased cardiac stiffness, which hinders the heart's ability to fill with blood after each contraction. The development – just one of the many examples of our collaborative partnership with The Alfred hospital which is changing the face of patient care and treatment – has major ramifications for remodelling in heart failure and was published in the *Journal of the American College of Cardiology* in late 2008. Since then, the paper has received widespread attention from heart failure specialists, with further studies now under way in this area.

## PIONEERING APPROACH UTILISING CARDIAC MRI

AN ILLUSTRATIVE CASE STUDY

Maxine, a 43 year-old office worker, has pulmonary artery hypertension. Because of the strain that this condition is putting on Maxine's heart, it is getting steadily weaker and if this situation continues, it will shorten her lifespan. **RESEARCH** being undertaken by Professor David Kaye and his colleagues to develop new drugs for this condition, could make the world of difference to people like Maxine. Pulmonary artery hypertension (elevated blood pressure in the pulmonary arteries) is a life-threatening condition with few treatment options. A new class of drugs has been identified that may

improve blood vessel function, and result in the **TRANSLATION** of this work to produce a new drug treatment to relieve symptoms and slow the progress of this disease. Professor Kaye has received two Development Grants from the National Health and Medical Research Council for this ongoing area of research. There is currently no cure for this potentially fatal condition but it is hoped better therapies and understanding of pulmonary artery hypertension could one day lead to **PREVENTION** of this disease.



# TRANSLATION AND PREVENTION

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# INTERNATIONAL PROJECTS

Image supplied courtesy of Baker IDI AMREP partner, the Burnet Institute.

International projects are an important part of the research undertaken at Baker IDI Heart and Diabetes Institute. By providing an extension of our research to disadvantaged societies around the world, Baker IDI is contributing to international understanding of health and disease. In 2009, Baker IDI's collaborations and research-based interventions in overseas communities with a large diabetes and cardiovascular burden, as well as in communities at risk of growth in the epidemic of these diseases, continued to grow. Some projects under way include:

## MEMORANDUM OF UNDERSTANDING WITH MAURITIUS

The Institute's long-standing relationship with Mauritius passed a major milestone in late 2009 with the signing of a Memorandum of Understanding (MoU) between Baker IDI and the Mauritian Ministry of Health and Quality of Life to extend our research into non-communicable diseases, in particular type 2 diabetes. A further MoU has been signed for family genetic studies to better define genetic susceptibility to type 2 diabetes. The objectives of these agreements are to improve the current understanding of the mechanism of type 2 diabetes through family studies so that effective treatment is possible in the future, and to facilitate an exchange of data between the two parties. To date, the Institute has provided support in the form of equipment, expertise, data analysis and sample preparation. This is an important partnership documenting premature ill health and mortality in a multi-ethnic society that reflects our global population.

## EXAMINING ADHERENCE TO DIABETES GUIDELINES ACROSS ASIA

The GIANT study (General Practice Implementation in Asia of Normoglycaemic Targets) was a randomised controlled multinational study designed to investigate whether education of local general practitioners about the International Diabetes Federation Western Pacific Region diabetes management guidelines led to improved glucose control in their patients. Over a 12-month period, the study – which involved 100 GPs in 10 countries – determined that there was no statistically significant difference in glucose control, blood pressure or lipids between the two groups. Substantial numbers of patients had poor glucose control throughout the study despite the education on guidelines, highlighting the need to find more effective ways of motivating GPs to follow guidelines. The study was funded by GlaxoSmithKline.

## DOCUMENTING HEART DISEASE IN SOWETO, SOUTH AFRICA

This landmark program of research is being conducted by Baker IDI in collaboration with the University of the Witwatersrand, South Africa. The group is documenting emergent heart disease in Africa's largest urban concentration of black Africans. Comprehensive data from more than 6,000 hospital and 1,000 primary care cases (2006-2009), resulted in unique reports on emergent heart disease (*The Lancet*), heart failure (*Circulation*), hypertension (*International Journal of Cardiology*) and rheumatic heart disease (*European Heart Journal*); the latter highlighting the need to re-instate rheumatic heart disease as a reportable condition in adults. With a new phase of interventional research planned, Heart of Soweto is now informing national health policy in South Africa and is now being extended into the wider Heart of Africa collaboration involving many other African countries.

## BURDEN OF VASCULAR DISEASE IN RISHI VALLEY, INDIA

The Rishi Valley study is a collaborative project between Baker IDI, Monash University and the Rishi Valley Rural Health Centre. Although the most common causes of disease burden in countries such as India include malnutrition and infectious disease, vascular disease is increasingly recognised as an emerging epidemic. In urban Indian populations, changes in lifestyle exposures (resembling those seen in developed nations) may underlie this phenomenon. Even less is known about the burden of vascular disease in those living in rural communities. The aim of this study is to obtain important baseline data on the extent of vascular disease (heart disease and stroke) and its risk factors in a typical rural Indian community.

## SURVEILLANCE OF NON-COMMUNICABLE DISEASE IN VIETNAM

Baker IDI collaborates with Monash University, the Ministry of Health, Menzies Research Institute and World Health Organization to conduct this study. In developing nations, the burden of cardiovascular disease, stroke, diabetes, and cancer is taking over from the traditional problems of infectious diseases, of maternal and child illness and death, and of disorders due to under-nutrition and deficiency disease. The burden of the National Non-Communicable Disease (NCD) epidemic in Vietnam is accelerating in synchrony with economic development. This study aims to establish a sustainable system for NCD surveillance in Vietnam.

## WORLD-CLASS FACILITIES

In May 2010, Baker IDI Heart and Diabetes Institute transferred its long-standing and successful clinics from Caulfield to a state-of-the-art facility in the Alfred Medical Research and Education Precinct in Prahran. The new, purpose-built clinic combines world-class facilities with expert health professionals to provide the most optimal management of diabetes and its complications. In addition to this new specialist clinic, Baker IDI also opened a unique facility not seen in Australia before called the Healthy Lifestyle Research Centre. This groundbreaking centre – located in the same building – allows researchers from a variety of disciplines to focus on areas such as nutrition and physical activity to examine the genetic and environmental factors influencing disease. In this way, Baker IDI aims to further understand the link between diabetes, obesity and cardiovascular disease, with these new facilities playing a pivotal role in Baker IDI's overall strategy to address diabetes and its many complications.

## HIGH-QUALITY MEDICAL CARE

Baker IDI Specialist Diabetes Clinic houses a team of dedicated health professionals covering a range of specialities. The clinic's expert team combines:

- Specialist Diabetes Physicians
- Ophthalmologists
- Paediatricians
- Diabetes Nurse Educators
- Dietitians
- Counsellors

The clinic aims to empower patients with the knowledge, support and confidence to take control of their health. Services

include blood tests, screening for diabetic eye disease, lessons in how to use an insulin pump, counselling sessions for newly-diagnosed patients and supermarket tours to learn more about food and nutrition labels.

## QUALITY EDUCATION SERVICES AND PROGRAMS

The primary role of Baker IDI's Specialist Diabetes Clinic is to provide the most advanced range and quality of treatment services for people with diabetes, and those at risk of diabetes. These specialised services are delivered by a team of health professionals including some of Australia's leading diabetes specialists, diabetes nurse educators and dietitians.

These specialists focus on helping patients to understand diabetes and treatment options, while providing advice and support on how people with diabetes can take an active role in improving their management of diabetes. This information is complemented by dietitians who assess each person's nutritional needs, develop personalised eating plans and offer nutritional counselling and support.

A range of diabetes education programs are offered by diabetes educators including supermarket tours which provide a guide to food shopping for people with type 2 diabetes; a program designed to empower people on intensive insulin therapy; and a counselling service for people with diabetes.

## DEDICATED TRAINING FOR HEALTH PROFESSIONALS

Baker IDI is at the forefront of health professional training, with a range of training programs that are specifically targeted at health professionals,

including Practice Nurses; General Practitioners; Community Health Nurses; Diabetes Nurse Educators and Allied Health Professionals.

The team of highly-skilled health professionals aims to facilitate the practical management of pre-diabetes, diabetes and related complications based on the latest research and best practice developed at Baker IDI and around the world.

## FROM RESEARCH TO TREATMENT AND PREVENTION

The pioneering research of Baker IDI scientists helps to guide our clinical diabetes specialists in the development of preventative and treatment programs.

A good example is the ground-breaking research into the benefits of resistance training by Baker IDI researchers which led to the development of a dedicated exercise program for older people with type 2 diabetes. This program, which offers people a simple way to manage their diabetes, attracted international attention from diabetes experts and led Baker IDI specialists to develop a novel fitness regime called "Lift for Life" which is now offered in gyms and fitness centres across Australia. So robust and relevant is the program in today's community, that it was taken over by a commercial venture in 2009 ensuring the long-term sustainability of the program. Plans are now under way to ensure "Lift for Life" is adopted in disadvantaged communities, ensuring better access to prevention programs for people at risk of diabetes across all communities.

Diabetes is now one of the leading chronic diseases in nearly every country around the world. It continues to increase in numbers and significance as changing lifestyles lead to reduced physical activity and increased obesity. In 2010, there were 285 million adults with type 1 and 2 diabetes (diagnosed and undiagnosed), with that number expected to rise to 439 million in 2030. That's why the Baker IDI Specialist Diabetes Clinic has developed a model of care that

tackles diabetes on a range of fronts, from preventative programs and expert education through to advanced clinical treatments. The Specialist Diabetes Clinic has more than 8,000 patients and is the largest dedicated facility of its kind in the country. Combining state-of-the-art facilities and a comprehensive approach to education and treatment, this pioneering new clinic will serve as a model for other facilities around the world.



# SPECIALIST DIABETES CLINIC

Associate Director and Head of Clinical Diabetes and Epidemiology, Associate Professor Jonathan Shaw with a patient in the Institute's purpose-built Specialist Diabetes Clinic.





# INDIGENOUS HEALTH RESEARCH

Performers from Drum Atweme entertained guests at a celebratory event to mark the opening of the W & E Rubuntja Research and Medical Education Building.

## W & E RUBUNTJA RESEARCH AND MEDICAL EDUCATION BUILDING

The W & E Rubuntja Research and Medical Education Building in the heart of Alice Springs was opened by the Minister for Indigenous Health, the Hon. Warren Snowdon MP in March 2010. The building's title honours the contribution of two highly-respected elders to their community and houses Baker IDI's Indigenous Health Research centre in Central Australia, which is jointly tenanted with Flinders University Rural Clinical School. This seamless collaboration between hospital, university and research institute is a model of research education and science delivery in partnership.

A selection of Baker IDI research projects and initiatives currently under way in Central Australia include:

### THE KANYINI VASCULAR COLLABORATION

This is a five-year National Health & Medical Research Council Health Services Research Program conducted within Aboriginal communities across the Northern Territory, Western Australia, New South Wales and Queensland, in partnership with The George Institute. This study aims to identify and overcome barriers to chronic disease care experienced by Aboriginal and Torres Strait Islander people.

### MEN, HEARTS AND MINDS

As part of this study, the manifestations and expressions of stress and depression in Aboriginal men in Central Australia have been captured over four years, in order to explore the contribution of psychosocial factors to heart disease and its risk factors. The development phase of this study has been completed, along with a cross-sectional assessment of 189 Aboriginal men in and around Alice Springs, with further funding now being sought to explore these links in men experiencing heart attacks.

### HEART OF THE HEART

This study aims to quantify the burden of heart disease in Aboriginal communities in Central Australia and to develop novel approaches to managing elevated risk and documented heart disease. The first stage of this program aims to determine the prevalence of heart failure in a representative sample of Aboriginal adults. In addition, all people identified with disease will be offered outreach, community-based education and care from advanced cardiac nurses over the course of two years.

### CENTRAL AUSTRALIAN SECONDARY PREVENTION OF ACUTE CORONARY SYNDROMES

This commercially-funded study aims to assess quality of care available to Indigenous people suffering acute coronary disease, with the aim of

identifying barriers to care, weaknesses in service delivery (and therefore targets for intervention) and the major contributors to adverse outcomes in Aboriginal people experiencing heart attacks.

### MOBILE ASSESSMENT UNIT

Through the generosity of loyal supporters, Baker IDI has purchased vehicles to deliver services and conduct research in outlying communities. The "Mobile Assessment Unit" takes staff and equipment to these communities to aid in detection and monitoring of heart disease and diabetes, and gather important data for tracking the impact of interventions in those communities.

### MARGARET ROSS CHAIR OF INDIGENOUS HEALTH

With the generous support of John T Reid Charitable Trusts, the Margaret Ross Chair of Indigenous Health was established in March 2010 to support the Institute's mission to improve the health of Indigenous people in Central Australia. The inaugural appointment to the Chair for a three year period will be Dr Alex Brown. The grant will enable Dr Brown and researchers in Central Australia to progress programs with interventional components and measureable health outcomes as well as facilitate involvement in policy and community forums.

## BAKER IDI CENTRAL AUSTRALIA

The work of Baker IDI Heart and Diabetes Institute in Central Australia aims to harness the Institute's resources to help address the profound disadvantage experienced by Indigenous Australians, and to build a long-term, strategic platform for health and medical research to assist these communities. The health disadvantage of Indigenous Australians represents one of Australia's most enduring social and health divides. Cardiovascular disease, diabetes and chronic renal disease are the primary contributors to the 17-year gap in life expectancy between Indigenous Australians and non-Indigenous Australians. In addition to targeted

research programs, Baker IDI is also committed to playing a leading role in chronic disease education, research and advocacy in Central Australia and nationally. In 2009, the first Baker IDI educational symposium was held in Alice Springs. This symposium brought together 100 people from a range of health and community organisations to facilitate shared access to education and resources to help achieve better health outcomes for Indigenous communities. More symposia are planned in 2010 and 2011 with the generous support of the Commonwealth Department of Health and Ageing.

## NUCLEUS NETWORK GOVERNANCE

The organisation is structured as an independent company limited by guarantee with an independent board. The not-for-profit status facilitates unique collaborations with hospital-based principal investigators, individual researchers, medical schools and access to dedicated research precinct facilities and capabilities.

## APPROACH TO CLINICAL TRIALS

Early phase clinical trials are a vital step in the process of bringing new medicines to the community. Every medicine sold over the counter or by prescription has undergone stringent clinical testing to ensure it is safe and effective, and it is the early stages of this process that are undertaken at Nucleus Network.

Clinical trials performed at Nucleus Network involve either healthy volunteers or patients with specific medical conditions. The organisation relies heavily on community involvement in this process, and is grateful for the time and effort offered by participants, without whom new medicines would not reach the people who need them most.

The types of medicines tested at Nucleus Network are varied but are generally in the early stages of clinical development (phase I). Healthy volunteers are often involved in the earliest research because their bodies are 'fully fit' to absorb and process new medicine. Patients with a specific diagnosis may also be involved in early studies; this is often the case when a medicine will only have an effect on specific symptoms.

## AN INDUSTRY LEADER

As an industry leader, Nucleus Network follows strict adherence to the highest standards of clinical research, conducted in accordance with international regulatory requirements and expectations.

New drugs and compounds are administered in a strictly controlled environment, attended to 24 hours a day by Nucleus Network's specially trained medical support staff. Trial participants are closely monitored for reactions and blood samples, blood pressure and other vital signs are measured and carefully recorded at regular intervals.

This information protects the participants' health as well as providing vital information about the therapy under trial and informing the pharmaceutical company's understanding of the drug.

## A COLLABORATIVE APPROACH

Nucleus Network provides collaborative opportunities for researchers on the AMREP and Austin precincts to be involved with cutting edge technologies and new discoveries, ensuring innovative treatments are available in hospitals. The trials benefit patients, create employment opportunities and support health infrastructure in Victoria.

As a leading contributor to Australia's clinical research industry, for the second year running, Nucleus Network received recognition at the Governor of Victoria Export Awards. Nucleus Network was awarded a Commendation in the Small to Medium Service category. This follows the organisation's success in 2008

winning both the Emerging Exporter Award and the Award for Innovation Excellence.

## HIGHLIGHTS OF 2009

- \$16.8m in revenue with significant amounts flowing to Alfred Medical Research and Education Precinct and Austin collaborators in the form of services, donations, education subsidies, contract work and scholarships
- Over \$12m in export earnings to the Australian health and biotechnology economy
- More jobs created for Victorians, with staff growth increasing to over 100 permanent and casual employees
- More than 40 early phase clinical trials conducted. Clients include five of the top ten international pharmaceutical companies (2009), and other US and Australian-based biotechnology companies



An independent clinical research company of Baker IDI 



# NUCLEUS NETWORK

Nucleus Network Senior Clinical Unit Assistant, Natalie Smith with a trial participant.

Nucleus Network is a not-for-profit clinical research and education company and Australia's leading clinical research organisation specialising in the conduct of early phase clinical trials. Wholly-owned by Baker IDI Heart and Diabetes Institute, the organisation comprises the AMREP Centre for Clinical Studies (a 30-bed early phase clinical trial unit located on the Alfred Medical Research and Education Precinct), the Austin Centre for Clinical Studies (a 16-bed early phase clinical trial unit located at The Austin Hospital),

Clinical Trials Consulting and Nucleus Network Education. Established in 2002 from seed funding from the Victorian Government, Nucleus Network became a fully independent subsidiary of Baker IDI in 2005 and during the past several years, has continued to go from strength to strength. In 2009 alone, the organisation generated nearly \$17m in revenue, more than \$12m in export earnings and employs more than 100 staff.



# BAKER IDI IN THE COMMUNITY

Garry Jennings AM, Director, Baker IDI, joins the Hon. Gavin Jennings MP, on the steps of Victorian Parliament to raise public awareness about the risk factors associated with cardiovascular disease.

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# OUR PATRON



## FAREWELL SIR LAURENCE MACDONALD MUIR: 1925-2010

- Director Baker Board of Management (1957-1987)
- Chairman Baker Board of Management (1984-1987)
- Patron, Baker IDI (1992-2010)

It was with great sadness that we marked the passing of our Patron and one of life's true gentlemen, Sir Laurence Muir, in April 2010.

Laurie's association with Baker IDI Heart and Diabetes Institute extends more than 26 years and was one of devotion and deep friendship.

As a Director and then Chair of the Baker Board of Management (1984-87) and as Patron of both Baker IDI and our volunteer group, Friends of Baker IDI for the last 12 years, he worked tirelessly on behalf of the Institute.

Born in Victoria and educated at Scotch College and the University of Melbourne,

Sir Laurence Muir served in the Royal Australian Navy before earning a law degree and being admitted as a Barrister and Solicitor of the Supreme Court of Victoria in 1950. From 1950 to 1980, he was a leading share broker specialising in underwriting major capital raisings for large Australian companies, and was a senior partner with Potter Partners.

But it is his contributions to the government and corporate sectors, as well as the not-for-profit and community sectors, that bear true testament to his commitment, intellect and vision.

### A significant contributor to government and corporate sectors

Between 1981 and his death, Sir Laurence served on the boards of many prominent companies including ANZ Bank, Alcoa Australia, Australian Consolidated Industries, Wormald International, National Commercial Union, The Herald and Weekly Times, Hudson Conway, Publishing and Broadcasting Limited and Crown.

His many achievements include:

- Establishing the Canberra Development Board to stimulate private sector growth of the ACT economy;
- Managing the assembly of a collection of 20th century art, which is now a feature of the new Parliament House;
- Setting up the Australian Innovation Corporation with ten major institutions as shareholders to encourage the commercial development of Australian inventions;
- Serving as the inaugural chairman of the Australian Biomedical Corporation.

### A philanthropist and active fundraiser within the Australian community

An active fundraiser and philanthropist, Laurie served as a board member – among other key roles – for many large, not-for-profit organisations including the Royal Flying Doctor Service (Victorian Division), National Heart Foundation, Menzies Foundation and the Australian Brain Foundation among others. He was also active on the Anti Cancer Business Committee and helped to establish various high-profile cancer appeals.

His many achievements in these fields include:

- Being instrumental in establishing the Micro Surgery Foundation in the early seventies – now a world-leading centre;
- Helping to establish St Vincents Private Hospital in the mid seventies;
- Significant support for fundraising at Scotch College;
- Playing a leadership role in establishing the National Science and Technology Centre, which was built in Canberra in 1988;
- Helping to bring the Earthwatch Institute to Australia and serving as Co-Patron with Sir Ninian Stephen.

### Fitting recognition for distinguished service to the community

Laurie was knighted in 1981 for distinguished service to the community, and in 2001 was awarded a Centenary Medal "for outstanding service to the business, financial and research community."

Farewell Laurie: A proud Australian, devoted friend of Baker IDI and a gentleman in every sense of the word.

# BAKER IDI IN THE COMMUNITY



Baker IDI Director, Professor Garry Jennings AM; Minister for Indigenous Health, Rural and Regional Health & Regional Services Delivery, the Hon. Warren Snowdon MP; and Flinders University Vice-Chancellor, Professor Michael Barber at the opening of the W & E Rubuntja Research and Medical Education Building in Alice Springs.

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

By strategically collaborating with communities affected by disease, engaging the community through media

commentary, harnessing support to raise vital funds for medical research, and developing strategic platforms to boost education and understanding, Baker IDI is committed to being Australia's premier cardiovascular and diabetes research institute.

Baker IDI's work in the community – which is greatly assisted by the generosity of many organisations, individuals and community groups – is critical to supporting the Institute's leading work in the international medical research arena.

Some highlights in 2009 & 2010 include:

### PROMOTING BEST-PRACTICE CLINICAL CARE AND RESEARCH IN CENTRAL AUSTRALIA

As part of Baker IDI's commitment to playing a leading role in education, research and advocacy around chronic disease in Central Australia, the first Baker IDI educational symposium was held in Alice Springs in 2009. This symposium brought together 100 people from a range of health and community

# BAKER IDI IN THE COMMUNITY



Baker IDI staff participate in a traditional smoking ceremony to mark the official opening of the W & E Rubuntja Research and Medical Education Building.

organisations to share best practice education and resources in support of better health outcomes for Indigenous communities. Funding has been secured from the Commonwealth Department of Health and Ageing to hold more symposia in the future.

## LAUNCH OF THE PERSPECTIVE SERIES

In May 2009, Baker IDI launched a thought leadership program called "The Perspective Series" which is aimed at providing an opportunity to engage academics, scientists, clinicians, policy makers and community leaders in discussions about topical public health issues. The series incorporates a range of high-profile forums each year, along with the production of a publication entitled *Perspectives*. Sponsored by Brian Ward and partners, the series was launched by the Minister for Health, the Hon. Daniel Andrews MP, with an

inaugural public lecture delivered by National Director for Heart Disease and Stroke at the Department of Health (UK), Professor Roger Boyle.

## A WAKE-UP CALL ABOUT SEDENTARY BEHAVIOUR

Sedentary behaviour and the health implications of sitting for long periods is emerging as a serious health consideration in the 21st century. Baker IDI hosted a seminar to highlight the health implications and unique risk factors for Australian workers who sit for long periods of time. More than 100 community health professionals and private health insurance representatives attended the seminar, which was sponsored by Medibank Private and VicHealth. The seminar was based on pioneering research by Baker IDI scientists which highlights the damage of sedentary behaviour on health and productivity.

## A COLLABORATIVE APPROACH TO EDUCATION

In a collaborative approach to highlighting the importance of the metabolic syndrome (a combination of medical disorders that increase the risk of developing cardiovascular disease and diabetes), Baker IDI partnered with Elsevier and CSIRO to deliver the first Asia Pacific Conference on the Metabolic Syndrome in November 2009. Leading world experts – including those from Baker IDI – shared their insights on advances in the prevention, detection and management of the metabolic syndrome. Baker IDI's vision is to establish a regional community of specialists to guide and improve patient care, reduce the incidence of the syndrome and improve outcomes.

## DAME ELISABETH MURDOCH AC HOSTS CRUDEN FARM OPEN DAY

More than 2,500 people took the opportunity to tour Dame Elisabeth Murdoch's magnificent Cruden Farm in this annual event hosted by 'Friends of



Dame Elisabeth Murdoch AC, DBE

Baker IDI'. As well as touring the gardens, the event provided an opportunity for people to enjoy fine wine, gourmet food, live music and children's activities. The aim of the day was to support fundraising for the Institute's research into the causes and treatment of cardiovascular disease and diabetes. As well as hearing from award-winning gardeners and other special guests, there was an opportunity for people to learn more about protecting their families from obesity, diabetes and heart disease with free assessments in the Healthy Hearts van.

## A CELEBRATION TO GIVE THANKS

A celebration recognising the commitment and generosity of longstanding Baker IDI donors was held in October 2009 at The Sebel in Albert Park. Professor Jaye Chin-Dusting and Associate Professor Marcus Schlaich provided guests with a valuable insight into their research, while supporter Kerry Forbes' personal story served as a powerful reminder of just why support for research and treatment is so vital. Kerry courageously shared her story of how she was struck down by a stroke at the age of 29, and the challenges involved in her ongoing journey of recovery.

## LEADERSHIP THROUGH STRATEGIC PARTNERSHIPS

As part of our commitment to health promotion and education, the Institute aims to develop strategic alliances and collaborative partnerships with organisations to promote greater understanding of cardiovascular disease and diabetes, and to help shape health policy in Australia. In 2009, for example, Baker IDI provided specialist clinical expertise to support the announcement of a major report by Access Economics into the financial cost of heart failure. Baker IDI also teamed up with The

George Institute and Adelaide Health Technology Assessment in 2009 as part of a successful tender through the Commonwealth Department of Health and Ageing to review and update several type 2 diabetes guidelines for clinicians and other health professionals.

## CYCLING TO RAISE AWARENESS

The Paceline Ride was established in 2009 by supporter Steve Quinn to increase awareness of cardiac arrhythmia and raise money for both Baker IDI Heart and Diabetes Institute and the Victor Chang Cardiac Research Institute. In its first year, six riders completed the gruelling 1,100km ride from Melbourne to Sydney via the coastal route over eight days, raising support and awareness of this condition, which impacts the heart's ability to function normally. In 2010, the ride has increased its capacity and

profile to include 20 riders and two support staff, with the ride taking on a new route from Adelaide to Melbourne over a total of 1,033kms.

## FROM ALICE TO ANTARCTICA

Baker IDI staff are among the organisation's most passionate supporters and in late 2009, medical research scientist, Dr Sharyn Fitzgerald took this to a whole new level when she successfully completed a marathon in Antarctica, raising funds for cardiovascular research to help Indigenous Australians. This followed a fundraising marathon in Alice Springs earlier in the year. Motivated by the establishment of Baker IDI research facilities in Central Australia, Dr Fitzgerald's mission was to address the inequality and reduce the fatal impact of cardiovascular disease on Indigenous Australians.



Baker IDI Director, Professor Garry Jennings AM, The Hon. Daniel Andrews MLA, Minister for Health, Professor Roger Boyle, National Director for Heart Disease and Stroke at the Department of Health (UK) and Professor Paul Zimmet AO at the inaugural Launch of Baker IDI's Public Lecture Series and Baker IDI Perspectives.

# SUPPORTERS AND ACKNOWLEDGMENTS

## WITH THANKS TO ALL OUR GENEROUS SUPPORTERS, INCLUDING;

### MAJOR INSTITUTIONAL SUPPORT

The Baker Foundation  
Cardiac Society of Australia & New Zealand  
Diabetes Australia Research Trust  
Federal Government of Australia  
Juvenile Diabetes Research Foundation  
Kidney Health Australia  
Muscular Dystrophy Association (USA)  
National Health & Medical Research Council  
National Heart Foundation  
National Institutes of Health (USA)  
National Stroke Research Institute  
Pfizer Australia Research Foundation  
Victorian Government

### CORPORATE GIFTS

AstraZeneca Pty Ltd  
Brian Ward Partners  
Casella Wines  
CSYS Consulting Services Pty Ltd  
Hermods Nominees Pty Ltd  
Dairy Innovation Australia Ltd  
Kabro Holdings P/L  
Majella Wines Coonawarra  
Merck Sharp & Dohme (Australia) Pty Ltd  
Nuttelex Food Products

Reece Australia Limited  
Servier Laboratories (Aust) PL  
Servier Laboratories (Aust) Pty Ltd  
St Jude Medical Australia P/L  
Sanofi-Aventis Australia

### BEQUESTS & BEQUESTS IN PERPETUITY

Hazel & Pip Appel Fund  
Estate Lindsay J Baldy  
Bell Charitable Fund  
Estate of John Collins Barker  
Estate of Gwendoline Jean Bowman  
Estate of Joseph Brown  
William Buckland Foundation  
Estate Alison Bult  
Estate of Blanche Clara Collings  
Lesley Dickson Charitable Trust  
Estate of Margaret Jean Hagger  
Estate of Kenneth Walter Holmes  
Estate Nada Hunter  
M A & V L Perry Foundation  
Estate E E E Stewart

### MAJOR DONORS

Mr Robert Albert AO  
Mrs Valerie Awburn  
Mrs Eva Erdi & Mr Leslie Erdi OAM  
Friends of Baker Committee

Mrs Dina and Mr Ron Goldshlager Family  
Mr & Mrs Henry Greenfield  
Mr & Mrs David & Helen Hains  
The Harbig Family Foundation  
Mr Jeffrey Hirth  
Mrs Agota Ivany  
Mrs Mildred Laphorne nee Fitzpatrick  
Miller Family  
Mr & Mrs Philip & Sylvia Munz  
Dame Elisabeth Murdoch AC DBE  
Prescott Family Foundation  
Mrs Margaret S Ross AM  
Mr & Mrs Lloyd Williams

### SPECIAL GIFTS

Berwick Opportunity Shop Inc  
Mr Stephen Cook  
Isabel & John Gilbertson Trust  
Mr Graham Green  
Miss Thelma Handreck  
Mrs Agota Ivany  
Mrs J Marie Jones  
Mr Berry King OAM & Mrs Ann King  
The George Lewin Foundation  
Mr Lindsay Maxsted  
Mr S Baillieu Myer AC & Mrs Sarah Myer  
Miss Loris N Peggie

Cathkin Pty Ltd Trustee for the Prescott Family Foundation  
Mr Yankel Pushett  
Mrs Lesley Roche  
Mr George Vic Rumbold  
Mr Peter Scott  
Mr Rob Stewart  
Mr Peter Twomey

### BRIGHT SPARKS PROGRAM

William Angliss Charitable Fund  
Mrs Rosetta Baron  
The Cybec Foundation  
Mrs Sylvia Gelman AM MBE  
Harbig Holdings Co Pty Ltd  
Hermods Nominees Pty Ltd  
Mr & Mrs Robert & Jan Lyng  
Mr & Mrs Lynton & Sue Morgan  
Mr Nigel Peck AM & Mrs Patricia Peck  
Rotary Club of Mount Waverley  
Mr & Mrs Tony & Kitty Stewart  
Snowy Nominees Pty Ltd

### TRUSTS AND FOUNDATIONS

Angior Family Foundation  
James & Elsa Borrowman Trust  
Harold and Cora Brennen Benevolent Trust  
William Buckland Foundation

Ivor Ronald Evans Foundation  
Snowy Nominees Pty Ltd  
Marian & E H Flack Trust  
Goldman Sachs JB Were Foundation  
H & K Johnston Family Foundation  
Nina May Mace Charitable Settlement  
MBF Foundation  
Harold Mitchell Foundation  
Helen Macpherson Smith Trust  
Ramaciotti Foundations for Biomedical Research  
John T Reid Charitable Trusts  
Jack & Robert Smorgon Families Foundation  
Tattersall's Foundation  
Trawalla Foundation  
George Vowell Foundation  
Joe White Bequest  
Allan Williams Trust Fund

### 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

Sir Laurence Muir (Patron)  
Mrs Bernadette Brodribb  
Mr Stephen Cook (Chair)  
Mr Robert Lyng  
Mrs Yvonne Oeser  
Mrs Marion Poynter  
Mrs Vivienne Ritchie  
Mr & Mrs Richard & Jan Santo



# GOVERNANCE AND MANAGEMENT

The Hon. Mark Butler MP, Parliamentary Secretary for Health  
and Professor Garry Jennings AM, Director Baker IDI.

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# BOARD OF DIRECTORS

## PAULA DWYER

Non Executive  
Deputy Chair

Paula Dwyer is a Director of Tabcorp Holdings Ltd, Suncorp-Metway Ltd, Astro Japan Property Management Ltd and Healthscope Ltd. She is also a member of the Takeovers Panel.

## PROFESSOR PAUL ZIMMET AO

Non Executive Director

Paul Zimmet was founder and Director of the International Diabetes Institute (IDI). He is an Honorary Professor of Monash University, a Trustee of Jewish Welfare, a Member of the Institute of Pharmaceutical Discovery and a Member of the National Preventative Health Taskforce. Professor Zimmet is also a member of diabetes advisory boards for Solvay, Roche and GlaxoSmithKline.

## PROFESSOR STEVE WESSELINGH

Non Executive Director

Steve Wesselingh is the Dean of the Faculty of Medicine, Nursing and Health Sciences, Monash University, one of Australia's leading health faculties. Prior to taking up the Deanship in October of 2007, Professor Wesselingh was Director of the Burnet Institute.

## PETER SCOTT

Non Executive Director

Peter Scott is Vice Chairman of the Investment Banking team at UBS Australia. He has been a member of the Takeovers Panel since 2002 and is also a Director of UWC Ltd.

## DAVID GILMOUR

Non Executive Director

David Gilmour is a former Director and Vice President of the Boston Consulting Group's Melbourne office. He is a Director of the Australian International Health Institute, a member of the Council of the Nossal Institute for Global Health (University of Melbourne) and a Director of Aviation Training Australasia.

## ANDREW WAY

Appointed 7 December 2009  
Non Executive Director

Andrew Way is the Chief Executive of Alfred Health. He has had an extensive career in the National Health Service in the UK, most recently as CEO of Royal Free Hampstead NHS Trust, a major London teaching hospital associated with University College London. He is a member of the Board of the Victorian Cancer Consultative Committee.



## ROBERT STEWART

Non Executive Chair

Rob Stewart is the Chairman of C E Bartlett Pty Ltd and Jobsjobsjobs Pty Ltd and a Director of Melbourne IT Ltd, Mitchell Communication Group Ltd, QSR International Pty Ltd, RMIT Training Pty Ltd and the Australasian Cardiac Surgery Research Institution Ltd.

## 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. Dr Thurin was previously the joint Managing Director of the Gandel Group of companies. He is also a Director of the Melbourne Football Club.

## LINDSAY MAXSTED

Non Executive Director

Lindsay Maxsted was the CEO of KPMG from 2001 to 2007 and is currently the Managing Director of Align Capital Pty Ltd. He is a Director of Westpac Banking Corporation and Transurban Group, as well as a Special Adviser to Lazard.

## PROFESSOR GARRY JENNINGS AM

Executive Director

Garry Jennings is the Director and Chief Executive Officer of the Institute. He is a cardiologist and was previously the Director of Cardiology and Chair of the Division of Medicine at The Alfred Hospital, Melbourne. Professor Jennings is Adjunct Professor of Medicine at Monash University, Chairman of Nucleus Network Ltd and is a Director of the National Heart Foundation of Australia, Osprey Medical Inc and Research Australia.

## IAN SMITH

Non Executive Director

Ian Smith is a partner of Bespoke Approach, a corporate and political advisory firm established in July 2008. He is non-executive Chairman of Kreab Gavin Anderson and the Chairman of Jirrawun Arts, a leading arts organisation based in Australia's East Kimberley.

## JOHN ALLEN

Non Executive Director  
Resigned 11 May 2010

John Allen is the former Chairman and CEO of Kodak. He is currently Chairman of Newlease Pty Ltd and a Director of the Baker Foundation. He was formerly the Chairman of Austral Credit Union, Chairman of Aust Photo Supply Pty Ltd, Director of HPA Pty Ltd and President of Photo Imaging Council of Australia.

## JUSTIN ARTER

Non Executive Director

Justin Arter joined the Victorian Funds Management Corporation (VFMC) as the Chief Executive Officer in November 2009 after an 18 year career with Goldman Sachs JBWere. He is also a member of the Geelong Grammar School Council.

## PROFESSOR GRAEME RYAN AC

(Not pictured)  
Non Executive Director  
Resigned 13 October 2009

Graeme Ryan has held senior leadership and management roles in medical research, medical education and health care. These roles include Dean of Medicine at the University of Melbourne and Chief of Clinical Services and board member of Inner and Eastern Health Care Network, Melbourne.



# LEADERSHIP

Baker IDI is committed to ensuring that its management structures facilitate proper planning and policy development within the Institute. Following the merger and a period of significant growth including the establishment of offices in Adelaide and Alice Springs, management undertook a review of its internal committees to ensure appropriate engagement across the Institute. The newly constituted committees are the product of this review, operating to ensure that the Director and the Board are supported with timely and appropriate advice.



**DAVID LLOYD**  
Deputy Director & Chief Operating Officer

**BRONWYN KINGWELL**  
Executive Director, Science Policy

**JAYE CHIN-DUSTING**  
Executive Director, Science Strategy

**GARRY JENNINGS AM**  
Director & Chief Executive Officer

**MARK COOPER**  
Deputy Director (Research)

Directors Executive Group established in early 2009

## DIRECTOR'S EXECUTIVE GROUP

The Director's Executive Group (DEG) is the most senior management forum for discussion and decision on management and policy issues affecting the operations of the Institute. Members have a responsibility to be up-to-date on external policy, and on collaborative and competitive issues that have an impact on the Institute's long range planning.

The Director's Executive Group's key responsibilities relate to the provision of advice and support to the Director, co-ordinating management input to the strategic planning process, and the approval of annual budgets for presentation to the Board.

The Director's Executive Group is supported by two policy and strategy focused committees, the Science Council and the Management Committee.

### Membership

- Chair: Garry Jennings
- Members: Mark Cooper, David Lloyd, Jaye Chin-Dusting and Bronwyn Kingwell

## SCIENCE COUNCIL

The Science Council is the primary forum for scientific policy and strategy, and provides advice to DEG on issues relating to the Institute's scientific governance and planning. The Science Council considers issues such as grant and publication strategy, the purchase of scientific equipment, and the management and oversight of platform technologies.

All members of the Science Council have a responsibility to understand and contribute to the strategic evolution of the Institute's scientific research agenda, and to show a capacity for reflection and contribution beyond the confines of their own scientific interests. The Council aims to hold the Institute's scientific output to account against the Institute's clinically focused mission statement.

The Science Council is supported by three subcommittees: the Grants Committee, the Equipment Committee, and the Early Career Scientists Committee.

### Membership

- Chair: Mark Cooper
- Members: Garry Jennings, Paul Zimmet, Jaye Chin-Dusting, Bronwyn Kingwell, David Lloyd, Fiona Nelms, Alex Bobik, Anthony Dart, Assam El-Osta, Murray Elser, Mark Febbraio, Heather Gallichio, Geoff Head, David Kaye, Karin Jandeleit-Dahm, Karlheinz Peter, Jonathan Shaw, Simon Stewart, Amanda Thrift and Elizabeth Woodcock

## MANAGEMENT COMMITTEE

The Management Committee has responsibility for the administration and management of the Institute in support of its scientific output and clinical service delivery, and provides advice to the Director's Executive Group on issues relating to the Institute's administration, including its strategic, operational and financial health. Its membership comprises members of the Institute's management with line responsibility for the internal service delivery of all support functions; community, corporate and government relations; commercialisation and research contract management; clinical and research services; and the provision of financial reports and legal issues.

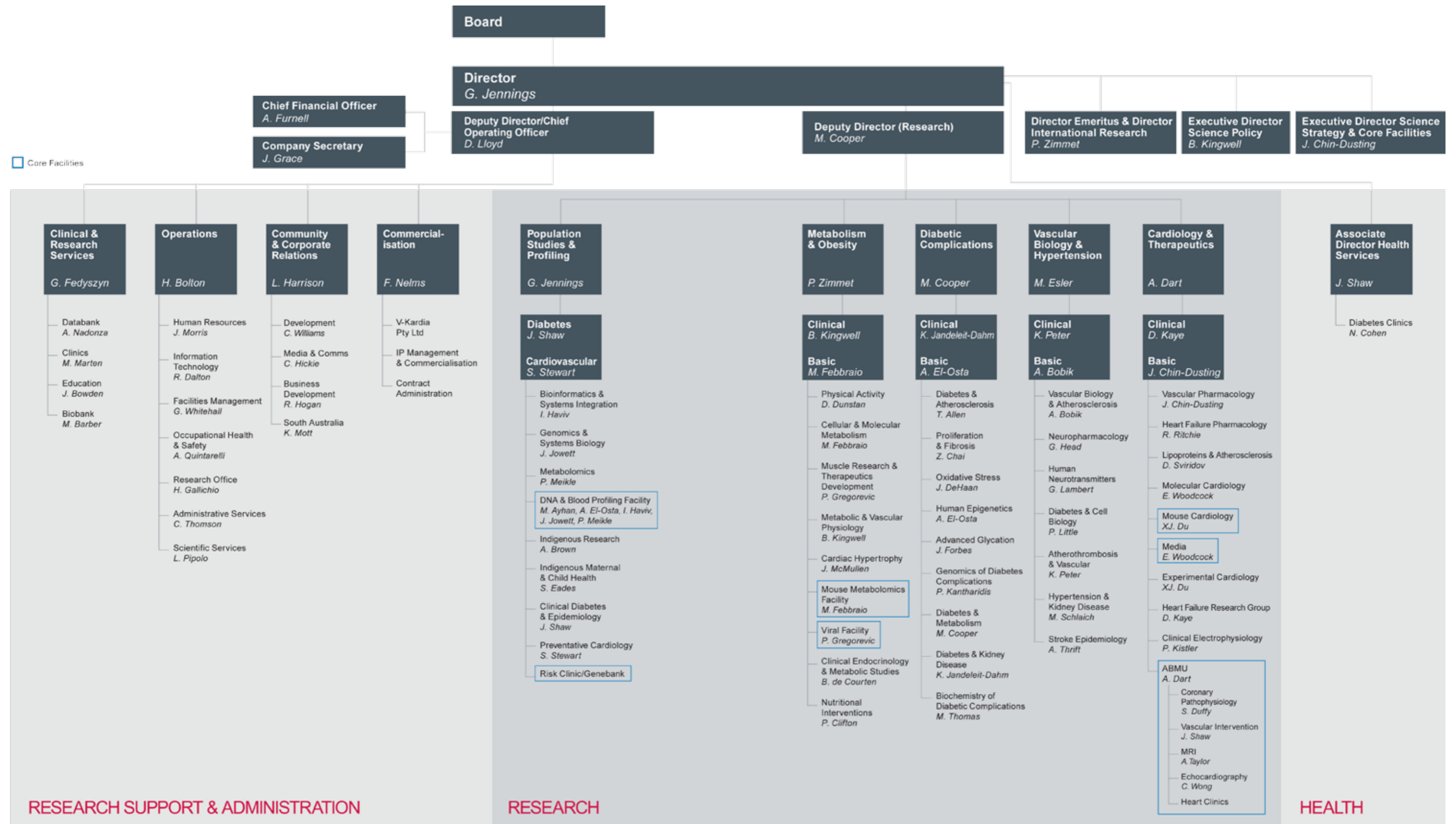
All members of the Management Committee have a responsibility to understand the operational pressures on the scientific and clinical service delivery staff of the Institute in their work, and to reflect on ways in which the Institute can continuously improve its support to them.

The Management Committee is supported by two subcommittees: the IT committee and the Occupational Health & Safety Committee.

### Membership

- Chair: David Lloyd
- Members: Garry Jennings, Hilary Bolton, Mark Cooper, George Fedyszyn, Anita Furnell, Jenny Grace, Leora Harrison and Fiona Nelms

# ORGANISATIONAL CHART





# FINANCIAL SUMMARY

In 2009 the Institute continued to benefit from a range of Commonwealth and Victorian State Government support programs. The two most significant sources were the Operational Infrastructure Support Scheme (OIS) of the Victorian State Government; and the NHMRC Independent Research Institute Infrastructure Support Scheme (IRIISS). The Institute's award from the OIS program increased in 2009 to \$2.46m, following an increase in the Institute's revenue from this source for FY 2009/10 of 19 per cent on the previous year. Revenue from IRIISS remained at 20 per cent of eligible grant revenue, providing \$3.45m.

Baker IDI's performance in the arena of competitive grants has been particularly strong for several years now, again increasing in 2009 to \$24.5m. Of this, \$16.88m came to the institute from the National Health and Medical Research Council (NHMRC) project, program and fellowship awards. Other significant sources of competitive grant funding are the National Heart Foundation and the Juvenile Diabetes Research Foundation and the grants awarded for 2009 were \$1.35m and \$1.74m respectively.

Like many not-for-profit organisations, the Institute experienced a loss of income from investments as well as Trusts and Foundations during 2009. However, support from our corporate and private donors remained steady and we are most grateful for the ongoing commitment of our donors as well as the support of our pro bono Investment Committee under the leadership of investment banker David Browne.

The Baker Foundation has been a major sponsor of the Institute's work since the establishment of the former Baker Institute in 1927. In 2009 the Foundation again generously contributed to the Institute, providing invaluable support to our scientific community, ensuring our researchers continue making groundbreaking discoveries that will save lives.

The Institute also received a major grant from the Commonwealth of Australia of \$14m in 2007 to support the merger between the Baker Institute and IDI, and to build a series of new facilities. In 2009 we allocated \$1m from this fund towards the completion of our new facilities in Alice Springs, which were opened in March 2010.

A further \$1.8m was allocated for the development of a new Healthy Lifestyle Research Centre to be located in the Institute's new premises in the Alfred Centre, and an \$850,000 allocation towards an innovative medicinal chemistry fund to support the early stages of new drug development.

The fiscal challenges brought about by the 2009 global down-turn left few industries untouched, including medical research. But these challenges also provide an opportunity for organisations such as ours to position ourselves for the future, with robust strategic plans to ensure our long-term sustainability. We would like to take this opportunity to once again thank our supporters. We look forward to continued success in partnership with you.

# FINANCIAL STATEMENTS

## STATEMENT OF FINANCIAL POSITION as at 31 December 2009

	Consolidated		Parent	
	2009	2008	2009	2008
	\$	\$	\$	\$
<b>ASSETS</b>				
<b>Current assets</b>				
Cash and cash equivalents	11,195,625	23,201,105	10,445,248	18,718,841
Trade and other receivables	9,126,723	8,042,278	4,962,828	5,219,152
Intercompany loan	-	-	325,000	175,000
Inventories	2,876	29,401	2,876	29,401
Right to occupy	420,003	-	420,003	-
Other current assets	195,966	239,129	113,069	105,857
<b>Total current assets</b>	<b>20,941,193</b>	<b>31,511,913</b>	<b>16,269,024</b>	<b>24,248,251</b>
<b>Non-current assets</b>				
Available-for-sale financial assets	18,439,236	15,888,976	18,387,155	13,767,717
Investment in subsidiary	-	-	70,505	360,010
Investment in associates	3,606,878	3,296,332	2,265,001	2,047,502
Property, plant and equipment	55,989,451	51,256,314	54,104,820	48,924,650
Intangible assets	406,056	595,657	406,056	595,657
Right to occupy	10,239,997	10,660,000	10,239,997	10,660,000
<b>Total non-current assets</b>	<b>88,681,618</b>	<b>81,697,279</b>	<b>85,473,534</b>	<b>76,355,536</b>
<b>Total Assets</b>	<b>109,622,811</b>	<b>113,209,192</b>	<b>101,742,558</b>	<b>100,603,787</b>
<b>LIABILITIES</b>				
<b>Current liabilities</b>				
Trade and other payables	8,767,131	9,231,583	6,417,348	7,583,795
Interest bearing loans and borrowings	518,913	360,000	158,913	-
Unearned income	11,094,329	16,393,127	10,977,478	15,704,210
Provisions	6,207,688	5,063,983	5,753,971	4,567,676
<b>Total current liabilities</b>	<b>26,588,061</b>	<b>31,048,693</b>	<b>23,307,710</b>	<b>27,855,681</b>
<b>Non-current liabilities</b>				
Interest bearing loans and borrowings	1,106,399	690,000	566,399	-
Lease incentive liability	240,464	172,709	-	-
Provisions	972,524	724,181	817,710	668,016
<b>Total non-current liabilities</b>	<b>2,319,387</b>	<b>1,586,890</b>	<b>1,384,109</b>	<b>668,016</b>
<b>Total Liabilities</b>	<b>28,907,448</b>	<b>32,635,583</b>	<b>24,691,819</b>	<b>28,523,697</b>
<b>Net Assets</b>	<b>80,715,363</b>	<b>80,573,609</b>	<b>77,050,739</b>	<b>72,080,090</b>

## STATEMENT OF FINANCIAL POSITION as at 31 December 2009 (continued)

	Consolidated		Parent	
	2009	2008	2009	2008
	\$	\$	\$	\$
<b>EQUITY</b>				
<b>Equity attributable to equity holders of the parent</b>				
Restructure reserve	-	-	5,578,233	-
Retained earnings	77,958,661	80,573,609	68,963,087	72,080,090
Net unrealised gains	2,509,419	-	2,509,419	-
<b>Parent interests</b>	<b>80,468,080</b>	<b>80,573,609</b>	<b>77,050,739</b>	<b>72,080,090</b>
<b>Non-controlling interests</b>	<b>247,283</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total Equity</b>	<b>80,715,363</b>	<b>80,573,609</b>	<b>77,050,739</b>	<b>72,080,090</b>

The Statement of Financial Position provided above, together with the attached Income Statement and Statement of Cash Flows, 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 set of financial statements. A full set of audited general purpose financial statements can be obtained upon request to the Chief Financial Officer.

The statutory financial statements (from which the summary financial information has been extracted) have been prepared in accordance with the requirements of the *Corporations Act 2001*, Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board. The statutory financial statements were unqualified by the auditors Ernst & Young.

# FINANCIAL STATEMENTS

## INCOME STATEMENT for the year ended 31 December 2009

	Consolidated		Parent	
	2009	2008	2009	2008
	\$	\$	\$	\$
<b>Continuing operations</b>				
Grants supporting research activities	24,519,924	22,517,472	24,501,848	20,341,917
Commonwealth and state government capital infrastructure grants	3,650,000	12,500,000	3,650,000	12,500,000
Infrastructure funding	5,912,802	5,330,743	5,912,802	5,330,743
Fundraising, corporate and private support	8,708,884	9,504,067	8,708,883	7,997,296
Commercial and clinical income	25,096,792	17,905,820	8,681,684	3,817,324
Investment income	2,443,355	4,141,265	2,435,862	3,134,200
Other revenue	1,815,806	3,390,542	2,344,805	3,353,201
<b>Revenue</b>	<b>72,147,563</b>	<b>75,289,909</b>	<b>56,235,884</b>	<b>56,474,681</b>
Employee benefits expense	(43,780,818)	(36,103,461)	(34,667,836)	(26,625,120)
Laboratory consumables	(12,135,618)	(9,570,611)	(10,794,670)	(8,014,598)
Depreciation and amortisation expenses	(4,402,330)	(3,721,466)	(3,782,723)	(3,020,748)
Unrealised profit/(loss) on financial assets	-	(5,703,604)	-	(3,710,895)
Share of profit/(loss) in associate	93,047	947,816	-	-
Impairment of assets	(55,001)	-	(515,631)	-
Loss on disposal of investment in subsidiary	-	-	(126,004)	-
Profit on sale of plant and equipment	13,052	-	13,052	-
Share based payment expense	(293,186)	-	-	-
Building overheads	(1,418,303)	(928,365)	(1,085,668)	(508,147)
Borrowing costs expense	(97,514)	(85,370)	(37,317)	-
Laboratory support expenses	(7,125,727)	(7,103,118)	(3,500,633)	(4,089,014)
Raffle expenses	(2,059,388)	(1,979,757)	(2,059,388)	(1,320,643)
Other expenses from ordinary activities	(3,545,406)	(5,233,041)	(2,796,069)	(3,188,269)
<b>Surplus/(deficit) for the period before income tax expense</b>	<b>(2,659,629)</b>	<b>5,808,932</b>	<b>(3,117,003)</b>	<b>5,997,247</b>
Income tax expense	(1,222)	-	-	-
<b>Surplus/(deficit) for the period after income tax expense</b>	<b>(2,660,851)</b>	<b>5,808,932</b>	<b>(3,117,003)</b>	<b>5,997,247</b>
Surplus/(deficit) of the period is attributable to:				
Non-controlling interest	(45,903)	-	-	-
Owners of the parent	(2,614,948)	5,808,932	(3,117,003)	5,997,247
	<b>(2,660,851)</b>	<b>5,808,932</b>	<b>(3,117,003)</b>	<b>5,997,247</b>

## STATEMENT OF CASH FLOWS for the year ended 31 December 2009

	Consolidated		Parent	
	2009	2008	2009	2008
	\$	\$	\$	\$
<b>Cash flows from operating activities</b>				
Receipts from granting bodies	30,240,701	26,523,550	30,169,008	25,702,413
Commonwealth and state government capital infrastructure	-	5,000,000	-	5,000,000
Corporate and private support	8,539,368	14,579,432	8,539,369	10,902,203
Payments to suppliers and employees	(70,547,949)	(69,109,400)	(54,459,087)	(47,571,323)
Interest paid	(97,514)	(85,370)	(37,317)	-
Income tax paid	18,776	(48,880)	-	-
Rent received	670,942	729,175	1,048,133	1,110,294
Commercial income	24,188,590	23,617,947	7,990,111	8,235,452
General income	1,144,864	2,475,353	1,296,672	2,242,910
<b>Net cash flows from/(used in) operating activities</b>	<b>(5,842,222)</b>	<b>3,681,807</b>	<b>(5,453,111)</b>	<b>5,621,949</b>
<b>Cash flows from investing activities</b>				
Payment for available-for-sale financial assets	(10,349,991)	(18,579,042)	(10,349,991)	(18,069,102)
Proceeds from sale of available-for-sale financial assets	11,037,847	21,170,425	10,986,152	20,778,557
Dividends received	984,568	1,174,113	984,568	1,068,780
Interest received	709,319	1,621,522	701,826	1,256,355
Payment for property, plant and equipment	(8,909,813)	(6,198,322)	(8,737,239)	(6,111,457)
Proceeds from sale of property, plant and equipment	7,000	-	7,000	-
Transfer of cash balance from deregistered subsidiary	-	-	3,509,054	-
Investment in associate	(217,500)	(217,501)	(217,500)	(217,501)
Investment in subsidiary	-	-	(279,664)	-
<b>Net cash flows from/(used in) investing activities</b>	<b>(6,738,570)</b>	<b>(1,028,805)</b>	<b>(3,395,794)</b>	<b>(1,294,368)</b>
<b>Cash flows from financing activities</b>				
Proceeds from/(to) related party loan	-	-	(150,000)	112,978
Proceeds from borrowings	851,085	250,000	851,085	-
Payment of finance lease liability	(125,773)	-	(125,773)	-
Repayment of borrowings	(150,000)	-	-	-
<b>Net cash flows from/(used in) financing activities</b>	<b>575,312</b>	<b>250,000</b>	<b>(575,312)</b>	<b>112,978</b>
Net increase/(decrease) in cash and cash equivalents	(12,005,480)	2,903,002	(8,273,593)	4,440,560
Cash and cash equivalents at beginning of period	23,201,105	20,298,103	18,718,841	14,278,281
<b>Cash and cash equivalents at end of period</b>	<b>11,195,625</b>	<b>23,201,105</b>	<b>10,445,248</b>	<b>18,718,841</b>

# 2009 PUBLICATIONS

## Journal Articles

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The Hon. Gavin Jennings MP with General Manager of Disease Management & Preventative Programs, Dr Melinda Carrington, inside the Baker IDI Healthy Hearts Van.

## THE HEALTHY HEARTS CLINIC

The Healthy Hearts Clinic is a free service to the community that helps individuals identify and address their risk of developing cardiovascular disease. The aim is to determine the optimum approach to cardiovascular risk assessment and to use these findings to benefit the community. The Healthy Hearts Clinic, located within The Alfred hospital consulting suites, provides a mechanism for individuals to play a part in reducing the risk of cardiovascular disease and diabetes in the community.