

BEHIND THE DISCOVERIES



**IMPACT
REPORT
2019**



ABOUT US

The Baker Heart and Diabetes Institute has been at the heart of some of the world's greatest scientific discoveries since its establishment in Melbourne in 1926.

Despite improvements in life expectancy, heart disease is still a leading killer of Australians, and diabetes is the fastest growing chronic condition in the country.

We believe everyone should have access to the best preventive, diagnostic and treatment options for heart disease, diabetes and their complications.

By harnessing big data and technological advances we are transforming how we predict, prevent, diagnose and treat chronic disease.

Our vision is to help people to live healthier, for longer, and to stop heart disease and diabetes in its tracks.

This is what drives our scientists, our clinicians, our public health experts, our diabetes educators and our dietitians every day.

In this report, we take you **behind the pioneering discoveries** to hear about the people who are driving this **life-changing** work.





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OUR CHALLENGES



Diabetes affects 1.8 million Australians at a **cost of almost \$15 billion** per year.



1 in 10 Australian deaths had diabetes as an underlying and/or associated cause of death.



Type 2 diabetes affects the health of more than 1.5 million Australians.



Sudden cardiac arrest takes the lives of **3 Australians under 50 every day**.



1.2 million Australian adults have one or more heart or vascular conditions, including stroke.



Indigenous Australians have cardiovascular disease (CVD) hospitalisation and death rates that are almost twice as high as non-Indigenous Australians.



Remote and very remote Australia has over 30% more CVD hospitalisations and deaths than major cities.



CVD death rates are **50% higher for the lowest socioeconomic areas** compared to the highest socioeconomic areas.



\$12 billion dollars* Heart disease is the most expensive disease in Australia (*2012–13).

WE'RE WORKING TOWARDS A SOLUTION

WE WANT TO:



Accurately predict and **diagnose** your disease risk, years before symptoms even appear.



Individualise preventions and **tailor** therapies based on your unique health profile.



Harness technology to **pinpoint** where the problems are now or are likely to be, with profiling that acts like radar.



Better **diagnose** and **treat** cardiometabolic disease.



Stop fit, healthy Australians **aged under 50** dying of unexplained cardiac death.



Detect and **target** therapy for dangerous narrowings in blood vessels before a heart attack or stroke occurs.



Predict risk, stop diabetes **damage** and improve tools for daily management.



Tailor lifestyle plans for individuals and systemic change for more movement every day in schools, workplaces, and communities.

KEEPING FOCUSED ON THE LONG GAME

It is an understatement to say that the advent of the global COVID-19 pandemic in early 2020 has introduced extremely challenging times.

Rarely before has the global spotlight focused so intently on human health above all else, with medical research a beacon of hope amid this unfolding crisis.

While infectious diseases and epidemiology are at the fore, older people with chronic disease are at the highest risk of complications from this novel coronavirus. Not only that, but the changes to our daily lives in terms of isolation and lockdown also have the potential to significantly impact the health of people with chronic disease.

That is why the Institute remains focused on continuing its long-term research in order to improve the prevention, diagnosis and treatment of heart disease and diabetes.

We know that in coming months the most vulnerable people in our community will rely on innovation from institutes like ours more than ever before. The best that we can do is to keep this important work moving.

In that context, the Board of Directors is pleased to report the recent appointment of Associate Professor Michael Inouye as the Munz Chair of Cardiovascular Prediction and Prevention.

Associate Professor Inouye's work, undertaken in conjunction with the University of Cambridge in the United Kingdom, harnesses big data to drive early intervention for those at risk of cardiovascular disease and has wide-ranging application to the work of many other scientists at the Institute.

The Board is also delighted to have joined forces with long-time supporters, the Baker Foundation, to fund a five-year senior female fellowship. In early 2020, we announced the appointment of the Alice Baker and Eleanor Shaw Gender Equity Fellow, Associate Professor Morag Young, a leading authority on the role of hormones in cardiovascular disease.

In making this appointment, we welcome Associate Professor Young to the Institute and signal our commitment to continue to enhance our world-class research, even in the face of extraordinary challenges.



**Mr Peter Scott AM
CHAIRMAN, BAKER HEART AND
DIABETES INSTITUTE**

“I am interested in how cellular mechanisms **of hormone receptors** lead to stiffening of the heart and inflammation, which can result in heart failure.”

Associate Professor Young

→

We are delighted to welcome Alice Baker and Eleanor Shaw Gender Equity Fellow, Associate Professor Morag Young back to the Institute where she first undertook postgraduate studies.



The need for better **prevention, diagnosis and treatment** for chronic disease remains unabated, and likely to grow in the face of COVID-19. That's why we need researchers like Associate Professor Morag Young.



THE PEOPLE BEHIND THE DISCOVERIES

This Impact Report highlights the achievements of the Institute with the support of its generous donors. However, recent events saw this year unfold in a way that none of us were expecting. The COVID-19 pandemic has confronted us all, but especially those living with heart disease and diabetes who are at an increased risk of serious complications.

The Institute's work is more important than ever before. Questions about how to reduce risk of cardiovascular disease and diabetes, how to control inflammation and blood clotting, and how to limit the effects of age on the development of cardiovascular disease, were key areas of research before the pandemic started, but are even more relevant now.

The full impact of the pandemic has yet to be seen, but early indications show a number of serious health repercussions resulting from lockdown measures. People are not presenting for either routine or urgent cardiovascular and diabetes care because of concern about infection. This unforeseen consequence may cause more death and disability than the virus itself.

From our community-based facility in Hopper's Crossing, we will be working on how best to deliver care in the community, such as using eHealth apps to deliver rehabilitation and heart failure care.

The Institute is also at the forefront of exploring the connection between cardiometabolic disease and the coronavirus pandemic. For example, our bioinformatics experts secured a supercomputing grant to drive molecular exploration of COVID-19 and potential pathways for drug treatment.

Recent challenges highlight the critical importance of our wonderful supporters to continue our life-saving work.

Before the lockdown, I visited long-time supporter Olive Thurlby. Her strong belief in medical research to address the devastating impact of cardiovascular disease and diabetes has motivated her to leave a generous gift in her Will to the Institute.

As this report illustrates, it is our loyal supporters like Olive, who will keep our life-saving work progressing in the COVID-19 era and beyond.



**Professor Tom Marwick
DIRECTOR, BAKER HEART AND
DIABETES INSTITUTE**



Baker Institute Director, Professor Tom Marwick and long-time supporter Olive Thurlby, who celebrated her 100th birthday in May.



MULTIPLE PREGNANCIES A RISK TO WOMEN'S HEARTS

Women who have had multiple pregnancies could be at greater risk of heart failure or 'stiff heart syndrome' later in life.

Research from the Baker Institute looked into why women are twice as likely as men to develop heart failure, and found those who have been pregnant at least three times had more severe symptoms.

Lead researcher and cardiologist trainee, Dr Anna Beale analysed the results of a heart disease diagnosis test — conducted both at rest and during exercise — that measured the heart pressure of 58 Victorian women in their 60s and 70s.

Those women who had at least three children were not able to exercise as long, the pressures in their heart rose higher during exercise and they had stiffer arteries, particularly in their lungs.

“There’s a huge amount of stress on the heart during pregnancy,” Anna says. “It has to increase the flow through the heart by about 30 to 50 percent, and, it also leads to changes to the blood vessels.

“This could certainly play a role in contributing to scarring of the heart and development of cardiovascular disease in later life.

“The message is that women may be more likely to develop the syndrome if they have had lots of children, but there are things we can do to prevent that – including exercising, keeping a healthy weight and managing blood pressure,” Anna says.

Mother of three, Noelia Panayiotidis welcomes the research, saying it empowers women like her to take control of their health. “If you’re able to know something beforehand you can at least investigate, have check-ups and take action if you need.”

→

Noelia Panayiotidis and her kids: 10-year-old twins Annika and Jayden, and 15-year-old Isabella. She says being armed with knowledge can help you to be proactive about your health. Picture: Jason Edwards



SCIENCE STRATEGY

Our science strategy, supported by generous donors including the Helen Amelia Hains Foundation, is critical in leading a global effort to stop heart disease, diabetes and obesity. Our world-renowned researchers are embarking on a new era of detection, prevention and early intervention of cardiometabolic disease.

The Baker Institute's science strategy reflects the breadth of the areas that we work across and harnesses our research strengths so that our scientists can focus on answering big-picture questions and delivering breakthroughs that will transform healthcare.

ABORIGINAL HEALTH

Our work in Aboriginal health encompasses research, education and clinical services that aim to address the profound health disadvantage experienced by Aboriginal people. Our researchers are bringing their skills and resources to address these challenges.

ATHEROTHROMBOSIS

We aim to find out who is at risk of developing blocked arteries, allowing us to predict heart attack and stroke, and develop and test new and improved drug treatments. We conduct trials with anti-inflammatory, anti-diabetic and lipid-lowering drugs in patients who have experienced a heart attack with the aim of reducing the 'size' of the attack and preventing further attacks.

BIOINFORMATICS DISCOVERY AND TRANSLATION

Incorporating the Cambridge Baker Systems Genomics Initiative, this program uses big data approaches to inform our science. Access to major international registries informs our investigators of the associations between genes, proteins and fats, and various disease entities. We use this information to identify whether these links are truly causative, and this information can inform the pathway to drug discovery.

DIABETES COMPLICATIONS

We aim to reduce the burden of diabetes complications (heart attack, heart failure, kidney dialysis, amputation, dementia, cancer, liver disease) by establishing clinical trials of new drugs. We seek to develop sophisticated diagnostics for early identification and prevention of symptoms.

HYPERTENSION AND CARDIAC DISEASE

Our researchers aim to reverse chronic heart disease, and to prevent and repair structural damage to the heart from hypertension, heart disease and associated rhythm disturbances.

We are working towards individual prediction, prevention and treatment **to help Australians live healthier** for longer.

IMMUNOMETABOLISM

Cardiovascular disease is an inflammatory disease. This program aims to identify the unique metabolic signatures of specific cells and will allow for cell-specific targeting to either neutralise or alter the function of immune cells that cause disease. Alternatively, manipulating metabolism could boost the function of anti-inflammatory or regulatory immune cells. We are developing a world-first lipid atlas of immune cells in order to understand in great detail the lipid composition of specific immune cell subtypes.

OBESITY AND LIPIDS

Obesity today stands at the intersection between inflammation and metabolic disorders; causing an aberration of immune activity, and resulting in increased risk for diabetes, atherosclerosis, fatty liver disease and pulmonary inflammation. This program explores the connection that lipids play in obesity, as well as how obesity affects metabolism.

PHYSICAL ACTIVITY

We want to know how people's bodies adapt to exercise and how we could use that information to predict heart failure, as well as how exercise changes our cellular make-up. We aim to reduce the burden of disease by encouraging Australians to move more.

PHILANTHROPY AIDS LIFE-SAVING MICROBUBBLE DISCOVERY

Paramedics could soon be able to stop a heart attack in its tracks using a revolutionary new microbubble treatment developed by researchers at the Baker Institute.

Dr Xiaowei Wang and Professor Karlheinz Peter are developing the breakthrough theranostic microbubble treatment that can both diagnose and treat killer blood clots in just minutes.

The research began as a mission to find a faster and better way of diagnosing a heart attack, as two-thirds of heart attacks are missed by an echocardiogram and it can take hours to get results from a blood test.

Microbubbles — smaller than a human hair — are equipped with an antibody that locates and attaches to the clot, and turns the clot bright white so it can be seen on an ultrasound.

Xiaowei has further refined the microbubbles so that they don't just detect the clot but also dissolve it with a small dose of clot-busting medication.

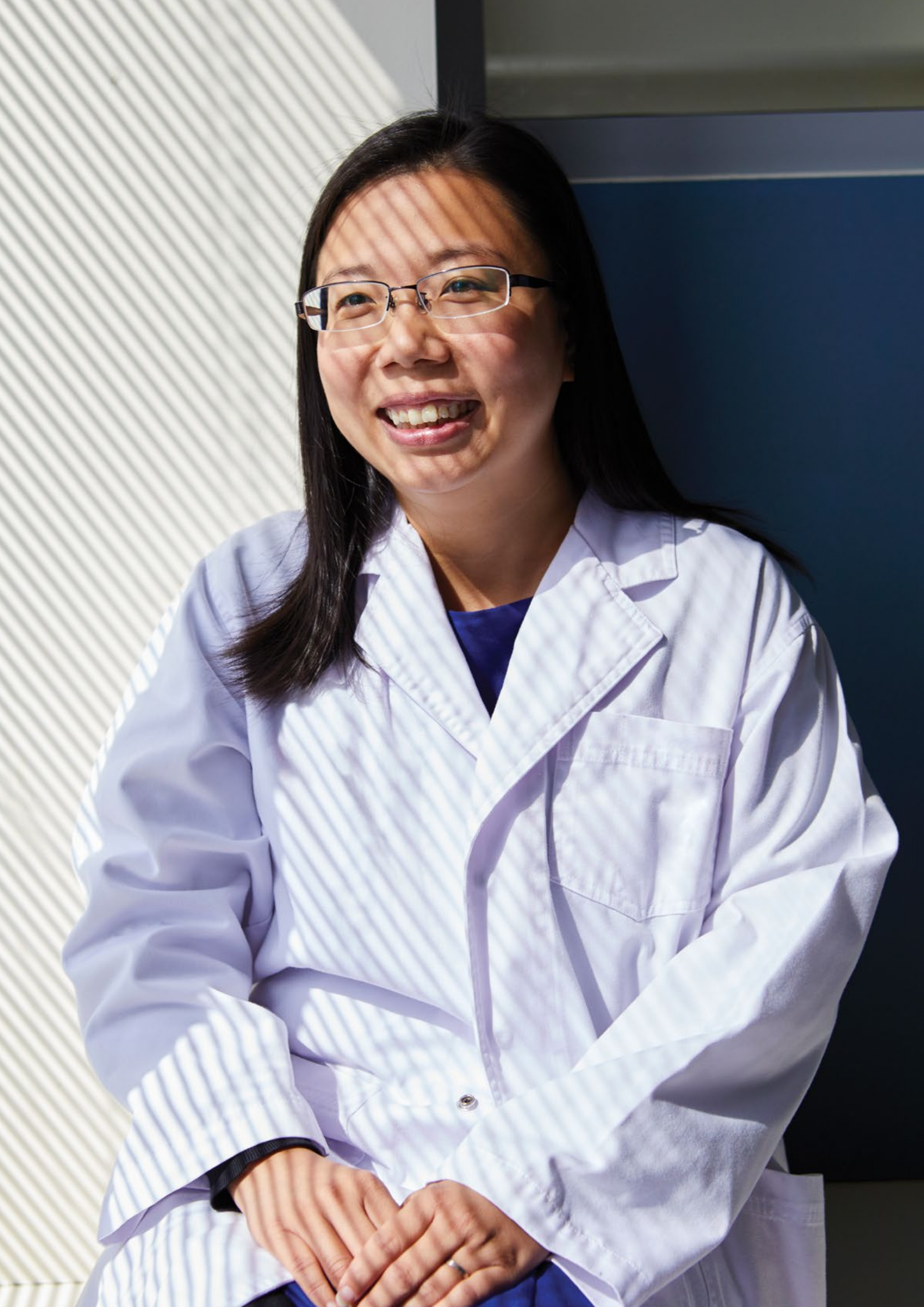
Joining the Institute as a student in 2008, Xiaowei's research has progressed to new heights, thanks to the wonderful support of organisations such as the Harold Mitchell Foundation.

The Institute recently announced that Xiaowei would head her own laboratory, the Molecular Imaging and Theranostics lab. She also co-chairs an important scientific program to find out who is at risk of developing blocked arteries, allowing us to predict heart attack and stroke, and develop new drug treatments.

Founder of the Harold Mitchell Foundation, Mr Harold Mitchell AC explains the motivation behind his philanthropy, "If you give somebody something small so they can get out into the world – just enough to get them started – it can lead to a lifetime of opportunities for them. That stuck with me."

The Harold Mitchell Foundation has supported the Baker Institute since 2014 and has granted numerous travel awards to researchers like Xiaowei, allowing them to present their work at conferences, take advantage of education opportunities abroad and enhance their skills and research programs.

→ While working as a hospital cardiac technologist, Dr Xiaowei Wang realised that imaging technologies such as ultrasound and MRI scanners, were capable of more. They could enable doctors to obtain better diagnoses and provide immediate treatment for heart, stroke and blood vessel diseases. This is a key focus of her work.



BPA LINKED WITH INCREASED RISK OF TYPE 2 DIABETES

A study has found that exposure to chemicals commonly used in everyday products may be associated with an increased risk of type 2 diabetes.

The study, by Baker Institute researchers and French collaborators, shows positive associations between exposure to Bisphenol A (BPA) and Bisphenol S (BPS) and the incidence of type 2 diabetes, independent of traditional diabetes risk factors.

The findings add to a growing body of evidence that indicates that these endocrine-disrupting chemicals might play a role in increasing the risk of type 2 diabetes.

BPA is a chemical commonly used in the production of polycarbonate plastic and epoxy resins and is found in consumer products such as food and beverage containers, and thermal cash register receipts.

BPA is structurally similar to a natural estrogen and experimental studies have suggested BPA may play a role in disease development through insulin resistance, inflammation and dysregulation of glucose metabolism.

Study author, Professor Dianna Magliano says that while the association is not as strong as some other risk factors for diabetes such as obesity, there is mounting evidence to warrant caution.

“I would advise people to use glass where they can or better quality plastic and if there is an alternative to BPA receipts such as electronic receipts, I think we should consider it,” Dianna says.

Globally, growing concern over BPA and its use has prompted its replacement with alternative compounds such as BPS. However, this study is one of the first to look at BPS, and has also raised concerns about this chemical and its association with type 2 diabetes.

→
Professor Dianna Magliano heads the Diabetes and Population Health research unit and worked as the senior epidemiologist on the landmark Australian Diabetes, Obesity and Lifestyle Study.



POTENTIAL NEW MODEL OF DIABETES CARE FOR REMOTE COMMUNITIES

Diabetes in remote communities is one of Australia's most critical health problems.

Novel, practical and sustainable interventions are urgently needed.

The Institute recently conducted a feasibility study involving a once-weekly, long-acting diabetes medication that resulted in significant improvement in blood glucose levels and few adverse side effects in Aboriginal patients living in remote communities in Central Australia.

Diabetes expert, Associate Professor Neale Cohen, says results of the LOWER-SUGAR study, conducted over two years with 38 Aboriginal people in two remote communities, could reshape the way diabetes is treated in remote settings.

“It was a small study but it has important implications as to how we might treat diabetes in Australian Aboriginal and other First Nations people in remote communities, not just in Australia but across the world,” Neale says.

“We have some wonderful new treatments that are not only good at lowering glucose, but also help protect the heart and kidneys, and we desperately need to deliver this intensive therapy to these high-risk people in our remote communities.”

He says First Nations people are genetically predisposed to developing type 2 diabetes and support to manage this is critical. In fact, Aboriginal people are almost four times more likely than non-Aboriginal Australians to have diabetes or pre-diabetes.

Neale has been visiting communities in Central Australia including Ampilatwatja, Utopia, Yuendumu and Ti Tree for more than a decade. Suboptimal glucose levels and high complication rates are common but there have been few studies conducted in these communities.

It is hoped that with more funding, this study will pave the way for a large-scale clinical trial redesign of the way diabetes is managed in remote communities.

Aboriginal people are **almost four times** more likely than non-Aboriginal Australians to have diabetes or pre-diabetes.



→

Elder and Chair of the local health service in Ampilatwatja Nigel Morton and his grandson, Tyshaun. Reproduced with permission of the Australian Broadcasting Corporation – Library Sales
Chris Kimball © 2019 ABC

In communities
like Ampilatwatja,
half the town
has type 2
diabetes.



AMPILATHATJA
HEALTH CENTRE
Aboriginal Corporation

ONE-OFF GENETIC SCORE IS POWERFUL PREDICTOR OF STROKE RISK

A simple blood or saliva test can identify people with a high genetic chance of having a stroke in later life, thanks to researchers at the Baker Institute, in Germany and the UK.

The test provides a similar or more accurate assessment of stroke risk than traditional measurements based on family, environment and lifestyle factors.

The research shows individuals with a particular genetic profile have a three times higher risk of ischaemic stroke, a devastating condition and one of the leading causes of disability and death globally.

The study utilised large-scale genetic data from research groups worldwide and applied their results to data on 420,000 individuals from the UK Biobank.

This work suggests that people with high genetic risk may require more intensive preventive measures than is recommended by current guidelines to mitigate stroke risk, says Associate Professor Michael Inouye, Munz Chair of Cardiovascular Prediction and Prevention at the Baker Institute.

“For common diseases, such as stroke, it is clear that genetics is not destiny; however, each person does have their own innate risk for any particular disease. The challenge is now how we best incorporate this risk information into clinical practice so that people can live healthier and longer,” says Michael, who splits his time between the Institute and the University of Cambridge.

For mother of two, Joanne Mitchell, this research is welcome news. The 49-year-old clinical trials coordinator suffered a stroke ten years ago.

With two young children to care for, the upheaval to Joanne’s life was enormous. The busy working mum, who likes to keep fit and active, still suffers some weakness. With a family history of stroke, she is grateful for research that could one day provide early intervention for people at risk of stroke.

→
Bioinformatics and computational expert, Associate Professor Michael Inouye and mother of two, Joanne Mitchell, who suffered a stroke ten years ago.



BACKING THE NEXT GENERATION OF SCIENTIFIC LEADERS

Investing in the next generation of scientific leaders is a pivotal way the Institute can advance the global fight against heart disease and diabetes.

By helping to train and nurture researchers in the early stages of their career, the Institute helps to attract gifted young scientists who will go on to make the groundbreaking discoveries of tomorrow.

The Baker Institute's Bright Sparks program has been providing scholarships, project grants and fellowships to hundreds of brilliant young researchers for more than 20 years. This would not have been possible without the generosity and foresight of our loyal donors and supporters.

In 2019, 19 new early career scientist project grants were made possible thanks to the wonderful support of organisations such as the Cybec Foundation. Established in 2002 by philanthropists Roger and Patricia Riordan, the Foundation concentrates primarily on the endowment of scholarships, and on substantial projects of continuing benefit to the community.

For over 16 years, the Cybec Foundation has provided scholarships to young researchers at the Baker Institute like Camilla Vega, Bethany Claridge and Charlie Cohen.

Camilla's PhD project focuses on understanding the interplay between diabetes and genetic mutations in specialised white blood cells that are found in patients with cardiovascular disease. Bethany's research centres on understanding the messages sent within the heart during scar formation, often caused by a heart attack or high blood pressure. In a neighbouring laboratory, Charlie's work investigates the changes in the cardiac cellular and molecular environment in the context of type 2 diabetes. By better understanding disease development, these researchers can help develop novel preventive, diagnostic and treatment approaches.

Many of the Baker Institute's Bright Sparks funding recipients have gone on to make incredible contributions to the field of cardiometabolic health. We are indebted to wonderful supporters such as the Cybec Foundation who are driving the discoveries of tomorrow.

→
[PhD students Bethany Claridge, Charlie Cohen and Camilla Vega are able to progress their promising research projects thanks to generous philanthropic support.](#)



NO SECOND CHANCES

A new report titled 'No Second Chances' developed by the Institute was launched at Parliament House in 2019, revealing that prevention of secondary heart attacks and strokes is critical to combatting Australia's number one killer – cardiovascular disease.

About 4.2 million Australians are living with a cardiovascular condition, and of those, 1.2 million have been diagnosed with heart disease and are five to seven times more likely to suffer future heart events than those without heart disease.

The independent report, sponsored by Bayer Australia, also shows:

- If you've had a heart attack, you are twice as likely to die prematurely compared to the general population.
- Within 12 months, one in 10 heart attack survivors will have another heart attack.
- In just seven days, about 10% of people who have had a stroke will have another.

“When it comes to heart disease, more can be done to give patients a second chance,” says Baker Institute Director, Professor Tom Marwick. “The report demonstrates that the people at the greatest risk of a cardiovascular event are those who have already had a heart attack or stroke and are currently receiving sub-optimal care.”

Despite clear evidence of the health and financial benefits of secondary prevention, not enough is being done, Tom says. For example, only 50% of Australian heart patients receive guideline-based care after a heart attack or stroke. He says patients can also do more to adhere to treatment and lifestyle advice.

The impact of this is costly. Cardiovascular disease is the most expensive disease group, costing Australia \$12 billion a year; a figure estimated to rise to over \$22 billion by 2032.

To protect vulnerable Australians with heart disease like Terry Lonergan, the Institute is calling for a range of measures including a secondary prevention campaign, increased focus on cardiac rehabilitation and research into wider use of new therapies.

“The terror of having a heart attack at 47 and seeing my son watch me as I was loaded into an ambulance **changed everything for me.**”

Terry Lonergan,
HEART ATTACK SURVIVOR

→
Heart attack survivor, Terry Lonergan, travelled to Parliament House to meet with Federal Health Minister, Greg Hunt, to highlight the importance of high-risk Australians who have suffered heart disease and are at greater risk of further events.

BEHIND THE DISCOVERIES



Terry is at **greater risk** of further heart events. **We need to support people like Terry.** He has been doing his part by shedding 48 kilos and becoming a part-time fitness instructor.



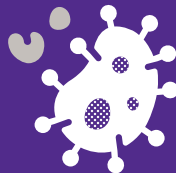
THE WORK WE DO



UNDERSTANDING HUMAN BIOLOGY

Human biology is complex. We have been studying human biology for centuries. The most recent milestone in our understanding of human biology is the sequencing of the human genome (1990-2003). The next milestone could be:

- Developing better therapeutics by decoding **exosomes**, a mechanism cells use to communicate with each other.
- Isolating and analysing **single cells** so we better understand the complexity of human biology and why a treatment works for some people and not for others.



UNDERSTANDING DISEASES

The more we understand how diseases behave in the context of human biology, the more specific we can be with new treatments.

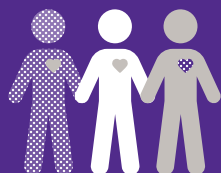
- We aim to reduce the burden of **diabetic complications** by identifying new treatments.
- We are reducing the impact of vascular system blockages (**atherothrombosis**) with improved diagnostics and more effective, targeted treatments.
- We are improving the quality of life for those with age-related **cardiovascular diseases** with earlier detection and less invasive treatments.
- **Immunometabolism** studies allow us to better understand how the immune system reacts negatively to cardiovascular and metabolic diseases.



UNDERSTANDING INDIVIDUALS

By harnessing new technologies we can deliver a more personalised approach.

- **Bioinformatics** uses big data to inform our science, identifying new targets for diagnosing and treating diseases.
- **Systems biology** helps us to improve the diagnosis and treatment of cardiometabolic diseases.

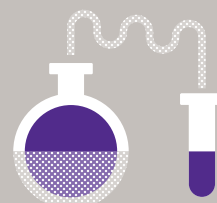


UNDERSTANDING COMMUNITIES

By better understanding common traits within groups of individuals, we can develop powerful tools for human health. We can:

- Prevent, diagnose and treat heart disease and diabetes and their complications through **clinical research**.
- Better understand **lipid metabolic pathways** for improved chronic disease outcomes.
- Understand the effects of **physical activity** at a molecular level to prevent and manage disease.
- Reduce the disadvantage experienced by **Aboriginal people** through culturally appropriate and ethical research.
- Identify interventions that will have a positive impact at the **population level** through research that examines trends in disease prevalence and incidence.

THE TOOLS WE USE



- Our **preclinical models** of diabetes and cardiovascular disease allow us to quickly assess the potential of new treatments.
- Our ability to **analyse single cells** allows us to study the complex cell ecosystems to identify novel genetic and cellular drivers of disease.
- Our **lipidomics capabilities** allow us to study cellular lipid pathways, giving us the ability to better understand and diagnose metabolic diseases.
- Our expertise in **metabolomics** allows us to characterise the relationship between lipid metabolism and cardiometabolic disease, leading to new diagnostics and treatments for chronic diseases.
- **Proteomics**, involving large-scale studies of proteins, provides insights into how cells communicate and improve our understanding of disease mechanisms.
- **Biobanks** support our genetic and mitochondrial studies and allow us to assess the importance of newly-discovered biological markers.
- Bioinformatics involves the use of **powerful computing** to analyse large datasets to provide new insights into human biology and diseases.
- **Imaging** is important at every step of our research. Micro PET/CT, fluorescence imaging and our new multiphoton microscope are some of the important tools we use.
- We are developing advanced **theranostics** — a form of diagnostic imaging combined with targeted therapeutics — which will allow for improved diagnostics and therapies.
- **Clinical research studies** are vital for testing the effectiveness of research discoveries.

ONLINE SURVEY TO HELP IMPROVE HEALTH OF TRADIES

In 2019 the Baker Institute was pleased to enter a charity partnership with the Reece Group, and start working together on an online health tool that calculates individual cardiovascular risk scores to help prevent heart disease.

The three-minute online health survey, known as the Ticker Test, was developed by researchers at the Baker Institute and was rolled out to thousands of staff from the Reece Group across Australia and New Zealand.

The Ticker Test initiative is part of the Reece Corporate Social Responsibility Program, which aims to raise awareness of the risks of heart disease and improve the health of its staff and large customer base of tradespeople.

Statistics reveal that Australian tradies are more than twice as likely to have a high risk of heart disease. This may be due to several issues, including their diet which has traditionally been associated with large amounts of nutritionally-poor food.

The online test is based on a series of questions relating to age, family history, diet, exercise and lifestyle, and produces a risk score to help individuals understand how their heart is tracking and whether they should seek medical advice to prevent a cardiovascular event such as a heart attack or stroke.

The Ticker Test has been well received and future plans include rolling out the online health survey to the wider community.

“Through our partnership with the Baker Institute we want to work together to change the health of tradies,” says Lizzy Geremia, Reece Group Chief Communications Officer.

“Tradies play such an important role in keeping the community safe, healthy and well. We’re proud to be working with the Baker Institute to help look after them. We want our people and customers to live their best lives and that starts with taking care of your ticker.”

The Institute is delighted to partner with socially responsible companies such as the Reece Group. By working with like-minded organisations, the Baker Institute can fund vital research projects that will propel our mission to help Australians live healthier for longer.



The Baker Institute and the Reece Group worked together to develop an online health survey to help improve the heart health of tradies.



reece

SUPPORTERS AND ACKNOWLEDGEMENTS

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MAJOR GIFTS (\$10K+)

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Our achievements would simply not be possible without the generous support we receive from individuals in the community, as well as charitable trusts and foundations, industry and government.
Thank you for being the driving force behind our discoveries.

PSA Insurance*

PT Darya-Varia Laboratoria

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BEQUESTS (\$20K+)

Estate Betty Brook

Estate Frances Hilda Parkinson

Estate Marjorie Isabel Marris

Estate Margaret Sedgman

Estate Peggy Valerie Luker

Estate Ruth Potter

Estate Sylvia Gelman

Estate Sylvia Lorraine Taylor

Estate Thelma Spicer MBE

BEQUESTS IN PERPETUITY (\$20K+)

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Mike McKay OAM

ENDOWMENT (\$20K+)

Sylvia Winifred & John
Eastment Endowment

* Donations for Ross Dennerstein
Foundation

BOARD OF DIRECTORS



MR PETER SCOTT AM
Non Executive Chairman

Peter Scott is a Senior Adviser at Gresham Advisory Partners and has more than 35 years' experience in providing financial advice to large Australian companies and governments. He was a member of the Australian Takeovers Panel from 2002 to 2014 and the New Zealand Takeovers Panel from 2008 to 2014. He served as a Director of the Association of Australian Medical Research Institutes (AAMRI) from 2013 until 2018 and as Chairman of the Medical Research Future Fund Action Group in 2014 and 2015. Peter chairs the Institute's Remuneration and Appointments Committee and serves on the Audit & Risk Management Committee.



MR LINDSAY MAXSTED
Non Executive Director

Lindsay Maxsted is the Chairman of Transurban Group, a director of BHP Group Limited and BHP Group plc and Managing Director of Align Capital Pty Ltd. He was a Director from 2008 and Chairman from 2011 of Westpac Banking Corporation until his recent retirement on 31 March 2020 and, prior to that, the CEO of KPMG from 2001 to 2007. Lindsay is the Honorary Treasurer of the Institute, is Chair of the Institute's Audit & Risk Management Committee and serves on the Remuneration and Appointments Committee.



PROFESSOR THOMAS MARWICK
Executive Director

Tom Marwick is the Director and Chief Executive Officer of the Institute. He is a practising cardiologist and prior to being the Baker Institute's Director was the Director at Menzies Institute for Medical Research, University of Tasmania and continues to hold an Adjunct Professorship there, as well as University of Melbourne, Monash University and Swinburne University. Tom has also worked as the Head of Cardiovascular Imaging at Cleveland Clinic and is a director of AMREP AS Pty Ltd. Tom serves on the Institute's Audit & Risk Management Committee, Remuneration and Appointments Committee and Commercial Issues Committee.



MS KATE METCALF
Non Executive Director

Kate Metcalf is a senior solicitor operating her own legal practice and is also a sessional Member at the Victorian Civil and Administrative Tribunal. She is a Trustee of the Baker Foundation and a Director of Boroondara Aged Services Society, BASS Care. She has previously held positions as the Legal Director Asia, General Counsel Australia and New Zealand, Director and Company Secretary with Carestream Health Australia Pty Ltd and Senior Counsel and Company Secretary of Kodak (Australasia) Pty Ltd.



MR ROBERT NICHOLSON
Non Executive Director

Robert Nicholson is a Senior Advisor at Herbert Smith Freehills practising in a wide range of corporate transactions, including mergers and acquisitions, equity capital markets, corporate and government enterprise reconstructions and privatisations. Robert was a member of the Freehills board between 2000 and 2011 and was Chairman of that board between 2008 and 2011. He is a director of Landcare Australia Limited and the Nucleus Network Group.



DR ANDREA DOUGLAS
Non Executive Director

Andrea Douglas is the Senior Vice President, Organisation Transformation and External Affairs at CSL Limited, located at CSL's headquarters in Parkville, Australia. Before joining CSL Andrea was the CEO of the Gene CRC and previously a senior researcher at the Walter and Eliza Hall Institute. Andrea has a PhD degree in Forensic Medicine from Monash University and holds a Master's degree in Health Administration. She is also a Director of BioCurate and was a Director of AusBiotech from 2013-2019. Andrea is Chair of the Institute's Commercial Issues Committee.



MS CHRISTINE O'REILLY
Non Executive Director

Christine O'Reilly is a director of CSL Limited, Transurban Group, Medibank Private and Stockland. She was Co-head of Unlisted Infrastructure at Colonial First State Global Asset Management from 2007 to 2012 and prior to that Chief Executive Officer of the GasNet Australia Group. Christine serves on the Institute's Audit & Risk Management Committee, the Remuneration and Appointments Committee and the Investment Committee.



MS MARINA KELMAN
Non Executive Director

Marina Kelman is an independent business advisor. She is currently consulting to the CFO Global Projects Group at Afterpay Limited. She was formerly CFO of MLC Life Insurance from 2016 to 2019. Prior to joining MLC, she worked in senior roles at NAB and UBS Investment Bank. She is a member of the Finance Committee of the State Library of Victoria. Marina serves on the Institute's Audit and Risk Management Committee and is an alternate on the Investment Committee.



PROFESSOR SIMON FOOTE
Non Executive Director

Simon Foote was most recently Director of The John Curtin School of Medical Research at The Australian National University (ANU). He is currently an emeritus professor at ANU. He has been Dean of the School of Medicine at Macquarie University, Director of the Menzies Research Institute at the University of Tasmania and Divisional Head at the Walter and Eliza Hall Institute, Melbourne. He was a postdoctoral fellow at the Whitehead Institute at the Massachusetts Institute of Technology. He is chair of the Board of the Australian Genome Research Facility, and Honorary Treasurer of the Australian Academy of Health and Medical Sciences Ltd.



DR DAVID THURIN AM
Non Executive Director –
retired 17 December 2019

David Thurin is the Executive Chairman and owner of Tigcorp Pty Ltd, that has property ownership in retirement villages and land subdivision as well as an investment arm that focuses on private equity, listed securities and biotechnology. David was previously the joint Managing Director of The Gandel Group of companies and previously the Chairman of the International Diabetes Institute. He is currently a director of Vicinity Centres and the Melbourne Football Club.

COMPANY SECRETARY
Ms Hilary Bolton

FINANCIAL HIGHLIGHTS

A project to attract and support a female-only research leader for five years marked 2019 as a pivotal point in the Institute's journey to champion change in relation to gender equity.

The Alice Baker and Eleanor Shaw Gender Equity Fellowships have been a cornerstone of the Institute's gender equity and diversity program for several years, supporting early to mid-career female scientists thanks to our long-time supporters, the Baker Foundation.

In 2019, the Institute joined forces with the Baker Foundation to contribute funds to offer this unique five-year senior female fellowship, ensuring support where it is needed most. Enormous thanks to the Baker Foundation for their very generous gift.

In March 2020, we announced the appointment of the Alice Baker and Eleanor Shaw Gender Equity Fellow, Associate Professor Morag Young, a leading authority on the role of hormones in cardiovascular disease.

We were also delighted to receive a gift from the Helen Amelia Hains Foundation. This generous gift supports a five-year fellowship for molecular biologist, Dr David Greening, who joined the Institute in 2019 to head up a Proteomics Laboratory.

His appointment strengthens the Institute's multi-omics approach based on large-scale analysis to provide greater confidence around disease risk and treatment of secondary disease and complications.

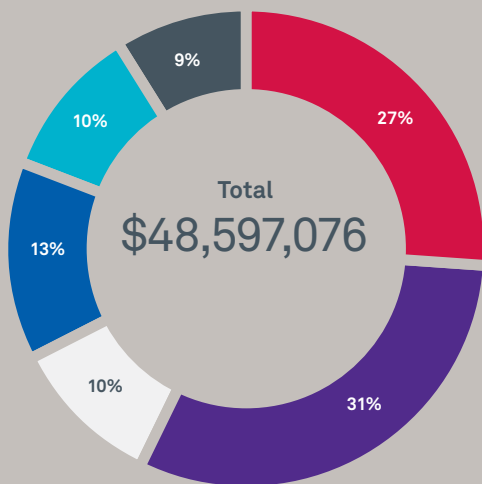
It was also very pleasing to see the Shine On Foundation, a strong supporter of medical research, increase its commitment to \$400,000. The Foundation supports the pioneering work of Dr Anna Calkin in the lipid metabolism and cardiometabolic disease laboratory.

The Institute was also delighted to receive a \$100,000 pledge from Clyde Davenport and \$150,000 from Bruce & Sarah Carter to support our leading work aimed at saving young hearts. Sports cardiologist and researcher, Associate Professor Andre La Gerche and colleagues are undertaking significant work to advance our understanding of unexplained cardiac death to enhance preventive efforts.

In 2019, we received \$3.1 million for Operational Infrastructure Support (OIS) funding from the Victorian Government. The OIS program provides essential funding towards indirect costs that are not provided by competitive grants.

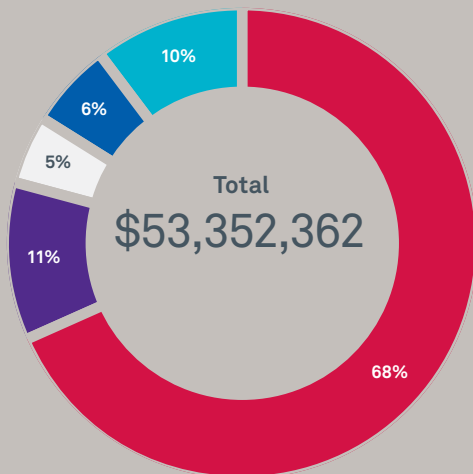
The Institute was awarded \$1.9 million through the Federal Government's Independent Research Institute Infrastructure Support Scheme.

In terms of competitive scientific funding, the Institute secured \$9.8 million in 2019 from National Health and Medical Research Council grants.



REVENUE

Fundraising, including bequests	\$12,816,634
Competitive grants	\$15,061,410
Government support	\$4,991,179
Investment income	\$6,477,279
Service & clinical income	\$5,016,547
Other income	\$4,234,027



EXPENDITURE

Research and laboratory expenditure	\$36,525,740
Administration	\$5,741,023
Building & infrastructure costs	\$2,535,038
Business development	\$3,117,136
Depreciation	\$5,433,425

FINANCIAL STATEMENTS

STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2019

	Consolidated		Parent	
	2019	2018	2019	2018
	\$	\$	\$	\$
ASSETS				
Current assets				
Cash and short term deposits	13,936,240	20,054,353	13,935,925	20,054,038
Trade and other receivables	2,385,628	3,637,590	2,385,628	3,637,590
Right to use	1,092,676	635,119	1,092,676	635,119
Prepayments	497,182	410,777	497,182	410,777
Total current assets	17,911,726	24,737,839	17,911,411	24,737,524
Non-current assets				
Property, plant and equipment	43,509,118	43,337,036	43,509,118	43,337,036
Right to use	7,553,641	6,745,631	7,553,641	6,745,631
Intangible assets	1,581,403	577,114	1,581,403	577,114
Investment in an associate	2,679,046	2,802,777	2,015,001	2,015,001
Investment in subsidiaries	-	-	300	300
Non-current financial assets	135,885,205	118,571,063	135,885,205	118,571,063
Other non-current receivables	-	210,000	-	210,000
Total non-current assets	191,208,413	172,243,621	190,544,668	171,456,145
TOTAL ASSETS	209,120,139	196,981,460	208,456,079	196,193,669
LIABILITIES				
Current liabilities				
Trade and other payables	5,919,900	5,191,919	5,919,900	5,191,919
Unearned income	13,917,166	11,579,282	13,917,166	11,579,282
Interest-bearing loans and borrowings	422,961	-	422,961	-
Provisions	6,143,846	6,589,501	6,143,846	6,589,501
Total current liabilities	26,403,873	23,360,702	26,403,873	23,360,702
Non-current liabilities				
Interest-bearing loans and borrowings	1,537,926	-	1,537,926	-
Provisions	476,431	361,232	476,431	361,232
Total non-current liabilities	2,014,357	361,232	2,014,357	361,232
TOTAL LIABILITIES	28,418,230	23,721,934	28,418,230	23,721,934
NET ASSETS	180,701,909	173,259,526	180,037,849	172,471,735
EQUITY				
Restructure reserve	-	-	-	5,578,233
Retained earnings	171,515,304	176,394,321	170,851,259	170,028,312
Other reserves	9,186,590	(3,134,810)	9,186,590	(3,134,810)
Equity attributable to members of the parent	180,701,894	173,259,511	180,037,849	172,471,735
Non-controlling interests	15	15	-	-
TOTAL EQUITY	180,701,909	173,259,526	180,037,849	172,471,735

STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2019

	Consolidated		Parent	
	2019 \$	2018 \$	2019 \$	2018 \$
Continuing operations				
Grants supporting research activities	15,061,410	13,764,565	15,061,410	13,764,565
Infrastructure funding	4,991,179	5,952,252	4,991,179	5,952,252
Fundraising, corporate and private support	12,816,634	13,243,190	12,816,634	17,743,190
Service and clinical income	5,016,547	4,801,847	5,016,547	4,834,424
Investment income	6,477,279	6,828,944	6,477,279	6,828,944
Income from sale of subsidiary	-	101,037,000	-	101,037,000
Other revenue	4,234,027	4,701,002	4,234,027	4,780,089
Revenue	48,597,076	150,328,800	48,597,076	154,940,464
Employee benefits expense	30,425,170	30,101,495	30,425,170	30,101,495
Research, service and clinical expense	7,811,481	7,110,931	7,811,481	7,110,931
Depreciation and amortisation expense	5,433,424	4,490,819	5,433,424	4,490,819
Share of loss of associate	123,731	49,998	-	-
Building overheads	1,639,307	1,699,800	1,639,307	1,699,800
Borrowing costs expense	84,228	-	84,228	-
Laboratory support expense	2,560,711	2,623,092	2,560,711	2,623,092
Donor acquisition expense	2,257,975	1,919,322	2,257,975	1,919,322
Expenditure associated with sale of subsidiary	-	3,167,949	-	3,167,949
Other expenses from ordinary activities	3,140,066	4,940,753	3,140,066	4,940,753
Expenditure	53,476,093	56,104,159	53,352,362	56,054,161
(Deficit) / surplus before tax	(4,879,017)	94,224,641	(4,755,286)	98,886,303
Income tax expense	-	-	-	-
(Deficit) / surplus for the year from continuing operations	(4,879,017)	94,224,641	(4,755,286)	98,886,303
Discontinued operations				
Surplus from discontinued operations	-	3,233,816	-	-
(Deficit) / surplus for the year	(4,879,017)	97,458,457	(4,755,286)	98,886,303
Other comprehensive income				
Net gain/(loss) on non-current financial assets from continuing operations	12,321,400	(6,516,125)	12,321,400	(6,516,125)
Net gain / (loss) on non-current financial assets from discontinued operations	-	(2,047,919)	-	-
Total comprehensive income for the period	7,442,383	88,894,413	7,566,114	92,370,178
Total comprehensive income attributable to:				
Members of the parent	7,442,383	88,894,413	7,566,114	92,370,178
	7,442,383	88,894,413	7,566,114	92,370,178

The Statement of Financial Position and Statement of Comprehensive Income provided above have been extracted from the audited general purpose financial statements of Baker Heart and Diabetes Institute and its controlled entities. The summary financial information does not include all the information and notes normally included in a statutory financial report.

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

JOIN THE DISCOVERY

Join us in the fight against heart disease and diabetes, and become part of the life-saving discoveries of the future.



Make a financial gift and directly support our life-saving work.



Leave a gift in your Will to create a lasting legacy.



Become a corporate partner.



Attend an event or host your own to support the Baker Institute.





“Leaving a gift in your Will supports innovative research projects and the development of the brightest minds into world-leading scientists. Your gift can save millions of lives, and your legacy will live on to benefit future generations”.

Viv Talbot

GIFTS IN WILLS SPECIALIST



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