

# We Progress

# Message from our Chairman

As the new Chairman of Heart Research Australia it gives me great pleasure to introduce our 2012-2013 Annual Report. We have, I am pleased to report, returned to surplus and the team have been very busy this year, not only with their on-going fundraising initiatives but also with a number of changes which position us well for the future.

As we plan for the future, we always remember that Heart Research Australia began life as a small foundation focused on the impact of heart disease in the local community.

Ours is a story of humble beginnings.

It was 30 years ago and Dr Gaston Bauer's 60th birthday. He and his colleagues, Dr John Gunning AM and Professor Stephen Hunyor, discussed their concerns of the death rate from heart disease and began brainstorming ideas on how to reduce it.

Together with lawyer John Holman, cardiac patient the late John Marks, and a \$25,000 donation from National Australia Bank, they shaped these thoughts into what was considered an unconventional concept at the time – establishing in 1986, the North Shore Heart Research Foundation, to raise money for heart research and to transform the Department of Cardiology into a centre of research excellence.

Rear Admiral Guy Griffiths (retired) was appointed the first Chief Executive Officer. He recalls his first day sitting at his desk with a blank sheet of paper for his fundraising ideas and a telephone in the corner of the room. When I visit the office now, we have seven full-time staff, three part-time staff and four telephone lines in operation!

In twenty-six years so much has changed; we raise more, fund more and contribute more than ever before to heart research. This is quite an achievement and unquestionably reflects great credit on our founder Dr Gaston Bauer, his colleagues, their vision and passion. Our work today, however, would not be possible without the continued generosity of our supporters nor without the extraordinary talent and dedication of our researchers and cardiologists.

This year has been a year of significant change and I would like to express a huge thank you to our CEO, Floyd Larsen, and her talented team for the great strides we have made. I would also like to thank my fellow Directors and Board Members for their patience and support during this time of change.

As this is the first report since I assumed the role of Chairman in November 2012, I would like to take this opportunity to acknowledge the wonderful contribution of my predecessor, Ray Knight OAM. Ray was Chairman of the Foundation for 8 years and Board member since its inception. Ray's steady

hand guided the Foundation through a period of considerable achievement and we thank him for the significant role he has played in this regard.

Like Ray, Dr John Gunning AM has been involved with Heart Research Australia since its inception. John retired this year as Head of Cardiology at Royal North Shore Hospital after a third of a century in the role! We are extremely thankful though, that John has retained his roles as Chairman of the Research Advisory Committee and Deputy Chairman of the Board.

During the year we have also said our goodbyes to long serving Board members Anna McPhee, Sue Shilbury, Dr Peter Caspari and Colin Sutton. I thank them all for their commitment and contribution to the Foundation and its cause. While we will miss them and some long serving staff members from the Heart Research Australia family, we have welcomed some new faces during the year. In particular, we are delighted to welcome Mr Tony Thirlwell OAM, ex-CEO of Heart Foundation NSW, onto the Board and we look forward to his contribution and foresight over the coming years.

Throughout this report, we share some of the highlights and changes we have undergone this past year. While there is much more to be done, what you will read within these pages demonstrates that we are on the right path - a path I am confident will lead us towards a world without heart disease.



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**Mr Tony Crawford**  
Chairman

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# Message from our CEO

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As Chief Executive Officer of Heart Research Australia I would like to extend to you a warm welcome to the 2013 Annual Report.

Each day my role enables me to meet cardiologists, researchers and members of the community that are determined to join the fight against heart disease. Whether it is through conducting ground breaking research or donating to our cause, each of these actions have the ability to save lives.

Although heart disease remains the number one killer of Australians both young and old, we at Heart Research Australia recognise that together we can work towards reducing the devastating impact this disease has on the community.

Benjamin Franklin once said: "without continual growth and progress, such words as improvement, achievement and success have no meaning." This year we have continued on our path of change, focusing on the growth of our new brand – Heart Research Australia. While this has brought many adjustments to our organisation the founding principle remains the same – to continue to fund pioneering, first-stage heart research.

I would like to take this opportunity to thank my former Chairman, Mr Ray Knight OAM, who we farewelled last year. Under his leadership the foundation allocated more than \$1.5 million to heart research in 2012 alone. His commitment, passion and dedication since the inception of the organisation has been incredibly inspiring and has helped pave a solid foundation for the future of Heart Research Australia.

I would also like to acknowledge my new Chairman, Mr Tony Crawford and welcome him to the Heart Research Australia family. He brings with him a wealth of knowledge from an extensive career at leading commercial law firm DLA Phillips Fox. I am confident that under his leadership we will be able to continue to increase our investment into cardiac research nationally.

As we enter the next financial year we will endeavour to increase our engagement with the Australian community through new fundraising initiatives and provide all Australians with the opportunity to join us in the fight against heart disease.



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**Mrs Floyd Larsen**  
Chief Executive Officer

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# Why collaborate?



Research cannot always predict its future success. It takes years, sometimes decades, to find a solution to the challenges facing human beings.

Research, and especially heart research, needs collaboration. It is far too important to leave it to one cardiologist, one researcher or even one organisation. It is because of this that the Cardiovascular Research Network (CVRN) was born. Initiated in 2005 by Tony Thirlwell, the then CEO of the Heart Foundation (NSW), the CVRN launched in 2008 as a result of a bequest by a Heart Foundation donor. With the matching financial support of the NSW Government and their encouragement it has grown to include a prestigious list of member organisations.

Heart Research Australia has been a member since 2008.

The CVRN is described as a virtual research institute and its key role is to encourage research collaboration and manage any competitive tensions to allow innovative research to progress. As of last year's report the collaboration has so far included over 30 individual cross-disciplinary investigators, from ten health and research organisations.

Fortuitously Tony Thirlwell has now joined our Board of Directors and will be a key player in consolidating and building collaborative relationships with other member organisations.

In this same spirit of collaboration Heart Research Australia initiated Heart Research Month in February, a time for all heart research foundations and institutes to raise awareness of Australia's biggest killer. As most Australians are focused on love and their hearts we expect the month to grow and become entrenched in the annual calendar.

The establishment of Heart Research Day in the middle of the month, on St Valentine's Day, is an important association for the community in matters of the heart.

The importance of raising awareness of this deadly disease is critical, as is raising funds for research into the prevention, diagnosis and treatment of heart disease. That is why we have a signature campaign called RedFeb. All funds raised during our RedFeb campaign will be used to fund first-stage research.

# Why research?

**“A Stiff Heart and Stiff Arteries – are the Stiff Luck of Ageing and High Blood Pressure”[1]**

With constant impact on the ground, hip and knee joints wear out with ageing. Imagine therefore how the heart and large blood vessels (arteries) have to cope with 100,000 impacts as more than 7,000 liters of blood are pumped by a heart each day as it constantly tenses and contracts to raise pressure in blood vessels so it can nourish every tissue in the body e.g. brain, kidneys and muscles.

There are enough vessels to encircle the earth 2.5x! The constant sequence of filling and emptying takes its toll as elasticity of large conduit vessels and contracting/pumping efficiency muscle cells in the heart deteriorate only to be replaced by fibrous/scar tissue which enhances stiffness. The end result is a

form of “heart failure” that is now the most common cause of breathlessness, poor exercise tolerance, easy tiring & lack of energy, as well as serious debility with need for hospitalisation in over 65yr olds – a rapidly growing segment of the population. The cost of this condition is astronomical – not counting the misery and deteriorating “Quality of Life”.

Our research is aimed at studying the very basis of the above sequence of abnormalities, and for this purpose we are on the path to having an experimental model where we can vary arterial and heart muscle stiffness in a controlled, measurable fashion and measure the effect this has on the way the heart is affected. We have expertise enhanced by biomedical engineering input from highly acknowledged colleagues at Macquarie University's School of Advanced Medicine (Prof Albert Avolio & Dr Mark Butlin) to study the change in speed of

blood pressure waves that tend to “collide” - akin to waves returning on the seashore.

We have highly sensitive instruments and measurement capability to follow such changes in our models and believe this will eventually enlighten the best forms of treatment of this heart failure condition - which at present is very hard to treat effectively. Even better would be the development of long-term preventive strategies and/or treatments. We aim also to study the impact of the stiff blood vessels on the molecular, cellular and energetic “signature” of the heart muscle to determine if there is a critical time period during which treatment intervention may reverse some of the abnormalities at this level.

Our team has expertise to work in the setting of “systems biology and physiomics” which aims to follow changes from gene to molecule to cell, then tissue and eventually to the total “Cardiovascular System”.

An effective team approach, with varied yet complementary skills and interests makes for interesting and challenging work. We have built our facilities to a high order and revel in “translational research’s” promise that will improve Quality of Life in significant numbers of people,

[1] (Stephen N HUNYOR and colleagues).



## A Hearty Education Annual Report from North Shore Cardiovascular Education Centre

Heart Research Australia is proud to have provided financial support to the North Shore Cardiovascular Education Centre (NSCEC) for the past 18 years. The Centre is a nationally recognised leader in cardiac rehabilitation, playing an important role in the “patient journey” back to health following a cardiac event or diagnosis. The Centre’s exercise and lifestyle education programs provide support, improve confidence, physical fitness and understanding about heart disease. Our programs are designed not only to help patients with heart disease recover faster, returning to full and productive lives, but also to empower patients to learn new ways to lead a healthier life and reduce their risk of a further event. Programs are tailored and designed to suit individual needs and capabilities.

The Centre continues to play an active role in various research projects, more recently looking at options for the management of overweight/obesity and smoking cessation in patients with cardiovascular disease. Over the last ten years, the NSCEC has achieved publications in ten international and peer-reviewed journals and presented at a number of conference papers at state and national level. More recently we have been looking at the incidence and risk factors of patients with atrial fibrillation and the potential for cardiac rehabilitation to play a more active role in supporting and educating this patient group.

**We look forward to the year ahead where our goal, as always is to adapt the services we offer to meet the changing and varying needs of our clientele and to provide a high standard of care to our patients, RNSH and the wider community.**



# On-going projects

## Life saving research

Heart Research Australia funds research that helps pioneer ways to diagnose, treat and prevent cardiac disease. In the past year, Heart Research Australia has funded twenty innovative research projects including three PhD scholarships



## Preventing kidney injury after cardiac surgery

More than 7,000 Australians undergo cardiac surgery each year with up to one third of these patients developing new onset acute kidney injury during their hospital stay. The development of acute kidney injury leads to longer recovery times, may require lifelong dialysis, and is associated with increased risk of death. The purpose of this clinical trial is to determine if a simple and cheap amino acid infusion can reduce the onset of acute kidney injury resulting from cardiac surgery. This exciting new project and researchers are about to commence recruiting patients and have employed two intensive care unit nurses and obtained all necessary ethics and governance clearances.

Project: **Preventing kidney injury after cardiac surgery: A pilot project**

Investigator: Associate Professor Gordon Doig

Funded since 2012

\$144,168 over three years

## Inhibition of protein hydroperoxides formation by FXYP proteins

Numerous studies have shown that cardiovascular diseases (CVD) exert oxidative stress on the heart. Protein, particularly those associated with membranes have been proposed as direct targets of free radical damage. Protein hydroperoxides are considered to be a major source of oxidative damage. The formation of protein hydroperoxides has been reported that it can be inhibited by protein thiols. However, the importance of this mechanism in vivo is undetermined. We have recently found that FXYP proteins, a group of tissue-specific single transmembrane spanning thiol proteins, have a novel role in protecting the sodium pump from oxidant-induced inhibition. FXYP proteins may have anti-oxidative potential. In this project, we examine the ability of FXYP protein to inhibit the formation of protein hydroperoxides in heart failure. The results of this identification could potentially serve as a therapeutic treatment for CVD.

Project: **Inhibition of protein hydroperoxides formation by FXYP proteins in both cell and animal models**

Investigator: Dr Chia Chi Liu

Funded since 2012

\$60,000 over two years

## New-generation anticoagulants

New-generation anticoagulants prevent blood clots after hip/knee replacement surgery, and prevent stroke or venous thrombosis. Trials show rivaroxaban or dabigatran could replace warfarin, where dosing is unpredictable, regular monitoring is needed, and patients face significant bleeding risk. Our proposed studies of unique differences in how these anticoagulants regulate a key platelet receptor (GPVI) have significant implications for long-term anticoagulation in Australian patients.

Project: **New-generation anticoagulants**

Investigator: Associate Professor Christopher Ward

Funded since 2012

\$138,279 over three years

## Smoking cessation through personalised intervention

Smoking remains a major preventable risk factor for cardiovascular disease. This research proposal builds on two observations; firstly, experiencing a heart attack is a teachable moment that enables up to 60% of smokers to abruptly quit once they have experienced a heart attack; and secondly, we have demonstrated in a pilot study that it is feasible to induce smoking cessation through subjects watching a DVD containing images of him/herself, his/her partner and family digitally superimposed into a scenario depicting the person having a heart attack as a result of smoking, and the potential consequences to the partner and family.

In this project researchers will evaluate the simulated teachable moment hypothesis in a prospective randomised controlled study. We will compare smoking cessation rates using the personalised DVD with the same video using actors. In addition, we will evaluate the psychological impact of the personalised video. If this study demonstrates an additive effect of the personalised simulated teachable moment in smoking cessation, its use would be supported as an adjunct to smoking cessation, which in turn would have major health benefits in our society. Researchers will conduct the study in selected general practices and pharmacies to investigate its broad applicability and ability to be disseminated widely. The novelty of the approach has been acknowledged through the awarding of an Australian patent.

Despite all the major effort and treatment successes, smoking remains a major public health problem. It is a significant risk factor for cardiovascular disease including myocardial infarction, stroke and peripheral vascular disease. Many of the individuals who continue to smoke are resistant to currently available strategies. If this study, which is a randomised follow-up to initial promising pilot work, is successful, researchers will provide a novel strategy that will assist in smoking cessation.

Project: **Smoking cessation through personalised intervention**

Investigators: Professor Geoffrey Tofler

Funded since 2012

\$150,000 over three years

## Is this the ageing heart's equivalent to alzheimer's?

Heart failure (HF) is the major cause of admission to tertiary referral hospitals and results in major costs, mortality, and diminished Quality of Life. Currently 50% of HF sufferers fall into the difficult category of 'heart failure with preserved ejection fraction'. These people present with shortness of breath, diminished exercise capacity, and/or frank heart failure. Despite the heart's apparent normal pumping, this group has the same 'dismal' prognosis as those where the heart's pumping capacity is reduced. In contrast to the latter, there has been no improvement in outcome over the past two decades for the first group of patients. The mechanisms, and diagnostic and therapeutic strategies for this condition remain elusive. It is proposed that progressive stiffening of large arteries impairs their "buffering" capacity due to loss of elasticity. This results in distortion of the blood flow pattern with adverse effects on both the heart's work capacity as well as decreasing coronary artery blood supply. Eventually the energetic capability of the heart is impaired, especially with advancing age and in those with co-existing high blood pressure or coronary artery disease.

This project is in the process of establishing a novel model of large artery stiffness to allow study of its effect on blood flow, pulse wave transmission, and the response of the heart.

The crucial early studies have provided 'Proof of Principle' indicating that the model is achievable and valid for the proposed purpose. Creation of the model of large artery stiffening has benefited from high level expertise involving cardio-thoracic and vascular surgeons, while sophisticated and high precision data capture and analysis is performed by our collaborators in biomedical engineering. We expect that insights to be gained from observations of the interaction between the heart and the arterial circulation will provide valuable information for refinement of diagnostic and therapeutic strategies to detect and treat heart failure – especially the type that is increasingly common in our ageing populations.

Project: **Novel model for heart failure with preserved ejection fraction (HFPEF): Mechanisms with enhanced arterial stiffness**

Investigators: Professor Stephen Hunyor

Funded since 2012

\$98,102 over three years

## Egr-1 and cardiac ischemic preconditioning

Preconditioning is a phenomenon whereby short, non-lethal periods of ischemia can protect the heart against subsequent damage from a heart attack. Interestingly, this protection can be afforded through tightening and releasing of a tourniquet around a limb, a process known as remote ischemic preconditioning (rIPC). The ability of rIPC to reduce heart tissue damage following heart attack indicates the involvement of both cellular and vascular signaling mechanisms. Understanding these mechanisms could lead to better patient treatment options. Using an in vivo rat model and in vitro cellular model, we have identified the increased expression of a variety of cytokines following rIPC that switch on signaling pathways within heart cells. These intracellular pathways involve the generation of nitric oxide (NO) and the increased NADPH oxidase generation of superoxide. We have shown that the combination of the increase in these signaling molecules acts to attenuate expression of early growth response 1 (Egr-1), a transcription factor known to be increased following heart attack and pivotal to the subsequent damage caused to heart tissue.

Project: **Investigation into the potential role of early growth response-1 (Egr-1) in the molecular mechanisms and intracellular pathways involved in the protective effect afforded by ischemic preconditioning within myocardial ischemia reperfusion injury**

Investigator: Dr Benjamin Rayner

Funded since 2012 \$48,200

# New research projects

## Oxidative modification sites of the Na<sup>+</sup>-K<sup>+</sup> pump

Dr Chia Chi Liu's research will provide insight into heart disease and how it is affected by oxidative stress involving alteration of sodium pump structure then further affect its function. Understanding this molecular modification of Na<sup>+</sup>-K<sup>+</sup> pump may provide novel therapeutic solutions useful in heart failure and heart attack.

Project: **Oxidative modification sites of the Na<sup>+</sup>-K<sup>+</sup> pump**

Investigator: Dr. Chia Chi Liu

Funded since 2013

\$100,000 over two years

## New insights on mechanism of vascular smooth muscle cell function and intimal hyperplasia

Cardiovascular disease represents the most important cause of morbidity and mortality in the world. Blocked coronary arteries are repaired using vein grafts. However, up to 50% of those vein grafts will be blocked again during the first decade after surgery as a result of hyperplasia or proliferations of cells. The project is looking at the molecular mechanisms regulating this proliferation of cells with a focus on the role of a new transcription factor ATF-4. This project aims to develop novel therapeutic strategies that may prevent graft failure in vascular proliferative disease.

Project: **New insights on mechanism of vascular smooth muscle cell function and intimal hyperplasia**

Investigator: Associate Professor Ravi Bhindi

Funded since 2013

\$144,900 over three years

## Beta 3 receptor activation for heart failure therapy

The North Shore Heart Research Group has recently found that beta 3 agonist would be beneficial in the treatment of heart failure. This study aims to treat rabbits in heart failure with a therapy that will combine both the beta 1 and beta 2 blocker with the beta 3 agonist in an attempt to yield better outcomes than beta blockers alone.

Project: **Beta 3 receptor activation for heart failure therapy**

Investigator: Dr. Chia Chi Liu

Funded since 2013

\$49,994 over one year

## Effect of beta 3 AR agonists on diabetes-induced platelet hyperactivity

Prevalence of type 2 diabetes is on the rise in Australia and worldwide. Excess cardiovascular mortality in diabetes is well established and is mostly due to atherosclerosis and its thrombotic complications, in which both vascular endothelial dysfunction and hyperactive platelets play an important role. Although reduced levels of nitric oxide (NO), a naturally occurring inhibitor of platelet activation, is well documented in diabetes; the underlying mechanisms are not fully understood. Treatments that specifically aim to enhance bioavailability and bioactivity of this protective molecule in diabetes are not currently available.

In this project we seek to determine whether molecular changes due to high oxidative stress, which are of key importance in adverse effects of diabetes, play a role in reduced levels of NO in platelets and whether treatment with a drug that increases availability of NO by stimulation of beta 3 adrenergic receptors in various cells could a) reverse these oxidative changes and b) reduce hyperactivation of platelets and hypercoagulability in type 2 diabetes.

**This work could potentially lead to establishment of a new treatment to reduce cardiovascular events, in particular heart attacks and stroke in diabetic patients.**

Project: **Effect of beta 3 AR agonists on diabetes-induced platelet hyperactivity**

Investigators: Dr Keyvan Karimi

Funded since 2013

\$54,000 over one year

## The role of Egr-1 in the protective effect of ischaemic preconditioning in myocardial ischemia reperfusion injury

Dr Ravi Bhindi is looking at the phenomenon of myocardial preconditioning in this study. It is a phenomena whereby repeated short episode of non-lethal heart attacks are able to protect against subsequent ischemic insults.

He is looking at the role of one transcription factor (Egr-1) that acts as a "master switch" in the injury response in a variety of pathological settings.

The aim of this project is to ascertain the effect on EGr1 regulation of direct cardiac preconditioning and direct post conditioning.

Project: **The role of Egr-1 in the protective effect of ischaemic preconditioning in myocardial ischemia reperfusion injury**

Investigator: Associate Professor Ravi Bhindi

Funded since 2013

\$145,800 over three years



# Special projects

## GAPDH regulates the autophagy of H9C2 cardiac myocytes with hypoxia / reoxygenation

Liang Shao is analysing the role of a specific enzyme, GAPDH in response to a simulated heart attack. After a heart attack, heart cells have the natural preference to undergo autophagy. This research may provide novel therapeutic targets for protection strategies of the cells after a heart attack.

Project: **GAPDH regulates the autophagy of H9C2 cardiac myocytes with hypoxia / reoxygenation**

Scholarship: Liang Shao

Funded since 2013  
\$9,600 over one year

## SOLACE Clinical Trial

Multicentre, non-randomised controlled study to assess the safety, performance, quality of life and cost effectiveness outcomes of a transcatheter heart valve replacement in the Australian population

Project: **SOLACE Clinical Trial**

Investigator: Associate Professor Ravi Bhindi

Funded since 2013  
\$300,000 over 14 months

## Salary Support

Laboratory Manager  
Cardiology Imaging & Research Fellow (funded by Biotronik, Medtronic & Toshiba Medical)  
Translational Research Laboratory Manager  
Chair of Preventative Cardiology,  
Royal North Shore Hospital  
Chair of Cardiology, Royal North Shore Hospital  
Academic Cardiologist Royal North Shore Hospital

## Australian Placental Transfusion Study (APTS)

The APTS study is a trial with five hospitals involved. Looking at the physiology underlying low systemic blood flow in very preterm babies. In this randomised, placebo-controlled trial 50% of the premature babies enrolled receive a placental transfusion at birth. A key part of this trial is measuring cardiovascular function which relies on the ability to perform serial echocardiography on these infants in the first 24 hours of life, for which the new ultrasound machine is vital.

Project: **Australian Placental Transfusion Study**

Investigator: Associate Professor Martin Kluckow

Funded since 2013  
\$100,000 funded by Millhouse Foundation

## PDA trial – “Paracetamol Duct Action” Randomized Placebo Control Trial

Dr Kluckow and his team use echocardiography to focus on extremely premature babies in this trial.

Very premature babies often have a normal structure in the heart called a “duct” which should close within hours of birth in a term infant, but in preterm infants commonly stays open. This duct leads to reverse blood flow from the aorta to the lungs, contributing to breathing problems and increasing a baby’s need for artificial ventilation. Current medicinal treatment with Indomethacin or Ibuprofen closes the duct in only 50% of cases and may have some concerning side effects. Until now, surgery has been the only alternative treatment. Using paracetamol to close the duct would be a much simpler way to manage this cardiac problem of premature babies. The PDA trial has been recently joined by two more hospitals, the Royal Prince Alfred Hospital and Canberra Hospital.

Project: **PDA trial - “Paracetamol Duct Action” Randomized Placebo Control Trial**

Investigator: Associate Professor Martin Kluckow

Funded since 2013  
\$100,000 funded by Millhouse Foundation over 3 years



Lily at our Newborn Intensive Care Centre



# Future generations

## Beryl Raymer PHD Scholarships

Heart Research Australia is playing an important part in encouraging future generations of cardiac scientists and cardiologists through our PhD scholarships. In the past year we have provided scholarships to three PhD research projects

### Muntasir Billah

Once the blood supply is restored after heart attack by opening up the coronary artery, the heart is insulted by ischemia-reperfusion injury. Direct Ischemic preconditioning has the ability to protect the heart against this injury for a brief period of time. Direct Ischemic preconditioning involves cycles of non-lethal occlusion of the coronary artery and releasing. In recent years, it has been shown that preconditioning the limbs or other organs remote to the heart can deliver a similar level of protection to the heart. This new therapeutic technique, known as remote ischemic preconditioning (rIPC) is non-invasive and easy to apply compared to direct ischemic preconditioning.

However, we still do not know the mechanism through which remote ischemic preconditioning protects the heart. There is evidence that preconditioning can decrease the level of Early Growth Response-1 (Egr-1) expression, a master regulator that gets highly expressed in heart tissue followed by a heart attack. Once Egr-1 is highly expressed, a number of downstream inflammatory signalling molecules get expressed, which are well known to cause myocardial damage. In this project we aim to assess the relationship between this master switch regulator and remote ischemic preconditioning. Once this relationship is well understood, the underlying mechanism may become apparent and better clinical treatment options can be achieved.

Project: **Cardioprotective effect of remote ischemic preconditioning and the role of Egr-1 as a master switch regulator**

6 months \$15,000

## Natasha Fry

The North Shore Heart Research Group is internationally recognised for research into regulation of the Na<sup>+</sup>-K<sup>+</sup> pump, and how it relates to cardiovascular disease.

Natasha Fry is looking at changes in the function of the Na<sup>+</sup>-K<sup>+</sup> pump during heart failure and the therapeutic potential of beta 3 agonists for treatment. Using a model of heart failure, she has shown a marked decrease in function of the Na<sup>+</sup>-K<sup>+</sup> pump, and has shown this to be related to molecular changes caused by oxidative stress. A potential new drug treatment, a beta 3 agonist, reversed of oxidation induced molecular changes, stimulated the Na<sup>+</sup>-K<sup>+</sup> pump and reduced clinically relevant indices of heart failure.

These results will improve the way we understand molecular changes during heart failure, and provide supportive evidence for a new drug target for heart failure.

Project: **Oxidative regulation and function of the Na<sup>+</sup>, K<sup>+</sup> ATPase and therapeutic potential of a Beta3 adrenergic receptor agonist in the failing heart**

6 months \$15,000



## Dr Keyvan Karimi

The effect of diabetes on the regulation of the sodium pump in the heart.

Diabetes is a common condition that can cause cardiac and vascular complications.

In his PhD research, Dr Keyvan Karimi is focused on the molecular mechanisms that are involved in the adverse cardiovascular effects of diabetes.

He is looking at a new class of drugs that work through activation of beta 3 adrenergic receptors. In Dr Karimi's work, this class of drugs have proven beneficial in improving the function of vessels and protecting heart cells against the harmful effects of diabetes. The compelling evidence from this work can now be tested in clinical trials to further explore the beneficial protective effect of this class of drugs in diabetic patients.

Project: **The effect of diabetes on the regulation of the sodium pump in the heart**

1 year \$30,000

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Beryl Raymer PhD Scholarship recipients Natasha Fry, Beryl Raymer (centre), Dr Keyvan Karimi, Muntasir Billah

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# Why donate?

Did you know you're a lifesaver? It's a fact you should be proud of

You see, none of the pioneering research we undertake would be possible without you. Because first stage research relies entirely on private funding to see the light of day: all our work is powered by the generosity of our supporters. Every cent of it.

Although your gifts to our Foundation may seem like a modest gesture to you, they mean the world to us, and to the individuals and families who benefit from our research.

At the beginning of the year we took the opportunity to ask why you supported Heart Research Australia and this is what you told us:

Whatever your motivation, as we work to reduce the devastating impact of heart disease on the community, you are right there with us. Making our success possible with your support. Each day we're a heartbeat closer to achieving our vision: a world that is free of heart disease.

I have been affected/impacted by a form of heart disease

**49.04%**

I am in an 'at risk' category

**23.55%**

I believe in the potential benefits of medical research

**65.74%**

I am passionate about the effect of heart disease in our community

**18.20%**

To all of our donors, we extend our heartfelt appreciation. Thank you for sustaining and enhancing our work. For building brighter futures. For saving lives

I am 93 years old thanks to Royal North Shore Hospital at St Leonards

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A grateful Heart Research Australia Donor

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### Trusts & Foundations

Heart Research Australia is also indebted to the many Trusts & Foundations who help make our work possible. These outstanding philanthropic bodies have provided inspirational support to our cardiologists and researchers by funding vital new equipment, research projects and people.



# Why participate?

Our community supporters are vital to Heart Research Australia. As part of our rebrand and new national focus, we are very excited about the response from the wider community to our “I Love Life” community fundraising program. As a result we have some fantastic stories to share with our supporters from this year.

## RedFeb and the 28 Day Challenge Campaign

In February 2013, Heart Research Australia launched its first ever RedFeb campaign. Set in Heart Research Month the fundraising campaign puts focus on healthy hearts.

Last year the call was put out to our community fundraisers to identify a challenge – one that was close to their heart and good for their heart.

## What do we have in store this year?

Instead of challenging our community fundraisers this year we have chosen to unify them in a virtual relay around the country! The focus is still on healthy hearts; by joining the RedFeb Relay and entering your kilometres from your everyday activities you can reduce your risk and raise funds for research at the same time. Get involved at our website [redfebrelay.com.au](http://redfebrelay.com.au)



Heart Research Australia merchandise stall at Festival on the Green, St Ives.

## Peer to Peer fundraising events

### City2Surf 2012

Congratulations to Steve Thomas who not only raised over \$10,000 for heart research in the 2012 City2Surf, but also ran a PB of 77mins and 22 seconds! We also thank the Macquarie Group Foundation who generously supported Steve's efforts by matching his fundraising dollars. Another long term supporter Julian Trebeck also ran in the City2Surf and raised over \$1000!

### Rotary Club of Brookvale

The Rotary Club of Brookvale nominated Heart Research Australia as a recipient charity of their 2012 Pub2Pub Fun Run efforts in which we were gifted \$5000. Thank you!

### Annual Heart Health Lunch

In August 2012, the Annual Heart Health Lunch was held at The Deckhouse and hosted by the wonderful volunteers of the Red and White Committee. This was the first event where we publicly revealed our new name and brand to many of our long term supporters. The special guest speaker for the day was Valli Little, the editor for ABC Delicious Magazine. Funds were raised through donations, raffles and auction with over \$23,000 being contributed towards heart research.

### Festival on the Green

Heart Research Australia provided information on the latest statistics and facts about heart disease and sold merchandise to help raise awareness of the new brand amongst the local community. Staff from the North Shore Cardiovascular Education Centre (NSCEC) also participated and provided free blood pressure tests to the public (pictured below).

### Heart Week at Royal North Shore Hospital

In collaboration with other key areas of the hospital, Heart Research Australia was involved in the Heart Week promotion at the new Royal North Shore Hospital. Heart Week is an official public health promotion of the National Heart Foundation held in the first week of May each year.

This year, the event was held in the new hospital foyer and promoted the themes of heart health such as warning signs of a heart attack. Heart Research Australia distributed promotional materials and also sold "I Love Life" merchandise. In addition to this, the team from the North Shore Cardiovascular Education Centre (NSCEC) held an exercise demonstration class and offered free blood pressure checks for passing patients and employees.

### 2012 Golf Charity Challenge

The Charity Challenge Golf Day attracted some 98 players who took on the challenging Links course at the Long Reef Golf Club in support of Heart Research Australia. Despite the very windy conditions, it was a highly successful event and provided an opportunity for Heart Research Australia to promote the new brand. This was the second year that the event was held as a result of the support by Heart Research Australia board member, Paul Allison. Over \$12,000 was raised via competitions, raffles and auctions in support of heart research.



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Vanessa Baker, Nurse Unit Manager of North Shore Cardiovascular Education Centre checks the blood pressure of Ku-ring-gai local federal member Paul Fletcher at the Festival on the Green, St Ives.

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# Financial report

Income	2013	2012
Fundraising	\$3,575,517	\$2,464,621
Non-operating activities	\$398,620	\$16,880
<b>Total income</b>	<b>\$3,974,137</b>	<b>\$2,481,501</b>
Expenses		
Employee costs	\$754,153	\$670,952
Fundraising and special events	\$589,675	\$431,882
Administration	\$507,548	\$293,747
Research support	\$1,608,836	\$1,507,469
<b>Total expenses</b>	<b>\$3,460,212</b>	<b>\$2,904,050</b>
<b>Net surplus/(deficit)</b>	<b>\$513,925</b>	<b>(\$422,549)</b>
Assets and Liabilities		
Cash and cash equivalents	\$2,187,313	\$1,959,527
Trade and other receivables	\$74,409	\$131,218
Financial investments	\$996,481	\$1,059,796
Plant and equipment	\$53,315	\$29,365
Intangibles	\$103,189	\$29,206
<b>Total assets</b>	<b>\$3,414,707</b>	<b>\$3,209,112</b>
Trade and other payables	\$160,312	\$461,210
Provisions	\$40,945	\$48,377
<b>Total liabilities</b>	<b>\$201,257</b>	<b>\$509,587</b>
<b>Net Assets</b>	<b>\$3,213,450</b>	<b>\$2,699,525</b>



# Our governance

## Board of Directors

The Board of Directors is the governing body of Heart Research Australia. It includes clinicians, researchers and business leaders

### Committees of the Board

There are four Committees to advise on operational and strategic matters. All Directors serve on at least one of these Committees, while additional expertise may be co-opted as required.

**Awards Committee:** reviews and recommends to the Board the names of those individuals who may be offered honorary membership of Heart Research Australia as a Partner in Heart Health, or whose names may be added to the permanent Honour Roll. Members: Tony Crawford (Chairman), Dr Peter Caspari, Paul Allison, Ray Knight (Chairman).

**Finance & Audit Committee:** monitors significant financial planning, management and reporting matters of Heart Research Australia; reviews and monitors the corporate governance and serves as the Board's audit committee. Members: John Pegg (Chairman), Paul Allison, Tony Crawford, Dr John Gunning, Michael Lawrence and Anna McPhee.

**Research Advisory Committee:** reviews and makes recommendations on applications for funding of project grants, scholarships and purchase of research equipment. Members are all highly qualified practitioners and researchers whose appointment is subject to approval by the Secretary of the Department of Health and Ageing. Members: Dr John Gunning (Chairman), Professor Stephen Hunyor, Professor Levon M Khachigian, Professor Geoffrey Tofler, Professor Carol Pollock MBBS PhD FRACP and Dr Michael Ward.

**Scientific Advisory Council:** advises the Board on future directions in research and the resources required to support prioritised initiatives. Jointly chaired by Dr Michael Ward and Dr Colin Sutton; membership consists of senior researchers, cardiologists and others with appropriate qualifications and experience.

## Members of the Board (as at January 2014)

### Chairman

Tony Crawford BA/LLB (UNSW), GAICD

### Vice Chairmen

Dr John Gunning AM, MB BS (Hons), MD (Syd)  
FRACP FACC, FCSANZ

Paul Allison Dip. Tech. Comm (NSWIT), C.I.P., ANZIIF  
(Fellow), FAICD

### Honorary Treasurer

John Pegg BComm FCA, ACIS, FAICD

### Honorary Medical Director

Professor Geoffrey Tofler MBBS, MD, FRACP, FACC

### Emeritus Director

Dr Gaston Bauer AM, MD, BS, FRACP, FACC

### Company Secretary

Pam Davis

## Directors

Associate Professor Ravinay Bhandi  
MBBS (USyd), MSc (Oxon), PhD (USyd), FRACP,  
FCSANZ, FESC

Gregory Brown  
(Alternate Director, Dominic May MMGT. JP)

Dr Peter G Caspari  
MB, BS (Syd), DDU, FRACP, FACC, FCSANZ,  
MMedHum (resigned September 2013)

Dr Cedric W Deal  
MB, BS, FRCS, FRACS, FRCSE

Associate Professor Gemma Figtree  
MBBS (Hons), DPhil (Oxon), FRACP

Peter Gunning  
BEc, MEc (Hons) ASIA & CFA

Professor Stephen N Hunyor  
MD(Syd), MBBS, MTM(Griff), FRACP, FACC

Professor Levon M Khachigian  
BSc (Hons), PhD DSc(UNSW)

Michael Lawrence  
BEc, SF Fin

Anna McPhee  
BA MBA GAICD (resigned August 2013)

Associate Professor Gregory Nelson  
MB BS FRACP FCSANZ

Sue Shilbury  
BappSc MBA (Alternate Director, Dr Jonny Taitz  
MBChB, FCP(SA), FRACP, AFCHSE) (resigned  
September 2013)

Dr Colin Sutton  
DEng, BSc, PhD, FAICD (resigned November 2013)

Anthony John Thirlwell  
OAM FAICD FAMI BSc(Hons) MBA

Dr Michael Ward MBBS (Hons) FRACP PhD DDU  
FCSANZ

## Our team

### Chief Executive Officer

Floyd Larsen  
HND Comp (UK), Grad Dip Mktg, Grad Dip Bus Tech

### Government Relations & Strategic Projects Manager

Louise Cordaiv  
MBA, BBus (Mktg)

### Head of Fundraising

Shellee Duncan  
BA(Pol Econ), MM Sports Mgmt

### Company Secretary

Pam Davis

### Office Manager

Lauren Storr  
BCom

### Communications Manager

Kara Wansbury

### Fundraising & Donor Relations Officer

Rosemary Carrick BA

### Community & Online Fundraising Officer

Rhiannon Bell  
BComm(Mktg), BIntBus(Mktg), MD

### Research Program Officer

Annette McCook  
MSc (Biol)

### Database Administrator

Helen Fisher

### Donor Care Officer

Maxine Winitana  
(Until March 2013)

### Office Administrator

Gemma Higlett  
BCom (Mktg PR)

## Volunteers

Amanda Perry  
(from August to October 2012)

Ann Brownlow  
(February 2012)

Yvonne Taylor

### Accountants

Stephen J Miller & Co

### Honorary solicitors

Holman Webb

### Auditors

Ernst and Young

### Bank

National Australia Bank Limited

## Red and White Committee

Jenny Carr

Lori Farrar

Lynne Ravenhall

Fiona Taylor

## Our Constitution

Heart Research Australia operates under the legislation of the New South Wales Charitable Fundraising Act 1991 and associated regulations, including Australia Securities & Commission regulations. Heart Research Australia is an Australian Tax Office approved health promotion charity and an endorsed deductible gift recipient.

## Our standards

Heart Research Australia is an organisational member of the Fundraising Institute of Australia (FIA) and abides by the FIA's Principles and Standards of Fundraising Practice – the fundraisers' guide to ethical, accountable and transparent fundraising.



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Board of Directors Mr John Pegg, Associate Professor Gemma Figtree, Mr Tony Crawford and Dr John Gunning at the Red Heart Rugby Day at North Sydney Oval

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## Thank You

Heart Research Australia depends entirely on the support of the community and thanks the following generous supporters for their contributions from July 2012 to June 2013

### Significant Benefactors \$1,000 and over

Anonymous  
Philip H Abbott  
Robert O Albert AO RFD RD  
Paul Allison  
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Gaston and Phyllis Bauer  
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Marcus Blackmore AM  
Michael Bowyer  
John Boyd  
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Arthur Chittenden  
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Jock Gilfillan  
Elaine Gock-Young  
Trevor Haworth AM  
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William Heaton  
Herbert Hely  
Phyllis and Ray Knight OAM  
Floyd and Derek Larsen  
Skye Leckie

Bob Lee  
Eva Lee (in memory of Jack Lee)  
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Bernard and Shirley Maybloom  
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Kevin Meyer OAM  
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Robert J White AO  
Sydney Wickham  
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Greg Woolley

### Significant Benefactors \$5,000 and over

Paul F Barin & Family  
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Charlotte and Stephen Hunyor  
John Kalazich  
Thomas and Carolyn Lyons OAM  
Werner Mokesch  
Judith Somers  
Shirley Wicks

### Significant Benefactors \$10,000 and over

Anonymous  
Yvonne and John Almgren AM  
Ian Bersten  
Judith Bishop  
Jessica Hore  
Ken Done AM  
Tony McCormick  
Miss Beryl Raymer  
Justice George Sharpe

### Ambassadors

Anna & Alessandro Pavoni from Ormeeggio at the Spit  
Chris Russell  
Con Dedes from Dedes Group  
Commissioner Greg Mullins AFSM

### Community Organisations

Northern Suburbs Rugby Football Club  
Rotary Club of Brookvale

### Corporate Supporters

Artarmon Framing  
Arxxus Technology Partners  
Biotronik Australia Pty Ltd  
Boden Projects Pty Ltd  
Effective Governance  
Holman Webb  
Independence Studios  
Livingstone Investments (NSW) Pty Ltd  
Medtronic Australasia Pty Ltd  
Mirvac  
Peak Performance Learning Services Pty Ltd  
The Gallery  
Toshiba Australia Pty Ltd  
Trapdoor Productions

### Estates

The Estate of the Late: Mrs Amelia Lockhart Baker  
Mrs Margaret Balchin  
Mr Norman Cambridge  
Mrs Betty Davidson  
Mrs Nattie Ekert  
Mr Peter Harper  
Mr Peter Jenkins MBE  
Mrs Jannett Loxley  
Mr James McCrum  
Mr Maurice Neirous

Mrs Barbara Netherton  
Mr Eric Olsen  
Mr Allan Preece  
Mrs Joan Catherine Starling  
George and Mary Thompson  
Mr Alec Tonkin  
Miss Annie Wilkinson  
The Small Family Estate

### Trusts & Foundations

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Emργο Foundation Pty Ltd  
Ernst & Young Foundation  
Fell Foundation  
J B Were & Son Charitable Fund  
Macquarie Group Foundation  
The Lady Proud Foundation  
The Mill House Foundation  
Vonwiller Foundation  
Wood Family Foundation

2013 Annual Report

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