

*globally*

*locally*

# CHANGING LIVES

YEAR IN REVIEW 2009-10



THE GEORGE INSTITUTE  
for Global Health

*globally*





*locally*



Our research is helping people,  
to lead *healthier* lives...


George Institute research is helping people all over the world to lead healthier lives. Find out on page 16 how we are doing this in China through groundbreaking research on the use of motorcycle helmets.



Our research is improving  
*the delivery* of health care...


George Institute research is improving the way health care is delivered in countries around the world. Find out on page 24 how our research into just one little pill has the potential to revolutionise the way health providers treat vascular diseases, such as heart disease and stroke, on a global scale.





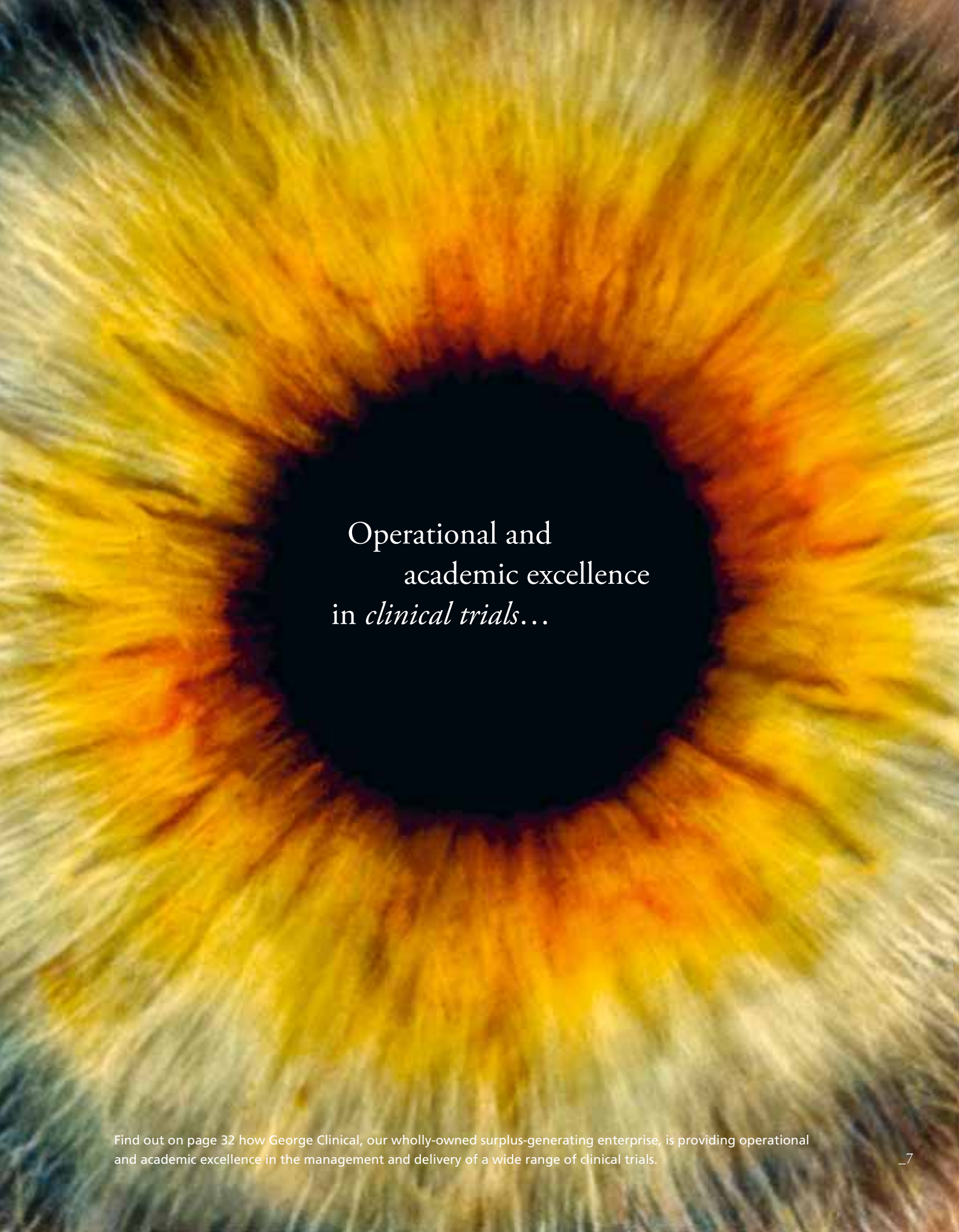
Our research is helping people  
who are ill to *get better...*

George Institute research is helping people who are ill to get better. Read more on page 20 about how our researchers' analyses of 60 years of clinical trial data has provided critical evidence into the effectiveness of cholesterol lowering treatments.



Our research is *empowering*  
disadvantaged people  
to *overcome* barriers  
to good health...

George Institute research is empowering disadvantaged people to overcome barriers to good health. On page 30 you'll find out how our research has identified the problem of high blood pressure in Tibet and how our research into a salt-substitute is providing a solution to this issue.



Operational and  
academic excellence  
in *clinical trials*...

Find out on page 32 how George Clinical, our wholly-owned surplus-generating enterprise, is providing operational and academic excellence in the management and delivery of a wide range of clinical trials.

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Imagine an organisation where some of the world's leading minds are working together to achieve one purpose. One purpose, driven by a desire to improve the health of millions of people worldwide. One purpose, which has transformed us from an Australian-based institute, into one with offices in China, India and the United Kingdom. One purpose, where our research actually benefits people rather than just talking about the problems they face.

If you can imagine that then you're starting to get a good idea about *who we are*.

Our *Year in Review* tells you our story in 2009-10. Through this report you'll see how our research is helping people to lead healthier lives; how our research is helping people who are ill to get better; how we are helping to improve the delivery of health care; and how we are helping the most vulnerable communities to overcome barriers to a healthier life.

The George Institute for Global health has been undertaking health research of the highest scientific calibre for over a decade.

We conduct research that's tackling some of the world's biggest killers. Diseases like heart disease and kidney illness, diabetes, and stroke are all in our sights. We also undertake research aimed at identifying the causes of injury and the best approaches to prevention. We're carrying out groundbreaking research on musculoskeletal conditions as well as neurological and mental health issues. We run global studies to determine how clinicians can best manage and treat people who require intensive care, as well to determine how best to help these people recover and manage the consequences of their conditions. We're also working with some of the most disadvantaged populations around the world to overcome the barriers they face to better health.

If that wasn't enough, we're also producing innovative and groundbreaking research to help governments, organisations and people make evidence-based decisions on how best to improve systems and the delivery of health care around the globe.

Our research is not undertaken in laboratories. It doesn't take years and years to make a difference to people. We're all about conducting research that has the power to improve the health of people on a local level right now. 'Innovation', 'creativity' and 'high impact' are bywords for the work we do in our quest to improve the health of millions of people worldwide.

### *Mission and values*

At The George Institute for Global Health our **mission** is simple.

We seek to **improve the health of millions of people worldwide.**

We do this by...

- Providing the best evidence to guide decisions about health.
- Talking to decision makers to help them achieve real change.
- Targeting our research at global health issues.
- Focusing on the most disadvantaged people throughout the globe.

Our **values** reflect how our research affects people across the globe:

- Our **humanitarian commitment** will spur us to tackle the health issues affecting high-risk and disadvantaged people worldwide.
- Our focus on **excellence** will produce scientific evidence that is ethical and of the highest quality.
- Our **creativity** will challenge traditional thinking and provide an impetus for new and innovative solutions to the world's leading health problems.
- Our **integrity** will underpin all our work and interactions, including our collaborations with partner organisations worldwide.
- Our **'can do'** approach will produce timely, effective action, even in the face of adversity or other barriers to implementation.
- Our emphasis on **impact** will ensure our work has real consequences for those who are most vulnerable to disease and injury.



*We promised*

*We delivered*

**1. HIGH-QUALITY, HIGH-IMPACT RESEARCH**

- > Significant research findings that received worldwide attention, such as the potential benefits of drinking coffee and tea to prevent type 2 diabetes, and highlighting the comparative ineffectiveness of commonly used treatments in intensive care units.
- > Research aimed at closing the gap in health care inequalities among disadvantaged populations in Australia and China.
- > The creation of The Chalmers Centre for Partnerships in Health Care Innovation to develop, implement and evaluate innovative approaches to health care delivery.

**2. FINANCIAL STABILITY**

- > A total of 14 awarded peer-reviewed grants.
- > A total of 13 awarded research fellowships, an increase of 15% on the previous year.
- > Consistent growth of our philanthropic capacity and activities, including a comprehensive fundraising strategy for Australia and China, and our first philanthropic event held in China.
- > Successful leveraging of philanthropic donations to engage and secure significant funds from government.
- > A seven-fold increase in funds from our strategic enterprise George Clinical.
- > Initial plans for the creation of two more strategic enterprises.

**3. ROBUST OPERATIONS IN CHINA & INDIA**

- > Continual progress on our ongoing regionally specific research programs and the formulation of new projects, including a household health survey in India and a salt reduction initiative in China.
- > Establishment of a Memorandum of Understanding (MOU) with the Public Health Foundation of India.
- > Successful launch of the China International Center for Chronic Disease Prevention.
- > Appointment of a Head of Research and Development in India to increase management capacity and foster future research.
- > An increase in staff in India. One-third of our staff now work in our China, India and United Kingdom offices.
- > Research workshops in India to build research capacity and establish new projects.

**4. STRONGER STAKEHOLDER RELATIONSHIPS**

- > A strategic and specific list identifying our top stakeholders for each of our global offices.
- > Positive engagement and support from government ministers and officials in Australia, China and India in relation to improving food policy, road safety, and the health of Indigenous and rural peoples.
- > A high level of global media coverage growing our profile around the world.
- > A number of events to build our global profile, including a successful stakeholder event in China in conjunction with the Australian Chamber of Commerce in Beijing.
- > An international stakeholder event in the UK for medical innovation hosted in partnership with the Centre for Entrepreneurship and Innovation at the University of Oxford.

**5. GOVERNANCE & APPROPRIATE MANAGEMENT**

- > A constitutional review process to ensure the governance of our organisation is consistent across our global entities.
- > Successful roll-out of our global re-branding strategy to bring all our offices in line with our new global structure.
- > Completion of a global staff survey and focus groups to identify our areas of strength, and to provide focus for optimum employee satisfaction and retainment.

## How we've performed

### RESEARCH OUTPUT: ACADEMIC PUBLICATIONS AND PRESENTATIONS

To ensure maximum exposure of research findings, the Institute maintained its number of publications and presentations in 2009-10. During the year research findings were published in *The New England Journal of Medicine*, the *British Medical Journal*, the *Public Library of Science (PLOS)* and *The Lancet* among others. This publication record is extended and supported by our stakeholder engagement program, working with government and media.

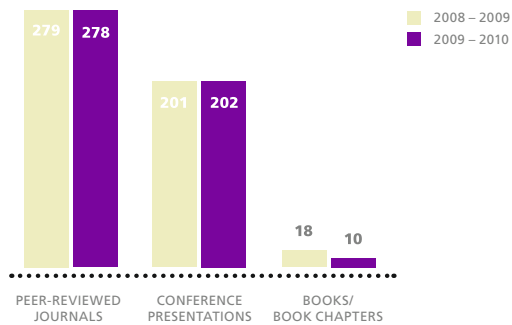
### INSTITUTE FUNDING SOURCES

The George Institute is an independent not-for-profit organisation. A best practice funding model underpins the Institute's operations which makes the best use of donor funds, as well as producing self-generated income. Our strategic enterprise, George Clinical, generates a surplus from mission-related commercial activities which is re-invested into the main work of the Institute. See more on George Clinical (page 32) and our funding sources (page 51) later in the report.

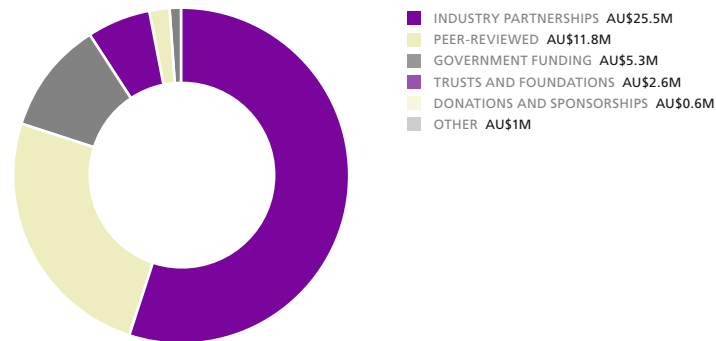
### STAFF AT THE GEORGE INSTITUTE

A total of 341 (249.1 full time equivalent) staff were employed at the Institute as at 30 June 2010. Collectively, China, India and the UK represent one-third of the workforce.

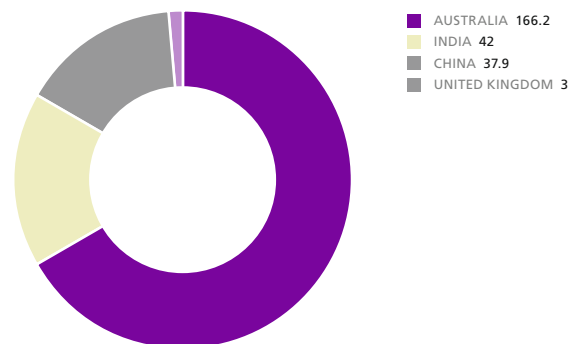
### Academic publications and presentations



### Income 2009-10



### FTE staff numbers at The George Institute across the world as at 30 June 2010





**Growth can be challenging in the development of any organisation. However, growth can also provide opportunities to strengthen an organisation and facilitate the achievement of organisational goals. Over the past year we have continued our growth towards becoming a global organisation – an organisation that is ‘Changing lives: Globally, locally’. Our activities, conducted from our offices in Australia, China, India and the United Kingdom, and involving partnerships and collaborations across many more countries, have contributed new evidence aimed at improving the health of millions of people worldwide. We are proud to share with you some of our achievements in our 2009-10 Year in Review.**

#### **HEALTHIER LIVES**

Over the past year The George Institute has completed a number of studies and produced research findings that will enable people across the globe to lead healthier lives. In China and Vietnam our research has provided critical evidence to guide improvements relating to the use of motorcycle helmets by people in these fast developing countries. In China, road crashes are estimated to be the largest cause of death for those aged 45 years and below. Our work has resulted in suggested improvements in enforcement practices, while emphasising the continuing need for effective public education programs.

In India, opportunities to contribute new knowledge aimed at reducing the growing burden of child and adolescent obesity and the subsequent prevention of chronic disease are now on our agenda, more than ever before. During the year, we signed a Memorandum of Understanding with the Public Health Foundation of India and conducted a series of workshops in collaboration with the Indian Council of Medical Research, with a view to developing programs of research aimed at tackling these important issues.

#### **OVERCOMING ILLNESS**

Our research in 2009-10 has provided new evidence into the triggers for back pain; one in four Australian adults are currently living with this condition. Complementing these findings on the causes of back pain, we also examined general practitioner (GP) diagnoses of people seeking care for their back pain. As a result of this work, we were able to offer improved guidance for GPs while identifying the need to up-skill pharmacists in the fight against back pain. As part of the ongoing program of work into the management of back pain, we are now undertaking research examining the effects of paracetamol – the most effective treatment for early onset back pain – to determine whether taking paracetamol at set times of the day, as opposed to taking it on a pain responsive basis, provides better health outcomes.

During the year we also released findings from a project that assessed all the known studies that have examined the benefits of cholesterol medication for people at high risk of heart disease. The findings from this research – outlined in greater detail in this Review – have the potential to transform the lives of people at risk of cardiovascular illness, ensuring that people get the most effective and targeted treatment for one of the world's biggest killers.

#### **IMPROVING HEALTH CARE**

Our research is also addressing the big questions being asked by both providers and funders of health care; namely how best to ensure that care is safe and effective, even with limited resources. A significant amount of our research in 2009-10 has, therefore, focused on identifying innovative approaches, informed by a solid evidence base, that are likely to increase the quality of health care while getting the most value for money.

By way of example, our response to the AusHeart study findings that identified evidence-treatment gaps in the care provided by GPs for people with cardiovascular diseases, was the development of an ‘Electronic Decision Support Tool’ called

'HealthTracker' which aids doctors in identifying health risks to their patients. This tool will be rigorously assessed in the coming year, to determine whether it does indeed lead to improvements in health care for high-risk patients.

We've also been collaborating with colleagues across the globe in a series of studies examining the potential benefits of combining multiple medications into a once-a-day pill. Our 'polypill' research aims to improve the adherence to treatment by individuals who are at a high risk of cardiovascular disease. If these pills prove to be successful in increasing adherence, they have the potential to reduce cardiovascular disease worldwide, while slashing the costs associated with these illnesses.

In the UK, we co-hosted Medical Innovation 2010 – a conference involving international and UK contributors – with the University of Oxford's Saïd Business School. This conference provided a useful introduction to The George Centre for Health care Innovation at the University of Oxford which we plan to establish and launch in early 2011. The Centre is charged with developing innovative yet pragmatic evidence-based strategies and technologies to address the global health care challenges of the 21st century.

#### **OVERCOMING HEALTH INEQUALITIES**

In 2009-10, the Institute also continued to focus on research that empowers disadvantaged populations to overcome barriers to healthier lives. Our staff have been working with the Aboriginal communities in Fitzroy Crossing in Australia's rugged North West, understanding the effects of Fetal Alcohol Spectrum Disorder (FASD) in this community. Stage one of the two-stage 'Marulu: The Lililwan Project' has involved identifying and visiting the region's children born in 2002/2003 (7-8 years old), to assess the prevalence of this condition. The findings from this initial phase have been vital in informing stage two of the project, which hopefully will lead to recommendations about

the types of services and support the community will need in the future.

At the 'top of the world', staff from our China office have been working with communities in Tibet to determine the prevalence of high blood pressure in the local population and how best to reduce its prevalence. Specifically, our research has shown that the use of a salt substitute to reduce salt intake in the diet has the potential to have a very major positive effect in reducing high blood pressure in this population.

#### **EXCELLENCE IN CLINICAL TRIALS**

As in previous years, the activities of The George Institute have benefited enormously from both the operational support provided to our large-scale clinical trials and the financial support provided by George Clinical. Throughout the year we have strengthened our management and scientific teams at George Clinical in Sydney, China and India, to ensure that for the foreseeable future George Clinical will continue to provide a healthy financial surplus that can be invested into the work of the Institute.

#### **MAINTAINING A SOLID ORGANISATION**

Strengthening the Institute's operational and support services, as well as its management and governance arrangements, have been major focuses during the past year. We have been particularly mindful of the need to remould each of these areas, as the Institute transitions from being an Australian-based Institute with overseas offices, to that of a global organisation, as outlined in the Institute's 2009-2011 strategic plan.

We have also been mindful of the continuing need to rigorously manage our financial resources and as with many other research institutes continue to be thrilled, but challenged, by the successes of our research staff, in an environment where infrastructure funds to support our activities are static or declining. We were, however, pleased to be the recipients of major infrastructural support

from the New South Wales government in this financial year, in addition to the infrastructural support funds provided by the Australian Federal Government.

#### **A WORD OF THANKS**

Finally, our last word must be one of thanks to the members of the Board and its committees and especially to the staff and students of the Institute. This year, more than ever, the Board and its committees have contributed enormously to supporting the activities of the Institute. We are also very appreciative of the commitment of our staff to achieving the Institute's mission. They deserve our thanks for their determination, hard work and belief that the work that we do collectively is making a difference to the lives of millions of people worldwide.



**DR JOHN YU AC**  
*Chair*



**PROFESSOR STEPHEN MACMAHON**  
*Principal Director*



**PROFESSOR ROBYN NORTON**  
*Principal Director*

### *On your bike, safely*

**On top of Associate Professor Rebecca Ivers' office bookcase sits a colourful collection of motorcycle helmets that she has picked up on visits to South East Asia. On inspection, it's obvious that most would not meet international safety standards. They are little more than plastic buckets lacking the shock-absorbing foam lining that protects the rider from serious head injury.**

Professor Ivers, who leads The George Institute's Injury Division, says she has unsuccessfully spent hours combing shops in Southern China looking for motorcycle helmets that meet accepted standards. The problem is two-fold. "There's a huge black market and the cheap substandard helmets, which retail for AU\$2-4 often come complete with a forged safety standard sticker," she says. Good quality helmets cost closer to AU\$8. In addition, notes colleague Dr James Yu, many Chinese do not understand that the sun-protection and construction helmets sometimes worn are not suitable for motorcycle use.

Despite Chinese law stating that motorcyclists must wear helmets, previous studies have estimated only 30-60% do so. Helmet use has been mandatory for motorcycle riders since 1988, although mopeds, electric scooters and motor scooters with an engine size under 50cc are exempt. There are penalties for failing to comply but, until 2004, the fine was less than AU\$1. Now, motorcycle riders without helmets can be fined anywhere from AU\$3 to AU\$30.

There's no question that helmets save lives and decrease head injuries in a crash – the figures, produced by the Institute's Injury Division, are approximately 70% and 40% respectively. In 2008, the World Health Organization estimated that road collisions are the main cause of death in China for those aged 45 years and below. Dr Yu says that failure to protect oneself in China is partly about a lack of education about safety. In more developed regions drivers and passengers are more likely to wear helmets as police are more likely to enforce the mandatory helmet law.

Zhongsan is a city in Southern China with a population of around two and a half million people. By boat it's just over an hour from Hong Kong. Zhongsan has been growing rapidly over the last decade, attracting hi-tech business and increasingly becoming part of the tourism trail. One in seven citizens own a motorcycle, but there's been a moratorium on the registration of new bikes since 1999.

Given the shortage of helmet use data from Southern Chinese cities, Dr Yu and colleagues at The George Institute, China decided to assess the prevalence and correct use of motorcycle helmets in Zhongsan.

"We observed motorcyclists at 20 different sites across the city, which included rural and urban roads," says Dr Yu. The data, gathered in 2009, was obtained for 13,410 drivers and 4,498 passengers. Approximately three of every four drivers (72.6%) wore a helmet, but less than two in four wore a properly secured motorcycle helmet (43.2%). The data for pillion passengers was even more worrying. Approximately one in three wore a helmet (34.1%) and, of the total 4,498 passengers, only 940 (20.9%) wore a properly secured motorcycle helmet.

When the helmet usage data were analysed separately for the rural and urban streets, it was apparent that compliance was greater in the urban setting for both drivers and passengers. Even so, there's still a significant problem around the use of non-standard helmets.

Dr Yu says that to really make a difference in terms of reducing those killed or injured in road traffic accidents, visible enforcement programs which take into

account whether or not a helmet meets safety standards and is correctly fastened, need to be implemented.

“At the moment, if you are wearing a helmet it’s ok; it doesn’t matter that it’s not good quality or that it’s not being worn properly,” says Dr Yu.

The George Institute researchers suggest that changes to the City bureaucratic structures could help to improve the situation. “Motorcycle helmet quality is the responsibility of the Bureau of Quality and Technical Supervision and the Administration for Industry and Commerce, rather than the traffic police. We believe joint action strategies on enforcement of helmet quality may help to improve the prevalence of helmet use and the quality of helmets worn in the region,” explains Dr Yu.

“There’s also a need for extensive public education programs around how to choose and wear a helmet; these need to target all riders and passengers,” he says.

Vietnam is also struggling to boost helmet use among its motorcycle-riding population. However, unlike in China, where more than a hundred major cities have prohibited motorcycles due to traffic chaos, Vietnam’s city streets are overrun with motorcyclists. There’s rarely a break in the traffic, so to cross the road takes courage and some nifty navigational skills. On the dirt roads, widespread in rural Vietnam, there are fewer motorists, but often there’s multiple passengers carried on the bikes. Indeed, families of four seem to have no trouble precariously perching on a small two-wheeler!

Vietnam does have helmet use legislation, but until 2007 it only applied on certain assigned routes and national roads. The George Institute’s Dr Dang Hung, whose PhD thesis includes the first assessment of helmet use in Vietnam, reported that overall use was as low as 29.9% and that helmets are

often purchased to avoid penalties rather than to protect the riders’ heads. Importantly, in the province where he carried out his 2005 observational study, compliance was almost 60% on the roads where helmet use was mandatory.

However, there are other barriers to helmet use. Ms Linh, a Sydney-based beautician, who was born and raised in Ho Chi Minh City, says that because it gets so hot and humid the helmets become very smelly, which is why she never wore one. Indeed, other prevalence studies in low and middle-income Asian countries have revealed there are seasonal changes in helmet use. But, as Professor Ivers’ helmet collection reveals, there are models with vents in the top that better suit the Asian climate and would help to circumvent this problem.


According to Dr Hung, a good quality helmet may cost up to 28% of a Vietnamese person’s monthly income, and many are reluctant to leave them on a parked bike. The alternative is to lug around the cumbersome headgear while shopping. When there’s more than one passenger per bike, this problem is multiplied. Moreover, earlier this year, the government introduced new legislation that makes it mandatory for children over the age of six to wear a motorcycle helmet when riding as pillion passengers, meaning families will need to purchase even more helmets for their household.

“Given that a motorcyclist is approximately 20 times more likely than a car occupant to die in a motor vehicle crash, and serious injuries may be sustained by motorcyclists even when travelling at low speeds, it’s essential that all motorcycle riders and passengers regardless of age are properly protected,” says Professor Ivers.

In a recent George Institute research study commissioned by Unicef, it was found that over twenty Vietnamese children and adolescents die every

day from unintentional injuries: more than the number of children who die from infectious diseases. The second most common cause of these injury-related deaths is road traffic accidents; the first is drowning.

Both the children and adults who survive a road traffic crash may have to spend the rest of their lives coping with an injury-related disability, perhaps needing constant care. Given the existing demands on the current health system and Vietnam’s increasing motorisation, it’s perhaps not surprising that the government announced a National Policy on Accidents and Injury Prevention in 2001, setting a target of reducing road traffic deaths from 14 to 9 per 10,000 vehicles by the year 2010. Whether that target has been met is as of yet unknown, but The George Institute’s research has helped to define measures to make that life-saving goal a reality.



The number of motorcycles produced in China this year exceeds the population of Australia.

## *Taking aim at back pain*

**Bending down to brush your teeth or twisting awkwardly may be the last thing you remember doing before you started experiencing back pain, but Professor Chris Maher, who leads the Institute's Musculoskeletal Division, says it's unlikely this movement caused the problem.**

**Approximately one in four Australian adults live with back pain, and in about 60% of cases the pain comes on suddenly.**

"People often recall the last thing they were doing just before the back pain started, but these are often trivial activities that they carry out every day. When it comes to pinpointing a cause, they may be red herrings," says Professor Maher. He explains that unless you consider what people were doing over a longer period, you can't reliably identify what triggers an acute, recent onset back pain. "There are currently no studies that have examined all the events in a period prior to the beginning of back pain, but this is the information you need before drawing any conclusions about what triggers an episode," he says.

Professor Maher's George Institute researchers are currently planning such a study where they will interview participants who have just experienced sudden onset back pain. The new study will link in with other projects in his research team, including one that has examined how GPs respond to people who seek treatment for back pain.

The George Institute scientists analysed data from an ongoing Australia-wide doctors' survey that, for over a decade, has been documenting what GPs report they do for their patients. "We found that approximately one in four people with back pain who visit a GP are sent for further diagnostic tests that include an X-ray, CT scan or MRI," says Professor Maher.

Yet Professor Maher knows 90% of back pain is non-specific and less than one in a hundred people who see their GP for their back pain will be found to have a serious disease, like cancer, or a fracture or infection. "We'd expect the referral rate for imaging to be substantially lower," he remarks. "Imaging also has downsides. It is costly, and for X-ray's and CT scans there's the exposure to radiation to consider," he says.

Of perhaps more concern is the types of medicines given out by doctors. "We also found that many people aren't being prescribed the appropriate medicines at the appropriate doses. Often GPs are recommending a course of non-steroidal anti-inflammatory drugs or opioid drugs which have a greater potential for harm, than something simple and cheap like paracetamol," explains Professor Maher.

There are clear government guidelines from the Australian National Health and Medical Research Council for the treatment of recent onset back pain that came into effect in 1995. However, the research team also found that, if anything, there has been greater divergence in prescribed courses of treatment by doctors since the guidelines were introduced. Professor Maher and colleagues are interested in why this is so and have a couple of possible answers. "One is that people expect to be referred for further testing and can fixate on having a diagnosis. Another is that GPs don't necessarily have the time to explain the options and the risks of the various medicines. Perhaps most importantly, we don't believe GPs have ready access to the correct information."

Indeed when the researchers looked at the material from the National Prescribing Service they found some of it was 20 years out of date. "It included recommending bed rest, which is a big no-no," exclaims Professor Maher.

To redress the current situation, George Institute researchers are taking several approaches. They include holding workshops for the National Divisions of General Practice, writing up-to-date material for the National Prescribing Service, and working with colleagues to develop decision support tools that integrate into the GP's practice software.

Professor Maher says it's essential to need to chip away at all the different ways health professionals get information. With the trend in health care for pharmacists to become more than just a prescriber, he also believes that initiating a new health care pathway involving pharmacists may be a way to help solve the problem. "There are things pharmacists can't do – such as ordering medical imaging – but we can capitalise on the depth of their knowledge about individual medicines, including potential side effects and dosing."

Together with Professor Andrew McLachlan, Chair of Pharmacy at Concord Hospital in Sydney, The George Institute is setting up a program to up-skill pharmacists. The pilot study will teach pharmacists how to verbally screen for serious disease to determine which of their clients should see a GP and, for the remainder, how to best deliver simple, safe and effective treatments for back pain.

This includes administering paracetamol as a first-line treatment for people to get better from back pain. "Our previous research has shown that paracetamol, if used correctly, is extremely effective for new episodes of back pain. The problem is that most people try and 'tough out' the pain until it gets unbearable. Then they take a couple of paracetamols, find they are still in pain, and then head for the doctor to get something stronger," says Professor Maher. This phenomenon is called 'under-dosing'. According to Professor Maher between 60% and

A close-up photograph of a person's hand hovering just above a white Titleist golf ball. The ball is on a red tee marker on a green grassy field. The background is a blurred green landscape under a bright sky. A dotted line of white circles starts from the top left and points towards the hand.

*arrghhhh!*

80% of people who self-medicate use the wrong dose. "We believe one of the most important steps is to get people to take simple medicines properly; this will give the medicines a fair chance to work."

Professor Maher says they are also testing the best way to get back pain under control. The George Institute is currently part-way through running a trial, which will compare the effectiveness of 'time-contingent' (taken at set times of the day) paracetamol with 'as-required' paracetamol.

Incidents of back pain increase as you get older. While the direct costs of this health problem in Australia are estimated at AU\$1 billion, the indirect costs from lost labour are eight times that figure. Hence treatment programs that aid return to work and help reduce the rates of recurrence are likely to have significant cost savings.

"Treatments for back pain that require one-on-one therapy are unlikely to be cost-effective solutions, given the extent of the problem in the population. We are, therefore, examining resources available at the community level, and are proposing to evaluate wellness programs such as Tai Chi, which have been shown to work for a range of conditions, including falls prevention in the elderly," says Professor Maher.



**CHANGING LIVES: GLOBALLY, LOCALLY**

*Our research is helping people who are ill to get better*

Cholesterol is often painted as a villain that must be defeated if we are to avoid a heart attack or stroke. Yet, like every character in a complicated saga, cholesterol can not be completely vanquished because it has an essential role in the body. It is the key ingredient used to make vitamin D and steroid hormones, such as oestrogen, and it is a vital component of a cell's membrane.

## *The sixty-year fibrate story*

**Cholesterol is a white waxy fat synthesised mainly in the liver. It is circulated throughout the body via the blood. Our genes partly dictate the levels of cholesterol in our body by regulating the rates of cholesterol synthesis and breakdown. As most of us know, diet can also have a significant effect on a person's cholesterol level.**

Cholesterol levels are assessed according to the proteins in the bloodstream that transport them: high-density lipoprotein (HDL) and low-density lipoprotein (LDL). HDL is the Dr Jekyll to LDL's Mr Hyde. The high and low-density naming refers to the size of the particles and the proportion of protein they contain: the LDLs are larger and heavier. They can travel into cells and stick to the inside of blood vessels, which can reduce the speed of blood flow. HDLs tend to be more compact, picking up cholesterol and returning it to the liver for recycling or to specific tissues for hormone synthesis.

Some of us manage to lead healthier lives by reducing the amount of LDL-associated cholesterol in our blood, and thus the chance of developing cardiovascular disease, through dietary modification. However, reduction of most LDLs requires specific medication of which there are several different types, sometimes used in combination. Levels of triglycerides, the main dietary fats, must also be kept in check. Triglycerides come from vegetable oils and animal products, and serve as an energy source. A high LDL cholesterol level is often associated with a high triglyceride level and triglycerides are also components of LDLs.

The first cholesterol lowering drug, clofibrate, was discovered in an Imperial Chemistry Industries (ICI) laboratory in London in the 1950s, through a methodical process that involved synthesising hundreds of compounds

in an effort to find one that would alter cholesterol levels in rats. It then progressed through clinical trials in the 1960s. Clofibrate was, however, phased out in the mid-1980s due to its side effects. By then a number of clofibrate analogues that were safer and better tolerated had been developed. Some of these are still used today.

Associate Professor Vlado Perkovic, a co-director of The George Institute's Renal and Metabolic Division, says it wasn't until the 1990s that researchers began to piece together how fibrates exert their physiological effect. "We know now that fibrates trigger a cell-signalling pathway that leads to more triglycerides being broken down and secreted, and less total cholesterol in circulation," he says. Notably, they raise the levels of good cholesterol while lowering the bad, as well as lowering overall triglyceride levels.

Statins, which were discovered in the 1970s, also lower cholesterol levels, but they do so by slowing an enzyme in the liver involved in cholesterol synthesis. They don't have much effect on HDL levels, but substantially lower LDLs. There is clear evidence that statins considerably reduce the risks of coronary heart disease, stroke, and cardiovascular disease (CVD)-related mortality.

Until now, the evidence that fibrates also lead to better cardiovascular results, has been thin on the ground. George Institute researchers, therefore, decided to draw on their methodological expertise to assess all the published fibrate clinical trials to see if they could draw any conclusions as to their overall clinical benefit.

The team had access to sixty years of data to sift through. "Of the 1,195 unique studies, most were excluded because the study design wasn't robust enough," says Professor Perkovic. In the end there were eighteen published fibrate trials that contained enough detail for Professor Perkovic and

colleagues to include in their meta-analysis. In total, they collectively had information on 45,058 patients.

"We found that fibrate therapy does decrease the risk of cardiovascular events, but the effect is more moderate than that ascribed to statins," he says. Indeed the size of the effect has meant that previous studies, all of which were smaller, came to differing conclusions over the relative benefits of fibrate use as none were large enough. This includes a recent study (the ACCORD trial), where patients received both fibrates and statins. "The ACCORD trial was unable to show that fibrates had a clear and additional benefit to statins, but that study didn't have the statistical power to show a separate effect," he says.

Because of the constant uncertainty as to whether fibrates protect against adverse effects, they are not widely prescribed and, according to Professor Perkovic, some doctors don't use them at all. However, the team hope that the trend will change, based on the further findings of their meta-analysis.

"Despite fibrates having an overall moderate benefit, there are two groups of people for whom their use is likely to be particularly beneficial when taken in addition to statins. This includes those who've already had a heart attack and are thus at an increased risk of having another cardiac event, and those who have high levels of triglycerides," says Professor Perkovic.

The conclusions of the fibrate meta-analysis will no doubt influence current treatment practice, ensuring fibrates are prescribed only to those who will derive benefit. However, what could not be determined from the study is whether one fibrate is better than another, but Professor Perkovic believes those that have the largest effects on triglyceride levels are likely to be the most effective.

### *Charting a course through cardiovascular risk*

**Sir Ernest Shackleton died of a massive heart attack during his fourth voyage to Antarctica in 1922. He was just 47 years old. Reports from 1919 reveal he was drinking heavily, smoking and eating too much. In addition to gaining weight, Shackleton was apparently run down with constant colds and fevers, and suffered from bouts of severe pains across his shoulder blades. And, despite never allowing a doctor to listen to his heart, there are suggestions that the heart attack which killed him was likely not his first.**

By the time Shackleton died, he obviously had established heart disease. We also now know that his lifestyle would have placed him at a higher risk of having a major cardiovascular event. However, although the blood and cholesterol pressure lowering medicines available today weren't around in Shackleton's time, it's possible that he'd still have been under-treated and that the outcome would have been the same.

Earlier this year, Dr Emma Heeley and colleagues published findings from a George Institute study called AusHeart that revealed a significant proportion of people at risk of cardiovascular disease, which includes both heart and blood vessel disease and stroke, were not being prescribed the best possible combination of drugs.


There are a number of medicines used to reduce the risk of a major cardiovascular disease. They include blood pressure lowering medicines of which there are many – the best known being perhaps beta blockers and cholesterol lowering, for example statin compounds.

Specifically, the researchers found that half of the people with established cardiovascular diseases were not receiving the recommended combination of a blood pressure lowering medicine, a statin and anti-platelet (blood-thinning) therapy. They also found that two-thirds of people at the highest risk of developing a first cardiovascular disease or illness, were not being prescribed a blood pressure lowering medication together with a statin.

"There's a significant under-treatment of certain subgroups of people, and a gap between the evidence base and what is actually happening in terms of the medicines being prescribed," says Dr Heeley. All of the 300 or so GPs who participated in the study were given feedback on how their prescribing practices measured up against the AusHeart study. "We plan to follow up with these GPs soon to see if this feedback has made a difference to their clinical practice," says Dr Heeley.

Cardiovascular disease is the leading cause of death in Australia and accounts for approximately half a million hospital admissions per year. Over 1.4 million Australians live with a cardiovascular-related disability. Dr Heeley explains that early identification of those at risk, together with appropriate intervention, could reduce the number of people affected by cardiovascular disease. "There's been a tendency to concentrate on a single risk factor, such as high cholesterol or high blood pressure, but there's a substantial number of people with smaller changes to several risk factors which, in combination, substantially increase their risk of cardiovascular diseases. These are people who are currently flying under the radar," says Dr Heeley.

Cardiovascular risk is based on age, gender, smoking, as well as blood pressure and lipid (fat) levels. But existing health problems, such as diabetes or kidney disease, mean a doctor has had to refer to different sets of guidelines to assess an individual's absolute cardiovascular risk. "The sheer number of guidelines was



overwhelming,” says Dr Heeley, adding that this was just for cardiovascular diseases, just one of many health problems doctors have to cover.

Last year, the National Vascular Disease Prevention Alliance (NVDPA) released a single set of guidelines that will make it easier for GPs to assess absolute cardiovascular risk in adults aged 45-74 years (35 years and above for Aboriginal or Torres Strait Islander adults), including those who are overweight or obese, who have diabetes or chronic kidney disease, or are without known cardiovascular diseases.

“The National Stroke Foundation, the National Heart Foundation of Australia, Diabetes Australia and Kidney Health Australia, who make up the NVDPA, previously all had their own guidelines; now they have a clear consistent message,” says Dr Heeley. “It’s a great step forward.”

These new guidelines also underpin The George Institute’s Electronic Decision Support (EDS) Tool, which has been named HealthTracker. For those who are computer-literate, it’s a bit like a widget that sits on your desktop. The beauty of the system is that it’s designed to work with all the main patient record keeping software programs. For example, it can automatically draw in the relevant data stored on the GP’s computer.

HealthTracker uses a complex mathematical equation to calculate a person’s absolute risk of having a heart attack or stroke in the next five years. However, HealthTracker is more than just a fancy risk calculator. The doctor can change one or more of a patient’s cardiovascular disease risk factors and demonstrate graphically how these modifications will reduce that person’s five-year risk of a major cardiac event like stroke or heart attack. HealthTracker is also unique in that it provides the GP with tailored treatment advice. This includes suggesting lifestyle changes, such as quitting smoking, and therapies,

such as a blood pressure and cholesterol lowering medicines.

“George Institute researchers had to collate all the treatment guidelines, because there’s currently no standardised course of treatment,” says Dr Heeley. She adds: “However, the EDS won’t take all the guesswork away, because GPs will still need to recognise those people who need to be assessed.”

“What is particularly rewarding is seeing how our various research projects are coming together to make a real difference to people’s lives through the delivery of better health care. In theory HealthTracker will address the two main problems highlighted by our AusHeart study: the need to consider a patient’s absolute cardiovascular disease risk and the need to properly prescribe evidence-based treatment options,” says Dr Heeley. Notably, these treatment options usually include several medications in combination, which is where The George Institute’s polypill study fits in.

HealthTracker has been tested by a group of doctors at several locations in Sydney. It’s now being tweaked and a larger trial across the state of New South Wales, Australia will begin in 2011. This will include measuring whether using HealthTracker changes the prescribing behaviour of GPs, which is the ultimate goal.

Every day, almost  
130 Australians die  
of cardiovascular  
diseases.



**CHANGING LIVES: GLOBALLY, LOCALLY**

*Our research is improving the delivery of health care*

The George Institute's Kanyini GAP study fits into a larger body of work called the Kanyini Vascular Collaboration (KVC), formally established in 2006. It is a health services project with an overarching goal of reducing the treatment gap between Indigenous and non-Indigenous Australians for major diseases such as diabetes, stroke, kidney and cardiovascular disease. The KVC brings together a cross-section of researchers, policy-makers, clinicians, and communities from different backgrounds.

## *Polypill – The potential of just one pill*

**Several trials are being conducted around the world that aim to assess whether combining multiple medications into a once-a-day pill may help those at high risk of cardiovascular diseases, such as heart attack and stroke, adhere to their treatment plan.**

In Australia, the polypill protocol is being used in a George Institute study called the Kanyini GAP study which involves 1,000 Indigenous and non-Indigenous Australians. In New Zealand, the study is named IMPACT and in the United Kingdom (which has trial sites in England, Ireland, the Netherlands and India) it's UMPIRE. The secretariat for the collaboration (known as SPACE: Single Pill to Avert Cardiovascular Events) is housed at The George Institute in Sydney.

There are countless acronyms in this research arena, all of which are meaningful, but the four component polypills being trialled are simply known as Dr Reddy's red heart pills after an Indian company working with The George Institute to support the project. There are two versions of the pill. Both contain low-dose aspirin, a statin (simvastatin) and an ACE-inhibitor, which lowers blood pressure (lisinopril). Version one also contains a beta-blocker (atenolol), a standard type of medicine given to people who have already had a heart attack. Version two contains a diuretic (hydrochlorothiazide), which is an additional type of blood pressure lowering medicine often administered to those who have had a stroke.

The polypills being used in the SPACE trials are based on what was available in generic (off-patent) form at the time of their formulation, because they need to be cheap. The once-a-day requirement meant only long-lasting drugs could be included. "It was a technically challenging step and it took several years to produce these polypills," says

Associate Professor Anushka Patel, who has a lead role in the trials.

Professor Patel explains that the current goal is not to prove the treatments work, nor is it to determine what to include in a polypill. Rather, they are proof of concept studies. "We are testing the effectiveness of combining medicines for ease of use and for delivery to those most in need – these are people who are often economically disadvantaged. We believe the polypill will increase compliance due to the lower cost to the patient and the convenience of not having to take multiple pills," she hypothesises.

Because health services vary between countries, there are some minor differences in the trial protocols, but the overall focus is on participants with the highest risk of cardiovascular events. In Australia, this includes Aboriginal and Torres Strait Islander Australians who suffer excessively from premature morbidity and mortality from chronic diseases. Indigenous communities are also particularly vulnerable to the effects of medication non-adherence and under-usage.

Since its inception, the Kanyini GAP study has recruited more than 200 patients who have been randomised to receive either a polypill or usual care strategy (usually multiple medications). Professor Patel says that they hope to finish recruitment in Australia by April 2011. By then, the aim is to have approximately 1,000 participants, half of whom will be Indigenous.

"We will monitor each person until the average follow-up period is eighteen months. So, some of our volunteers will be followed for six months, others for 2.5 years. At each visit we ask the patients what medicines they are taking. We expect those receiving usual care to say they are taking some combination of three medicines: aspirin, blood pressure lowering and cholesterol lowering drugs. But because self-reporting is not

always reliable, we will also measure the patient's blood pressure and cholesterol levels," she explains.

"At the end of the study we will compare the proportion of usual care trial participants who say they are taking all three standard medications with those taking the polypill. If the availability of the polypill lives up to its potential, we expect that the polypill group will be more adherent and that their cholesterol and blood pressure measurements will therefore be lower," says Professor Patel. A similar finding is also expected for the UMPIRE and IMPACT studies, which are currently ongoing.

Heart disease kills more people than cancer and about 10% of the population fall into the high cardiovascular disease risk category. According to Professor Patel, approximately 40% of all major cardiovascular events occur in this group. "This means the other 60% occur in the rest of the population who are at lower risk," she says.

It is this 60% who are the subject of another polypill trial run by Professor Patel's colleague Professor Anthony Rodgers. Professor Rodgers and his international collaborators have just finished a 12-week pilot study in 400 people likely to be prone to cardiovascular diseases to assess how they would respond to a polypill. They are assessing side effects and the pill's effectiveness by measuring blood pressure and cholesterol levels. Results are due to be published shortly.

Given the huge global health burden from cardiovascular diseases, there's much to be gained by a targeted approach to reduction. This is particularly true in developing countries' health care delivery systems. Moreover, if a polypill proves to be a cost-effective health strategy, future versions could be specifically formulated for subgroups of a population who have differing cardiovascular disease risks.

### *Innovation across the nations*

**A map of the ancient scholar-city of Oxford sits on Professor Robyn Norton's desk; a reminder of the journey that the Principal Director of The George Institute has taken in establishing The George Institute's UK flagship centre dedicated towards furthering innovation in health care.**

There's plenty of time to reflect during the 17,037 kilometre journey from Sydney. The plane flies above many of the countries that The George Centre for Health care Innovation, affiliated with the Oxford Martin School and the Nuffield Department of Medicine at the University of Oxford, has in its focus, and with which the Centre will conduct cutting-edge research in partnership with in-country collaborators.

"Given the scale of the emerging 21st century epidemics of chronic and complex diseases, particularly in countries with insufficient infrastructure or resources available to tackle them effectively, even a small change in access to quality health care, could result in large numbers of people avoiding premature death. Identifying and evaluating innovative ways of providing improved access to care, through the development of more effective pathways of care or through the development of more affordable drugs and devices, will be the focus of research activities within The George Centre for Health care Innovation," outlines Professor Norton.

The cost-effectiveness of programs for the management of the world's largest killers like stroke, kidney disease, diabetes and other 'non-communicable' conditions are well established. Perhaps surprisingly, access to such programs remains limited in both high and low-income countries, largely because of a lack of reliable evidence about how best to deliver these programs effectively and affordably. A recent

World Health Organization report on health inequalities revealed that male life expectancy in some areas of Glasgow, UK was as low as 54 years, the same as the Republic of the Congo. Identifying innovative ways in which health care delivery systems can best improve the health of the poorest citizens in high-income countries is, therefore, an equally important focus for the Centre as identifying improvements in health care delivery in low-income countries.

"The George Centre for Health care Innovation will focus on the conditions that are causing the greatest burden in disadvantaged populations in the UK, as well as in low to middle-income countries," explains Professor Norton. "The Centre's major emphasis is to develop innovative yet pragmatic evidence-based strategies and technologies that can be implemented widely, quickly and at a reasonable cost. Engagement with those organisations delivering health care, such as government health services, multilateral organisations and commissioners of health care is an overarching commitment," she adds.

So what will these programs look like? "Several are in the pipeline for 2011," says Professor Norton. "In India, one of the projects we plan to establish involves working across a number of Indian hospitals to determine whether the management of acute coronary syndromes, such as angina (severe chest pains), is consistent with local and international clinical guidelines. If evidence-practice gaps are identified, then we will implement improvements in the management of care based on these guidelines that should lead to significant improvements in the way people with these conditions are managed. We've had success with this approach already in China, so the modification and extension of this approach in India has the potential to be equally successful," says Professor Norton.

"We are also planning to develop an exciting project aimed at improving the management of hip fracture in China," she continues. "There are currently eight million 80-year-olds in China. This figure will increase to 100 million by 2050. The implications of this huge increase in the numbers of older Chinese will undoubtedly place significant pressure on health services in China, so it is clearly important that innovative ways of managing their health care needs are identified," she says.

China is a huge country with significant challenges in access to health care in both rural and urban settings. The rapid ageing in China has led to an aged population with only 8% of the average income compared to that in the UK or Australia. In addition, research undertaken by The George Institute on the cost of stroke has demonstrated that these catastrophic causes of disability are very costly for patients and families in China, so much so that stroke has huge financial consequences for 70% of affected families.

"The health impacts of hip fracture costs are likely to be very similar to the disabling costs of stroke and we are determined to work with our colleagues in China to minimise these financial impacts," says Professor Norton resolutely.

The George Centre for Healthcare Innovation aims to work with health care providers, funders, consumer groups and researchers, in the spirit of collaboration, to beat the would-be plagues of the 21st century. These illnesses cross national borders just as easily as the plague rats of the 14th century did. Like then, innovation is required if we are to overcome the barriers that stand in the way of a healthier future. This is the type of innovation that The George Centre for Health care Innovation at the University of Oxford promises to deliver.





### *Taking care of all the little ones*

**The temperature was over 40°C when two Aboriginal women left their remote Australian community and boarded a plane bound for New York. It was March 2009, and Emily Carter and June Oscar were on their way to a United Nations Forum on the Status of Women. They arrived in Manhattan to be greeted by snow-covered skyscrapers. The contrast in surroundings could not have been starker.**

The George Institute's Associate Professor Jane Latimer accompanied them. "We didn't fully realise how stressful this trip must have been coming from outback Australia to a concrete jungle," she says. Professor Latimer and her twin sister, Elizabeth Broderick, who is Australia's Sex Discrimination Commissioner, were part of the reason the women had made the journey.

The story begins several years prior, when Elizabeth Broderick told her sister about a community in the Fitzroy Valley in North Western Australia where a group of Indigenous women lobbied the liquor licensing board to restrict alcohol sales in their town in an effort to curb alcohol-related violence and fatalities, and to reduce the number of children being born with Fetal Alcohol Spectrum Disorders (FASD), a range of irreversible conditions caused by the toxic effect of alcohol on the brain of an unborn child.

Fitzroy Crossing is the main town in the rugged Fitzroy Valley region, which includes forty-nine outlying communities spread across several hundred square kilometres. Three and a half thousand people who come from one of four Aboriginal language groups reside in the area, more than half of whom are in Fitzroy Crossing.

The only takeaway alcohol you can now buy in Fitzroy Crossing is light beer. Domestic violence and hospital admissions for alcohol-related incidents have almost halved, down by 43% and 55% respectively, and the police report fewer fights and street drinking.

Professor Latimer says she and her sister discussed what they could do to raise awareness of the benefits of alcohol restrictions, as well as demonstrating the courage of the local women who drove this initiative despite facing considerable opposition and verbal abuse.

The result was a short film that was subsequently introduced by June Oscar at the UN meeting. Representatives from 192 nations took home 'agreed conclusions' containing language informed by Aboriginal women June Oscar and Emily Carter, which are now being used to formulate women's policy right around the world.

Pictured above: Marmingee Hand, Carer and FASD Leadership Team Member, Fitzroy Crossing, with her foster son, Tristan.

While there were some immediate and obvious changes that resulted from the alcohol restrictions, it won't be possible to measure the effect on future generations for several years. "To be able to assess whether the incidence of FASD is declining, we need a starting point or baseline," says Professor Latimer.

Indeed the prevalence of FASD in an Australian population has never been properly measured and FASD can be hard to diagnose because other factors such as poor nutrition and severe infections can cause developmental problems similar to those caused by alcohol. At one end of the spectrum is Fetal Alcohol Syndrome (FAS). "These are the children who have distinctive facial features such as a thin upper lip and small eye openings, but for every child with FAS, there are probably nine others who have emotional, learning and behavioural problems that are characteristic of FASD."

FASD is not unique to Indigenous populations; it is seen in non-Indigenous children as well. "It is a delicate issue and we suspect that the Australia-wide proportion of children with FASD is significantly under-estimated. Those affected often end up unemployed or in jail – we'd love to be able to change that," she says.

Provisionally, June Oscar and Emily Carter, with whom Professor Latimer had now formed a strong bond based on mutual respect and trust, invited her to bring a research team, including Professor Elizabeth Elliott, Dr James Fitzpatrick and Dr Manuela Ferreira from The Children's Hospital at Westmead and the University of Sydney, back to the community to assess the prevalence of FASD among children born prior to the alcohol restrictions. For the first time, researchers would have access to prevalence data on a whole population that might be generalised to other similar communities.

The study is named Marulu: The Liliwan Project. Marulu means 'precious, worth nurturing' in the Bunuba language, while Liliwan means 'all the little ones' in Kriol, another of the languages spoken in the region. The study has been divided into two stages and is part of an overall community strategy to address FASD.

The first stage, completed this year, involved identifying the entire region's children born in 2002/2003 (7-8 years old). It meant visiting all the parents and carers of those children, taking a very detailed history about what happened during pregnancy, and recording any problems that the children had at birth and as they were growing up.

Remarkably, of the 134 children identified, the research team has been able to access 134, of whom 95% agreed to participate in the project. "This speaks to the fact that the community is driving this research. That's what's critically different about this work," she notes.

They chose this age group because 7-8 year olds are easier to test than younger children, and they are at the point in their schooling where an intervention program is likely to have the greatest success. The community hopes that the children affected by FASD will go on to develop vocational skills and find ways to work within the community. Stage 2 will involve comprehensive health and developmental checks of all children.

"We see diagnosis of FASD as just a small part of the study. It's largely about getting support and care for these children, so that as adults they are given the opportunity to be the best they can be. When we leave this community we want to have changed lives," explains Professor Latimer passionately. "That's the central mission of The George Institute," she concludes.

Once the community has the stage two diagnostic data, hopefully by the end of 2011, they will use it to lobby government for services and funds to deal with the terrible legacy of FASD.

The George Institute and the University of Sydney team are returning to Fitzroy Crossing for one week to test that they have all the systems in place to proceed with the second stage of the study: full diagnostic testing. A small number of children will undergo vision, hearing, speech, motor skills and psychological testing, and a full paediatric assessment. Allied health personnel who already live and work in the community will be 'up-skilled', so that they can carry out these assessments. In 2011, the team will then assess all of the children in the study.

"What we'll end up with is the number of children affected with FASD – so for some children we will have a definitive diagnosis. For others we will have a strong indication that their problems are caused by alcohol exposure but will be less certain. This will help us to develop an individual management plan that, with the consent of parents and carers, will be communicated to the schools and health services," says Professor Latimer.

It is hoped that if this study were to be repeated in five years time, the numbers of children with FASD would be greatly diminished. However, June Oscar and Emily Carter know that alcohol restrictions are not a complete solution, and that the Fitzroy Valley communities have only just begun a long and hard journey to change the lives of their people. Yet, the message is already spreading. "We know other communities around the Fitzroy Valley are asking to have alcohol restrictions extended to their area and, as far away as Bourke, our researchers are being asked about this study – that's a great feeling," Professor Latimer says with a deserved look of pride.

**CHANGING LIVES: GLOBALLY, LOCALLY**  
*Our research is empowering disadvantaged people  
to overcome barriers to good health*

Tibet is a place that is literally at 'the roof of the world'. Most of its inhabitants live more than 4,000 metres above sea level. In contrast, Australia, which is the lowest continent in the world, is on average just 330 metres above sea level. Tibet's altitude and cool conditions impact directly on the diet of its people and therefore on their health.

## *A life less salty*

**The Tibetan diet is based on grains and stews as the region's geography makes it difficult to grow fruit and vegetables. Yak, goat and mutton meat is often preserved through salting techniques. World famous yak tea is the drink of choice – made by adding yak butter and salt. While the British are generally thought to be large consumers of tea, the Tibetans arguably are much greater consumers – consuming up to seven litres of yak tea a day.**

"The high dietary salt intake combined with the high altitude living conditions has given rise to a population with high blood pressure or hypertension," says Professor WU Yangfeng of The George Institute, China. Tibet is number one in the high blood pressure ratings in China. Approximately 40% of adults over the age of 40 have high blood pressure, according to a 2002 National Health and Nutrition Survey. The average prevalence across China is just under 20%, according to the same survey. "High blood pressure greatly increases the risk of a major cardiovascular event, such as a heart attack or stroke. It's also one of the most modifiable risk factors," says Professor WU.

Professor WU is overseeing the China Salt Substitute Study in Tibet, which aims to both confirm the prevalence of high blood pressure in Tibetan people and implement a program to reduce blood pressure in the population.

As the 2002 National Survey assessed urban Tibetan residents – those living in Lhasa – George Institute researchers decided to survey Tibetans living in pastoral areas, postulating they would be at greater risk of cardiovascular disease. They were right.

The team recruited residents of three villages in the Yangbajing township, 90 kilometres northwest of Lhasa at an altitude of 4,300 metres. Of the over 700 survey participants, 68.1% of men and 50.5% of women had high blood

pressure, but only one in five were aware of their problem, and only one in twenty were on medication. "The problem was much larger than we anticipated, and one that needs to be urgently addressed," says Professor WU. Thankfully, previous research by George Institute researchers has shown that a simple solution is likely to be the most effective: reducing salt intake through a salt substitute.

There are several different ways to substitute salt, but a salt substitution study in Northern China, conducted by The George Institute in 2008, showed that a compound of 68% pure salt (NaCl), 22% potassium chloride (KCl) and 10% magnesium sulfate heptahydrate (MgSO<sub>4</sub>.7H<sub>2</sub>O) was palatable and acceptable to the Chinese. "Medicating a large proportion of a population to decrease blood pressure would be a difficult and costly exercise, but our year-long study in rural Northern China conclusively showed that salt substitution leads to sustained and substantial blood pressure reduction," comments Professor WU.

The George Institute, China has now finished the first phase of the Tibet study. "We have baseline figures with respect to the prevalence of high blood pressure; we have calibrated our blood pressure meters, which is essential when you are working at high altitudes; and we have just completed a six-month trial of the salt substitute in combination with low-dose diuretics in almost 300 Tibetans," he says.

Diuretics are well-known for their blood pressure lowering effect. They act by increasing the amount of sodium excreted from the kidneys into the urine. At the same time, more water is removed from the blood. The net effect is a lower blood volume, which reduces pressure on the blood vessel walls. "Salt substitute on its own is effective but you reach a plateau after about three months – if you include diuretics, you will get a bigger reduction in blood pressure," adds Professor WU.

Blood pressure is measured in terms of

millimetres of mercury (Hg). High blood pressure is when the systolic reading (the peak pressure when blood is being expelled from the heart) is over 140 millimetres Hg. Normal systolic pressure is usually 90-120 mm Hg. "Salt substitutes can achieve a drop of around 8 mm Hg, but with diuretics you can achieve close to 20 mm Hg in this population." explains Professor WU. At AU\$0.50 (RMB2) a month, this is a very cheap and effective treatment combination that could save millions in health care costs.

The George Institute study has caught the attention of the Tibetan government who have recently commissioned the researchers to formulate a proposal to extend the project.

"We are also now thinking about how we can spread the salt substitution message," adds Professor WU. "At the moment there are two key obstacles: firstly we need to ensure the salt substitute is widely available throughout the province, not just in Lhasa, and secondly we have to make sure that it doesn't cost more than regular salt. One solution might be for the government to subsidise the cost difference between regular salt and salt substitutes. Once these first two problems are overcome, the third thing for us to do is to develop and spread health promotional messages, via a community-based health communication model for example," he says.

However, Professor WU is aware that Tibet is very different to other parts of China. "We don't know yet if the public engagement strategies we have used elsewhere can be extended, or if we need to come up with some innovative method that is better suited to the culture," he explains.

What The George Institute team does know is that unless large-scale blood pressure reduction measures are undertaken, the economic and social impact of having a sizeable population living under threat of, or with the consequences of, cardiovascular disease will be devastating to Tibetan society.

### *George Clinical: Operational & academic excellence in clinical trials*

**George Clinical is a wholly-owned surplus-generating enterprise of The George Institute for Global Health. Uniquely, for most not-for-profit research organisations, The George Institute is able to subsidise its infrastructure costs and fund shortfalls for research programs from revenue generated by George Clinical. This funding model is an incredible source of strength for The George Institute and helps to create stability in the often financially unstable world of health research.**

For more than ten years, George Clinical, and its predecessor organisations, the contract research arm of The George Institute has been conducting and managing clinical trials. They include academic-initiated and large international pharmaceutical company-sponsored trials.

Over this period, George Clinical has shown that it has the skills and expertise to efficiently handle all of the logistical and operational components of a clinical trial. George Clinical has investigator contacts in 40 countries and over 300 sites under their management.

Associate Professor Vlado Perkovic, Executive Director of George Clinical, says that by being an extension of an academic organisation, they tend to communicate with site investigators on a peer-to-peer level. "We have a different approach to trial management. We tend to engage more deeply and collaboratively with site partners, which seems to result in better performance." Indeed, George Clinical consistently breaks expectations through rapid patient recruitment and start-up times.

George Clinical is currently engaged in eleven trials that are at different stages of activity. George Clinical has been involved in the recently published SHIFT trial. "The aim of the SHIFT trial was to determine whether a heart medication called ivabradine could reduce the number of hospitalisations and deaths due to heart failure when given in addition to optimal current care. People at risk of heart failure often have a raised heart rate and ivabradine acts by slowing the resting heart rate. Unlike other treatments, such as beta blockers, it lowers the number of heart beats per minute without reducing the strength with which the heart pumps (measured as blood pressure). This is a major benefit for people with heart failure as their hearts are already weakened," explains Professor Perkovic.

Of the total of about 6,500 SHIFT trial participants, George Clinical recruited and managed the Asia-Pacific region participants, of which there were over 1,000. The results revealed that ivabradine can reduce the risk of death or hospitalisation by 26%, and those people with a higher resting heart rate will receive a greater benefit. This means that 26 people would need treatment for one year to prevent one cardiovascular death or one hospital admission for heart failure.

"Ivabradine is the first new drug of this kind designed to come onto the market for decades. However, it's currently only used to treat angina and is not licensed for use in heart failure. This study suggests that ivabradine could prevent thousands of deaths around the world each year in people who experience heart failure," says Professor Perkovic.

"Participating in and leading clinical trials on behalf of external investigators is a natural extension of The George Institute's raison d'être. We will continue to extend our networks so that we can further contribute to clinical research that will improve global health and change people's lives," he adds.

### *The George Clinical story*

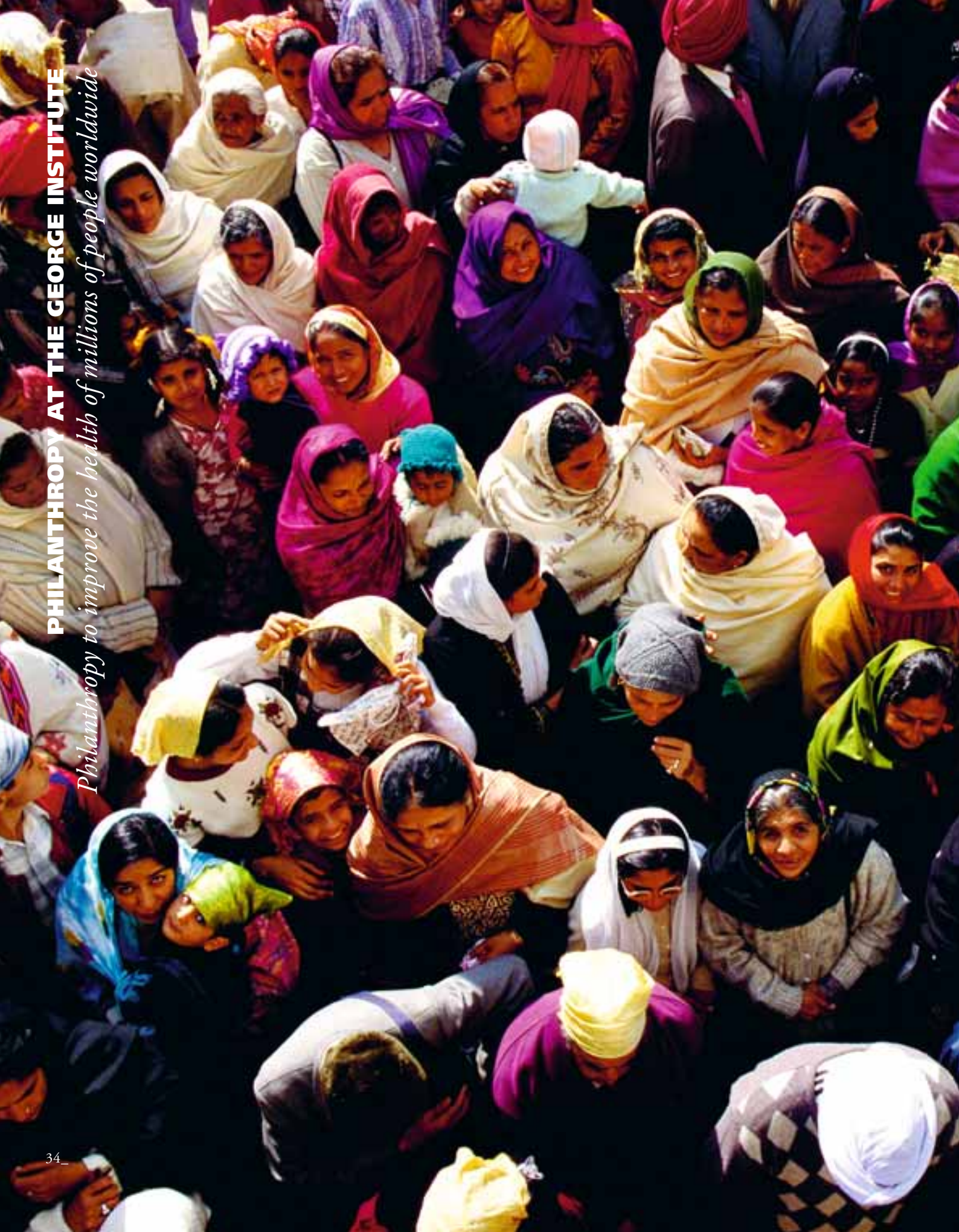
Every medicine on the market must first have been proven to be safe and effective in human clinical trials. Clinical trials are conducted in several stages or phases, with the latter phases involving potentially hundreds to thousands of people. There is variability in the ways individuals respond to a medicine: it depends on people's genetic makeup, their existing health problems and environmental factors. Thus, larger end-stage trials help researchers to identify potential side effects that may only be present in a small percentage of the population. Clinical trials are also conducted for the purpose of evaluating approaches and strategies to treatment and specific medicines, and to identify better and more cost-effective treatment and approaches.

The conduct of clinical trials requires substantial management. There are legal requirements, ethics requirements, and trial registration requirements. Every trial site, which is typically an individual clinic or hospital, must be approved, trained and prepared. That's before the recruitment of people even begins. Then there's monitoring those people involved in the trial, data collection and, finally, data analysis.



**PHILANTHROPY AT THE GEORGE INSTITUTE**

*Philanthropy to improve the health of millions of people worldwide*



**Our achievements in 2010 told on the preceding pages illustrate the story of The George Institute. In the broad spectrum of scientific research, with basic science and test tubes at one end, and health service delivery and policy research at the other, we operate at the latter end. In other words, we're about people, not test tubes. What this means is that our research almost always delivers an impact within three to five years, instead of fifteen to twenty. This is important for people who want to live and lead healthier lives right now.**

For philanthropists, this is also important. In a relatively short period of time, they can see the impact their support is having. There is a global trend in philanthropy known as 'giving while living'.

### *Role of philanthropy*

Philanthropy plays an important role in medical research, often providing support for the crucial, innovative projects not supported by government. That innovation informs and transforms public policies to create real change. Over the last year, The George Institute has begun to develop its philanthropic program, building on the results of our stakeholder research from the previous year. We've hosted a number of events and luncheons aimed at introducing our research to wider audiences. We've also developed a philanthropy strategy specifically to support our work in China.

### *Leveraging philanthropy*

To attract significant, multi-source funding, such as government grants, researchers need to provide evidence that their project is viable and able to produce outcomes. Yet, how does one produce outcomes without funding to start the

project? To address this predicament, philanthropic seed funding often allows a pilot project to get off the ground and start producing the outcomes that can be presented to government and other funders. In effect, the philanthropic support has been leveraged to secure much larger amounts of funding.

A very clear example of where we've achieved this is through our consultation work with the community of Fitzroy Crossing, Western Australia (see page 28). Here, initial support by Bellberry Limited and an anonymous donor provided the funding impetus to begin the project. Initial results were then presented to the Australian Federal Government, who awarded the project over AU\$1 million. Additionally, the global creative agency, M&C Saatchi, has provided support to help us raise the remaining money for the project. This is a stunning example of how giving to The George Institute makes a difference to the lives of ordinary people.

### *Industry partnerships*

Industry and corporate partners can play a vital role in helping us secure funding for research. The Australian National Health and Medical Research Council (NHMRC), through its 'Partnership Project Grant' scheme, supports partnerships between researchers, industry and government. Essentially, collaborating partners contribute about half the funding and the NHMRC will match it.

The George Institute, in partnership with the Australian Food and Grocery Council, New South Wales Food Authority and the New South Wales Department of Health, was awarded such a partnership grant to reduce people's consumption of salt. Through advocacy, we have been raising awareness that eating foods containing too much salt increases blood pressure – one of the biggest contributors to

heart disease and stroke throughout the world. This is particularly true for disadvantaged populations, whose consumption of fast and processed foods containing high levels of salt causes an increasing number of preventable deaths. We've had success already this year in persuading the Australian Government to set targets for salt levels in fast foods. We'll continue this in 2011.

### *Unique funding models*

The George Institute is a not-for-profit organisation that includes a surplus-generating enterprise called George Clinical (see page 32). Profit generated by George Clinical is invested back into the main work of The George Institute to support current research projects and to pilot innovative new projects.

Proceeds from our enterprise division cover the Institute's fundraising costs. As such, all donations received by The George Institute go directly into our research and training.

### *Looking ahead*

In 2011, we will continue to build on our successes to date. We'll forge closer relationships with the philanthropic sector, and host a variety of events to introduce new audiences to our work.

We will explore creative funding models, implement our philanthropy approach in China, and develop specific strategies to support our work in Aboriginal health, ageing and disability, and urban health in India. By doing so, The George Institute – and our partners – will continue our contribution to the rich narratives that have become the story of The George Institute.

**To support our mission of transforming the lives of millions of people worldwide, contact Chris Ostendorf on +61 2 8238 2402 or e-mail**

*Our academic leaders*

**The George Institute provides a base for some of the leading minds in the field of health research. Staff have always had a strong sense of commitment to the Institute's mission and its values. Not only do we provide a base to many of the academic leaders of today, but we also pride ourselves that many academic leaders of the future are working at The George Institute's offices in Australia, China, India and the United Kingdom.**



**PRINCIPAL DIRECTOR**  
*Professor Stephen MacMahon*

Stephen MacMahon is Principal Director of The George Institute for Global Health and Professor of Cardiovascular Medicine at the University of Sydney. He is an international authority on the causes, prevention and treatment of common cardiovascular diseases. His special interest is the management of chronic and complex conditions in resource-poor settings, particularly in the Asia-Pacific region. In addition to his University and Institute appointments, Stephen holds several external appointments, including those as Chairman of the Scientific Board of the UK BioBank and Chairman of the Academic Alliance for Clinical Trials. He has published several hundred scientific papers and delivered many invited lectures. For his work in the field of cardiovascular disease, he has received numerous awards, fellowships and honours. He accepted the NHMRC Achievement Award for the Most Outstanding Program Grant on behalf of The George Institute in 2008.



**PRINCIPAL DIRECTOR**  
*Professor Robyn Norton*

Robyn Norton is Principal Director of The George Institute for Global Health, Professor of Public Health and Associate Dean (Global Health) in the University of Sydney Medical School. She is an international authority on the causes and prevention of injuries, particularly road traffic injuries. Robyn was the inaugural Chair and is now Chair Emeritus of the Road Traffic Injuries Research Network, a global network, supported by the World Health Organization and the World Bank, aimed at increasing research and research capacity to address the current and growing burden of road traffic injuries in low and middle-income countries. She holds an Honorary Professorship at Peking University Health Science Center, and is an Honorary Consultant Epidemiologist at the Royal Prince Alfred Hospital.



**EXECUTIVE DIRECTOR, THE GEORGE INSTITUTE, INDIA**  
*Associate Professor Anushka Patel*

Anushka Patel is Senior Director at The George Institute for Global Health, Associate Professor with the Faculty of Medicine at the University of Sydney, and a Staff Specialist in the Department of Cardiology at Royal Prince Alfred Hospital. Anushka completed her undergraduate medical training at The University of Queensland in December 1989, and her training in cardiology (leading to Fellowship of the Royal Australian College of Physicians) in 1998. She has a Master of Science degree in Epidemiology from Harvard University, and a PhD in Medicine from the University of Sydney. Anushka also holds a five-year National Heart Foundation of Australia Career Development Fellowship. She is currently Chair of the Chronic and Critical Conditions theme at The George Institute.



**EXECUTIVE DIRECTOR,  
GEORGE CLINICAL**

*Associate Professor  
Vlado Perkovic*

Vlado Perkovic is Executive Director of George Clinical, the clinical trials arm of The George Institute, and also plays a key role in the Institute's Renal and Metabolic Division. He is a Staff Specialist in Nephrology at the Royal North Shore Hospital, and Associate Professor at the University of Sydney. His major research interest is understanding both the cardiovascular risk associated with chronic kidney disease and the impact of interventions that might mitigate this risk mainly through the conduct of clinical trials and meta-analyses. He is Deputy Chair of the Scientific Committee of the Australasian Kidney Trials Network.



**EXECUTIVE DIRECTOR, THE  
GEORGE INSTITUTE, CHINA**

*Professor WU Yangfeng*

WU Yangfeng is the Executive Associate Director of the Clinical Research Institute at Peking University Health Science Center and Professor of Epidemiology in the Department of Epidemiology and Biostatistics at the Peking University School of Public Health. Yangfeng has made valuable contributions reducing the impact of cardiovascular disease in the region as a result of his previous work at the Cardiovascular Institute, Fu Wai Hospital, and the World Health Organization Collaboration Center in Cardiovascular Disease Prevention, Control and Research in China, and his current work at Peking University.



**SENIOR DIRECTOR,  
NEUROLOGICAL AND  
MENTAL HEALTH**

*Professor Craig Anderson*

Craig Anderson is Professor of Stroke Medicine and Clinical Neuroscience in the Sydney Medical School at the University of Sydney and the Institute of Neurosciences of the Royal Prince Alfred Hospital. Having led several major international stroke studies, Craig is widely acknowledged as a leader in his field. He was recently awarded the Royal Prince Alfred Research Medal for Excellence in Research. Craig is a member of several specialist societies, is an Editor for the Cochrane Stroke Group, and is currently President of the Stroke Society of Australasia. He has published widely on the clinical and epidemiological aspects of stroke, cardiovascular disease and aged care, and is on the steering committee for several large-scale research projects.



**SENIOR DIRECTOR, RENAL  
AND METABOLIC**

*Professor Alan Cass*

Alan Cass trained as a nephrologist at the Royal Prince Alfred Hospital, in public health and health policy. He undertakes multi-centre clinical trials, collaborative research in Aboriginal health, studies of the economic burden of chronic disease, and is developing a program of implementation research focusing on translating research evidence into practice. Alan is Chair of the Scientific Committee of the Australasian Kidney Trials Network, and regularly consults for government to develop strategies for chronic kidney disease prevention and management, and plans for renal service provision.



**SENIOR DIRECTOR**

*Professor John Chalmers*

John Chalmers is Head of the Professorial Unit at The George Institute, and Emeritus Professor of Medicine at the University of Sydney and Flinders University. He is a world leader in research on the causes and treatment of high blood pressure. He has also served in many senior academic roles in Australia and internationally. John's work has been recognised through admission to the Australian Academy of Science, and awarding of the Wellcome Medal, the Volhard Medal of the International Society of Hypertension, and the Zanchetti Award of the European Society of Hypertension. He was appointed a Companion of the Order of Australia (AC) in 1991 and most recently, was made an Officer of the French National Order of Merit in 2010, in recognition of his contributions to enhancing Franco-Australian relations.



**SENIOR DIRECTOR**

*Professor Bruce Neal*

Bruce Neal is Professor of Medicine at the University of Sydney, Scientific Director of George Clinical, and Chair of the Australian Division of World Action on Salt and Health (AWASH). Bruce completed his medical training at Bristol University, UK and prior to joining the Institute in 1999, he worked as an epidemiologist at the Clinical Trials Research Unit in Auckland, New Zealand. Bruce is a Fellow of the Royal College of Physicians, UK and the American Heart Association. He is also a member of the Executive Council of the High Blood Pressure Research Council of Australia and the International Society of Cardiovascular Disease Epidemiology and Prevention.



**SENIOR DIRECTOR**

*Professor Mark Stevenson*

Mark Stevenson is Professor in the Sydney Medical School at the University of Sydney, a National Health and Medical Research Council Fellow and an Honorary Professor at the Peking University Health Science Center. A world leader in his field, Mark has extensive research experience in road trauma and public health. He regularly advises on issues such as driver distraction, childhood injury and road safety in low and middle-income countries, including advising World Health Organization, UNICEF and the Swedish International Development Agency. Mark is a member of the Australasian Trauma Society and a Lifetime Fellow of the Australasian College of Road Safety.



**DIRECTOR, STATISTICS AND DATA MANAGEMENT**

*Laurent Billot*

Laurent Billot manages a team of biostatisticians, statistical programmers and data managers responsible for the provision of statistical expertise to support the research undertaken at The George Institute. This includes clinical trials, meta-analyses, observational studies, as well as teaching and the development of new statistical methods. Laurent is a statistician with over ten years experience in the design, analysis, and reporting of health and medical studies, from public health surveys and epidemiological studies to multinational Phase III/IV clinical trials.



**DIRECTOR,  
CARDIOVASCULAR**  
*Associate Professor  
Graham Hillis*

Graham Hillis is Associate Professor within the Faculty of Medicine at the University of Sydney, and a Consultant Cardiologist with clinical appointments at Concord Hospital, Royal Prince Alfred Hospital (honorary), Strathfield Private Hospital, and Central Sydney Cardiology. His current post is partly funded by a Life Sciences Research Award from the New South Wales Office for Science and Medical Research. His clinical and research interests include echocardiography, acute coronary syndromes, cardiac biomarkers, and the prediction and management of peri-operative cardiovascular complications in patients undergoing cardiac and major non-cardiac surgery.



**DIRECTOR, INJURY**  
*Associate Professor  
Rebecca Ivers*

Rebecca Ivers is Associate Professor at the University of Sydney, and directs a research program which is centred on injury prevention, with a strong focus on the prevention of road traffic injury. She has published widely in the field of road traffic injury, and has been awarded a NSW Young Tall Poppy Award in Science and an Achievement Award from the National Health and Medical Research Council of Australia for her road safety research. She is an investigator on studies in a diverse range of areas, including novice drivers, Indigenous road injury, heavy vehicle crashes, and motorcycle safety in Australia, as well as projects aimed at preventing injury in China, India and Vietnam.



**DIRECTOR,  
MUSCULOSKELETAL**  
*Professor Chris Maher*

Chris Maher is Professor in the Sydney Medical School at the University of Sydney. He also holds a National Health and Medical Research Council Senior Research Fellowship. Chris leads a program of research focusing on the management of musculoskeletal conditions in primary care and community settings. This research is characterised by innovation, an interdisciplinary approach and an emphasis on simple treatments delivered well. Particularly committed to knowledge translation and health literacy, Chris has worked with local and international colleagues to develop information technologies that deliver the best research evidence to clinicians and health consumers.



**DIRECTOR, CRITICAL CARE  
AND TRAUMA**  
*Professor John Myburgh*

John Myburgh is Professor of Medicine at The University of New South Wales, Honorary Adjunct Professor in the Department of Epidemiology and Preventive Medicine at Monash University, and Honorary Professor at the University of Sydney. He is lead clinician for research and Senior Staff Specialist in the Department of Intensive Care Medicine at the St George Hospital, Sydney. John is a foundation member and current Chairman of the Clinical Trials Group of the Australian and New Zealand Intensive Care Society. He is also President of the College of Intensive Care Medicine.



**DIRECTOR,  
CARDIOVASCULAR**  
*Dr Fiona Turnbull*

Fiona Turnbull is Senior Lecturer within the Sydney Medical School at the University of Sydney. She completed her undergraduate medical training at the University of Otago in 1992 and her training in public health medicine (leading to Fellowship of the Australasian Faculty of Public Health Medicine) in 2002. Fiona has an MPH (Hons) and a PhD in Medicine from the University of Sydney and she currently holds a National Heart Foundation of Australia Post-Doctoral Fellowship.



**HEAD OF RESEARCH  
AND DEVELOPMENT, THE  
GEORGE INSTITUTE, INDIA**  
*Dr Pallab K. Maulik*

Pallab Maulik joined The George Institute, India as the Head of Research and Development in early 2010. Pallab brings a wealth of experience to the Institute, in particular expertise in mental health. Pallab has worked with the World Health Organization, Geneva on Project Atlas and other mental health programs, and clinically as a psychiatrist in India and Australia. His particular research interests include social determinants of health, especially mental health services, mental disorders, international mental health, and intellectual disability. After training as a psychiatrist at the All India Institute of Medical Sciences, New Delhi, he received training in public health at the London School of Hygiene and Tropical Medicine, and Johns Hopkins School of Public Health in Baltimore, where he completed his Masters and Doctoral level training.



**HEAD OF RESEARCH  
AND DEVELOPMENT, THE  
GEORGE INSTITUTE, CHINA**  
*Professor YAN Lijing*

YAN Lijing is a cardiovascular epidemiologist with a background in epidemiology, demography and health economics. She is also Adjunct Associate Professor at the Department of Preventive Medicine, Feinberg School of Medicine, Northwestern University, Chicago, and the Health Economics and Management Institute, Guanghua School of Management, Peking University, Beijing. Lijing has worked extensively in the areas of chronic disease prevention and control, economic evaluations in health care, and integrated health management. She is also the principal investigator or co-investigator on several research projects funded by the National Institutes of Health, USA, the National Natural Sciences Foundation of China, and the Ford Foundation.



**PROFESSORIAL FELLOW**  
*Professor Simon Finfer*

Simon Finfer is Professor in the Sydney Medical School at the University of Sydney and trained in internal medicine, anaesthesia and intensive care in London, Sydney, Toronto and Oxford. He settled in Sydney in 1993 and is a Senior Staff Specialist within the Intensive Care Unit at the Royal North Shore Hospital. He is a past Chair of the Australian and New Zealand Intensive Care Society Clinical Trials Group, and his major academic interest is the design and conduct of large-scale randomised controlled trials in critical care. Simon has played a pivotal role in some of the largest trials conducted in intensive care and was the lead investigator for The George Institute's SAFE and NICE-SUGAR studies.



**PROFESSORIAL FELLOW**  
*Professor Richard Lindley*

Richard Lindley is Professorial Fellow in injury, frailty and disability, appointed in February 2010. After graduating in medicine in the United Kingdom, he trained in geriatric and general medicine in the UK and Australia, and was consultant and Senior Lecturer at the University of Edinburgh (1996-2003). In 2003 he was appointed Moran Foundation for Older Australians Professor of Geriatric Medicine at the University of Sydney, a post he continues to hold. Richard has collaborated with colleagues at the Institute for many years, and moved his research base to the Institute early in 2010. His main research themes have been the reliable assessment of new treatments for older people, especially in stroke and vascular disease. More recently he has focused on frailty and disability. He retains a clinical hospital appointment in the Sydney West Area Health Service (Westmead Hospital and now Blacktown Hospital). His research work at the Institute will build on the global theme of Frailty and Disability.



**PROFESSORIAL FELLOW**  
*Professor Anthony Rodgers*

Anthony Rodgers is Professor of Global Health at the University of Sydney. After graduating in medicine in the United Kingdom, he trained in epidemiology and public health in New Zealand. He was the principal author of the 2002 World Health Report, the main annual publication for the World Health Organization. Since 2003, he has led a public-private partnership developing an affordable four-in-one cardiovascular combination pill ('polypill'), with a clinical trial program in economically developed and developing countries. His current work aims to foster similar developments designed to be 'fit for purpose' in low-income settings.

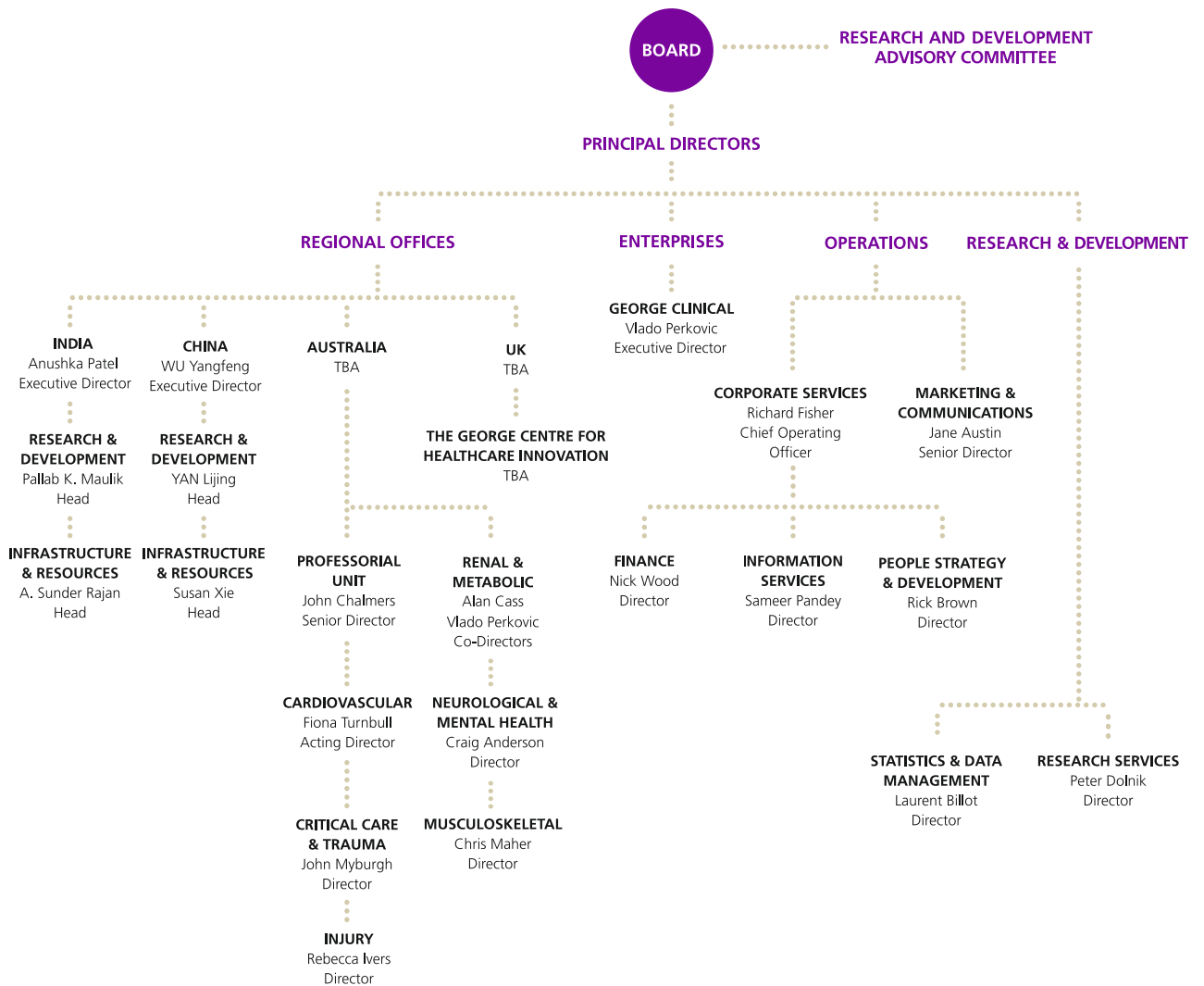


**PROFESSORIAL FELLOW**  
*Professor Mark Woodward*

Mark Woodward is Professor of Biostatistics, at the University of Sydney and Adjunct Professor of Epidemiology at Johns Hopkins University in Baltimore. He also holds long-term honorary academic appointments at Mahidol University, Bangkok, and Glasgow and Dundee universities. Mark is Chair of the Asia Pacific Cohort Studies Collaboration and the senior statistician for several international collaborative studies. He has extensive experience of work in developing countries, including work for several aid agencies, such as developing a training package for the Millennium Development Goals on behalf of the United Nations.

We have 341 total staff (249.1 full time equivalent staff) based in offices in Australia, China, India and the United Kingdom.

*Organisation chart of The George Institute for Global Health as of 30 June 2010*



### *Awards and achievements in 2009-10*

- Anushka Patel** . . . . . Awarded National Health and Medical Research Council (NHMRC) Senior Research Fellowship
- Bette Liu** . . . . . Awarded NHMRC Training Fellowship
- Bruce Neal** . . . . . Appointed Member of Scientific Advisory Board PepsiCo  
Bruce Neal . . . . . Appointed Member of China Health Policy, China Studies Centre, the University of Sydney
- Cathie Sherrington** . . . . . Awarded NHMRC Senior Research Fellowship  
Cathie Sherrington . . . . . Awarded NHMRC Career Development Award
- Colman Taylor** . . . . . Awarded Dora Lush Public Health Scholarship
- Craig Anderson** . . . . . Awarded NHMRC Senior Principal Research Fellowship
- Elizabeth Clarke** . . . . . Awarded NHMRC Training Fellowship
- Jane Latimer** . . . . . Awarded Australian Research Council Future Fellowship
- John Chalmers** . . . . . Appointed Officer of the French National Order of Merit
- John Myburgh** . . . . . Elected President of the College of Intensive Care Medicine  
John Myburgh . . . . . Awarded St George Clinical School Research Excellence Award
- Julie Redfern** . . . . . Awarded NHMRC Training Fellowship
- Liz de Rome** . . . . . Appointed Member of the US Transportation Research Board (TRB) Sub-Committee on Motorcycles and Mopeds (ANF30)  
Liz de Rome . . . . . Launched her booklet, The Good Gear Guide for Motorcycle and Scooter Riders, at Parliament House, Canberra
- Lizzy Dunford** . . . . . Awarded Medical Foundation Scholarship, the University of Sydney
- Luciana Machado** . . . . . Won 2008 Peter Bancroft Prize for Research
- Maree Hackett** . . . . . Awarded NHMRC Career Development Award
- Marilyn Lyford** . . . . . Awarded Australian Injury Prevention Network (AIPN) Award for Excellence in Injury Prevention & Safety Promotion Practice
- Nicole Li** . . . . . Awarded NHMRC Australia-China Exchange Fellowship
- Rebecca Ivers** . . . . . Appointed Secretary of the AIPN
- Robyn Norton** . . . . . Appointed Chair Emeritus, Road Traffic Injuries Research Network (RTIRN)
- Stephen MacMahon** . . . . . Awarded 2010 John P. McGovern M.D. Award
- Teresa Senserrick** . . . . . Awarded NHMRC Career Development Award
- Vlado Perkovic** . . . . . Awarded Heart Foundation Career Development Fellowship

*Role of The George Institute's Board*

The George Institute is able to draw upon the skills and expertise of the Board to ensure that our governance and management are robust, dynamic and rigorous.

The Board's central duty is to protect and promote the objectives and interests of The George Institute. To achieve this, the Board considers the nature and range of Institute activities and makes sure that key stakeholder interests, including ethical, social and cultural considerations, are addressed.

The Board is responsible for the way the Institute is governed, our strategic direction, risk management, the monitoring of finances and other reporting.

The Board makes sure that the Institute complies with the Australian Commonwealth *Corporations Act 2001* and other obligations resulting from the Institute's charitable status. As a research and academic organisation, the Board values and promotes scholarship, academic freedom and scientific integrity.



***Dr John Yu AC – Chair***

John Yu has had a distinguished career in paediatric medicine and a strong commitment to community affairs. His previous positions include Chief Executive of the New Children's Hospital at Westmead, staff physician at the Royal Alexandra Hospital for Children, Chancellor of The University of New South Wales, and Deputy Chancellor of the University of Western Sydney. John has served on many management boards and charitable organisations, including chairmanship of both VisAsia at the Art Gallery of New South Wales, and the Centre for Asian Art and Archaeology at the University of Sydney. He was appointed a Member of the Order of Australia in 1989 for services to medicine. In 2001 he was awarded the Centenary Medal and made a Companion of the Order of Australia. He was named Australian of the Year in 1996. John joined the Board as Chair in September 2006.



***Don Green – Deputy Chair***

Don Green is a Fellow Chartered Accountant, a Fellow CPA, and a Senior Partner of Ernst & Young Australia, where he leads the Oceania Transaction Tax Practice. He has held Asia-Pacific leadership roles of his firm's Financial Markets and Japanese Business Programs, and is currently Chair of the Taxation Taskforce of Infrastructure Partnerships Australia. Over a number of years, Don has been Director or Committee Chair of the Friends of the Mater Foundation for the Mater Misericordiae Hospital, the Australian Council for Infrastructure Development, and the Institute of Chartered Accountants in Australia. Don joined the Board in May 2003.



***Elsa Atkin***

Elsa Atkin is a company director and a cultural management consultant. Previous roles include Executive Director of the National Trust of Australia (NSW), Deputy Director of the Evatt Foundation, and a Senior Manager at the Australian Broadcasting Corporation. Currently she sits on several boards, including the Library Council of NSW. She was made an Australia Day Ambassador (1998–2000) and Honorary Life Member of the National Trust in 2005. Elsa joined the Board in July 2007.



***Joanna Capon OAM***

Joanna Capon is a member of the Australia-China Council, the Advisory Council of the Children's Hospital at Westmead, and the hospital's Health Care Quality Council and Governance Committee. She is also Chair of Operation Art, a board member of Museums and Galleries NSW, and a member of the Editorial Advisory Board of Art and Australia. Joanna is an art historian, industrial archaeologist, curator and writer. She was awarded the Medal of the Order of Australia in 2002 for services to the community. Joanna joined the Board in March 2007.



***Peter Church OAM***

Peter Church is Group Chairman of AFG Venture Group, a corporate advisory/ investment banking firm. Previously he was the Regional Managing Partner for Asia of the Australian law firm Freehills. His involvement in business relations between Australia and the South-East Asian region spans more than 35 years, for which he was awarded the Medal of the Order of Australia in 1994. His other current directorships include Special Counsel to the Australian law firm Blake Dawson, and Chairman of Bangkok International Associates Limited and Indonesia's Aksara Foundation. Peter joined the Board in June 2004.



***Professor Stephen Garton***

Stephen Garton is the Provost and Deputy Vice-Chancellor of the University of Sydney. He is a graduate of the University of Sydney and The University of NSW, and is a Fellow of the Australian Academy of the Humanities, the Academy of Social Sciences in Australia and the Royal Australian Historical Society. His area of research expertise is Australian history. He has also published in the fields of American and British history, psychiatry, crime, poverty, social policy, eugenics, policing, masculinity, and returned soldiers. Stephen has been a member of the Editorial Board of the Australian Dictionary of Biography, the Executive Committee of the Australian Historical Association, and a member of the Council of the Australian Academy of the Humanities. Stephen was appointed to the Board on September 2009.



***Jason Yat-sen Li***

Jason Yat-sen Li is Managing Director of Yatsen Associates Ltd, an investment banking and private equity firm based in Beijing. Previously he was Head of China Strategy and Senior Manager, Sustainable Development for Insurance Australia Group, and worked as a lawyer for the United Nations International Criminal Tribunal for the former Yugoslavia in The Hague, the Netherlands. He was a recipient of the Eisenhower Fellowship in 2002, as well as the Hauser Global Fellowship to New York University Law School in 2000. He is currently a Director of The Sydney Institute and a Governor of The Smith Family. Jason has been a member of the Board since June 2007.



***Professor Stephen MacMahon***

Stephen MacMahon is Professor of Cardiovascular Medicine at the University of Sydney and Principal Director of The George Institute for Global Health (see full biography on page 36).



***Professor Robyn Norton***

Robyn is Professor of Public Health and Associate Dean (Global Health) within the Sydney Medical School at the University of Sydney and Principal Director of The George Institute for Global Health (see full biography on page 36).

### *Board committees*

To assist the Board with execution of its responsibilities, a number of Board committees have been established. The outcomes of Board committee meetings are reported to the Board of Directors following each committee meeting.

<i>Committee</i>	<i>Description</i>	<i>Membership</i>	
Finance, Risk and Audit Committee	Oversees all financial matters, including budget, audit and risk management matters.	Don Green (Chair) David Clark	Robyn Norton
Fundraising Committee	Provides strategic direction on philanthropic plans and activities.	Elsa Atkin (Chair) Jane Austin Joanna Capon	Stephen MacMahon John Yu
Remuneration Committee	Reviews remuneration for senior employees of the Institute.	John Yu (Chair) Don Green	
George Health Enterprises Committee	Provides strategic direction on enterprise plans and activities.	Peter Church (Chair) Don Green Jason Yat-sen Li Stephen MacMahon	Bruce Neal Vlado Perkovic Su-Ming Wong

### *Research Committee*

<i>Description</i>	<i>Membership</i>
The Institute's Constitution requires the establishment of a Research Committee with a minimum of five members, the majority of whom need to 'demonstrate the proven ability to direct a research program as evidenced by their academic qualifications and their professional appointments'.	John Yu (Chair) Don Green Stephen MacMahon Robyn Norton

### *Research and Development Advisory Committee*

In order to provide the Institute with advice on future research directions, a Research and Development Advisory Committee (RADAC) has been established whose membership consists of international health research and development practitioners.

<i>Committee</i>	<i>Description</i>	<i>Membership</i>
Research and Development Advisory Committee (RADAC)	RADAC is an independent body which meets approximately every three years to provide an independent assessment of the scope, content and quality of The George Institute's research and development activities within the context of the Institute's mission and strategic plan. The Committee also issues advice in relation to current, medium and long-term issues facing The George Institute.	Terry Dwyer (Chair), Murdoch Childrens Research Institute, Australia Robert Black, Johns Hopkins University, USA Robert Califf, Duke University, USA Deborah Cook, McMaster University, Canada Paul Elliott, Imperial College, UK Wendy Hoy, The University of Queensland, Australia Garry Jennings, Baker IDI Heart and Diabetes Institute, Australia KE Yang, Peking University Health Science Center, China Michael Merson, Duke University, USA Terry Nolan, The University of Melbourne, Australia Don Nutbeam, University of Southampton, UK Vikram Patel, London School of Hygiene and Tropical Medicine, UK Srinath Reddy, Public Health Foundation of India Sally Redman, The Sax Institute, Australia Bruce Robinson, the University of Sydney, Australia

## *Institute management*

The George Institute Principal Directors, Professor Stephen MacMahon and Professor Robyn Norton are responsible for overseeing the implementation of the Institute's strategic plan in consultation with the Senior Management Committee and the Institute Management Group. The Senior Management Committee has an Executive Group which oversees the day-to-day operation and administration of the Institute.

<i>Management Committee</i>	<i>Description</i>	<i>Membership</i>	
Senior Management Committee	Provides recommendations to the Principal Directors on matters of strategic or operational significance to the Institute.	Stephen MacMahon (Co-Chair) Robyn Norton (Co-Chair) Jane Austin	Richard Fisher Anushka Patel Vlado Perkovic WU Yangfeng
Executive Group	The Executive Group oversees the day-to-day operation and administration of the Institute.	Stephen MacMahon (Co-Chair) Robyn Norton (Co-Chair)	Jane Austin Richard Fisher
Institute Management Group	The Institute also consults widely with Institute Directors, who lead and manage major Institute programs. Members of the Senior Management Committee are also members of the Institute Management Group.	Craig Anderson Laurent Billot Rick Brown Alan Cass John Chalmers Denise Clarke-Hundley (from October 2009) Joanna Cole (until October 2009) Peter Dolnik Samantha Flynn (until January 2010) Javier Guzman Graham Hillis Rachel Kerry (until August 2009) Graham Lawrence (until October 2009) Richard Lindley (from February 2010) Chris Maher Pallab Maulik (from April 2010)	Mary Moran John Myburgh Bruce Neal Chris Ostendorf (from November 2009) Sameer Pandey Vinodvenkatesh Patel A Sunder Rajan Anthony Rodgers Mark Stevenson Cheryl Townsend (until October 2009) Fiona Turnbull WEI Liu Nick Wood (from October 2009) Mark Woodward (from January 2010) Susan Xie YAN Lijing

The financial year 2009-10 has been a period of consolidation of existing activities as well as investment in new projects and other initiatives.

Global revenues grew during the year by 16.4% to \$48.3M, with Australia continuing to be the main focus of activity but with growing contributions from our subsidiaries in China (\$7.4M) and India (\$1.3M). A consolidated surplus of \$0.2M was recorded for the year ended 30 June 2010, an improvement of \$1.9M over the previous year, due mainly to the better performance of the Institute's investment portfolio.

The financial strength of the consolidated group continues to be satisfactory, with net assets of \$5.3M. Total assets of \$31.2M included \$9.7M of cash, \$6.8M of liquid investments and \$14.7M of accounts receivable and other assets. This was offset by \$25.9M of liabilities and included \$19.9M of 'deferred income' (being commitments to research and other projects).

The period following the end of the financial year has seen continued growth in research activities, further investment in surplus generating activities and expansion of global programs.



*Richard Fisher*

**CHIEF OPERATING OFFICER**

OCTOBER 2010

### *Industry partnerships*

A range of funding from industry partners supports our research projects, providing direct and indirect support for investigator-led research that identifies new approaches to the prevention and treatment of chronic disease and illness.

Industry partnerships also include research programs contracted to George Clinical for the provision of research services and the management of clinical trials. Profits from this wholly-owned enterprise are then invested back in to the work of The George Institute, and used to support current research projects and to pilot innovative new projects.

### *Peer-reviewed funding*

The Institute has been highly successful in securing both Australian and non-Australian competitive peer-reviewed grants this year. Applications go through a rigorous selection process, based on the quality and significance of the initiative, and the track record of the researchers. The process involves review by committees of other 'peer' scientists who work in the same area.

Peer-reviewed funds are provided in Australia by the Federal Government through the National Health and Medical Research Council (NHMRC) and Australia Research Council (ARC). Peer-reviewed funds also come from health charities, such as the National Heart Foundation in Australia, as well the National Institutes of Health in the United States and the Wellcome Trust in the United Kingdom.

### *Government funding*

Australian Federal Government and New South Wales Government grants support the Institute's infrastructure and administration

The Australian Federal, State and Territory Governments across a range of departments including Health, Families, Housing and Community Services, also provide support to a range of research projects undertaken within the Institute.

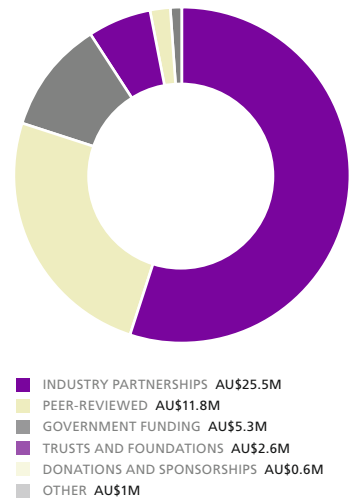
### *Trusts and foundations*

Funds are also sourced from Australian foundations and research trusts, as well as international organisations such as the Bill & Melinda Gates Foundation in the USA.

### *Donations and sponsorships*

Donations and philanthropic contributions have been received from a small but important number of individuals and companies. Additionally, sponsorship support has been received from associations such as the National Roads and Motoring Authority in Australia and for the support of activities such as our physiotherapy evidence database – PEDro – which is accessed by practitioners globally. Profits from our enterprise division cover the Institute's fundraising costs. As such, all donations received by The George Institute go directly to research and training.

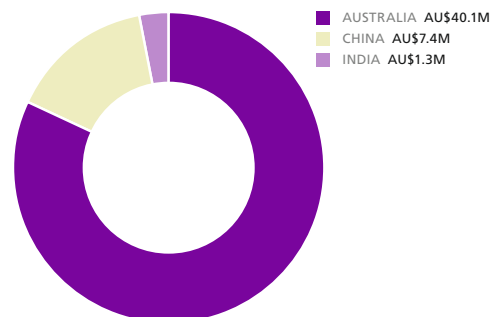
*Income 2009-10*



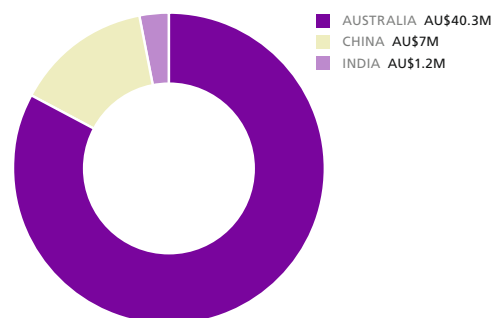
*Balance Sheet*

	<b>2010</b>
<b>ASSETS</b>	<b>\$</b>
<b>CURRENT ASSETS</b>	
Cash and cash equivalents	9,743,278
Trade and other receivables	12,695,079
Other assets	185,134
Investments	6,784,351
<b>TOTAL CURRENT ASSETS</b>	<b>29,407,842</b>
<b>NON-CURRENT ASSETS</b>	
Property, plant and equipment	1,750,522
Intangible assets	54,622
<b>TOTAL NON-CURRENT ASSETS</b>	<b>1,805,144</b>
<b>TOTAL ASSETS</b>	<b>31,212,986</b>
<b>LIABILITIES</b>	
<b>CURRENT LIABILITIES</b>	
Trade and other payables	3,864,164
Deferred income	19,933,206
Provisions	1,792,528
<b>TOTAL CURRENT LIABILITIES</b>	<b>25,589,898</b>
<b>NON-CURRENT LIABILITIES</b>	
Provisions	345,636
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>345,636</b>
<b>TOTAL LIABILITIES</b>	<b>25,935,534</b>
<b>NET ASSETS</b>	<b>5,277,452</b>
<b>EQUITY</b>	
Foreign currency translation reserve	9,505
Retained earnings	5,267,947
<b>TOTAL EQUITY</b>	<b>5,277,452</b>

*Income by region*



*Expenses by region*



## *Income Statement*

	<b>2010</b>
	<b>\$</b>
Operating revenue	46,787,585
Other income	1,545,141
Employee benefits expense	(18,967,691)
Depreciation and amortisation expense	(534,965)
Other expenses	(29,063,746)
<b>LOSS FOR THE YEAR</b>	<b>(233,676)</b>
<b>OTHER COMPREHENSIVE INCOME</b>	
Unrealised gain/(loss) on revaluation of financial assets	1,046,408
Realised gain/(loss) on disposal of financial assets	(591,058)
<b>TOTAL COMPREHENSIVE INCOME</b>	<b>221,674</b>

## *Cash Flow Statement*

	<b>2010</b>
	<b>\$</b>
<b>CASH FLOW FROM OPERATING ACTIVITIES</b>	
Receipts of grants and contract revenue	40,967,643
Payments to suppliers and employees	(45,493,172)
Rental income	844,850
Dividends received	308,087
Interest received	142,278
<b>NET CASH GENERATED FROM OPERATING ACTIVITIES</b>	<b>(3,230,314)</b>
<b>CASH FLOW FROM INVESTING ACTIVITIES</b>	
Proceeds from sale of property, plant and equipment	12,000
Payment for property, plant and equipment	(514,096)
Proceeds from sale of available-for-sale investments	5,638,827
Payment for available-for-sale investments	(5,833,409)
Payment for held-to-maturity investments	101,599
<b>NET CASH USED IN INVESTING ACTIVITIES</b>	<b>(595,079)</b>
<b>CASH FLOW FROM FINANCING ACTIVITIES</b>	
Net increase in cash and cash equivalents held	(3,825,393)
Cash and cash equivalents at the beginning of the financial year	13,568,672
<b>CASH AND CASH HELD EQUIVALENTS AT THE END OF THE FINANCIAL YEAR</b>	<b>9,743,278</b>

Notes for full financial consolidated report are available. Contact The George Institute Director of Finance on +61 2 9657 0300 or info@georgeinstitute.org.au

*Independent Auditor's Report to the Members Of The George Institute  
for Global Health and Controlled Entities*

We have audited the accompanying consolidated and company financial statements of The George Institute for Global Health (the entity), which comprises the statement of financial position as at 30 June 2010 and the statement of comprehensive income, statement of changes in equity, and statement of cash flows for the year ended on that date, a summary of significant accounting policies and the directors' declaration.

**THE RESPONSIBILITY OF THE DIRECTORS FOR THE FINANCIAL STATEMENTS**

The directors of the company are responsible for the preparation and fair presentation of the financial statements in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the *Corporations Act 2001*. This responsibility includes designing, implementing and maintaining internal controls relevant to the preparation and fair presentation of the financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

**AUDITOR'S RESPONSIBILITY**

Our responsibility is to express an opinion on the financial statements based on our audit. We conducted our audit in accordance with Australian Auditing Standards. These Auditing Standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the financial statements.

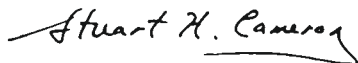
We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

**INDEPENDENCE**

In conducting our audit, we have complied with the independence requirements of the *Corporations Act 2001*. We confirm that the independence declaration required by the *Corporations Act 2001*, provided to the directors of The George Institute for Global Health on 30 June 2010, would be in the same terms if provided to the directors as at the date of this auditor's report.

**AUDITOR'S OPINION**

In our opinion, the consolidated and company financial statements present a true and fair view of the financial position of The George Institute for Global Health as of 30 June 2010, and their financial performance and cash flows for the year then ended in accordance with the *Corporations Act 2001* and the Australian Accounting Standards (including Australian Accounting Interpretations).



*Stuart Cameron*

**PARTNER**

K.S. Black & Co Chartered Accountants

Adelaide Institute for Sleep Health  
 Allergan Australia Pty Ltd  
 American Physical Therapy Association  
 Amgen Australia Pty Ltd  
 ANZICS Clinicals Trials Group  
 APTA Group Inc  
 Arcadia University  
 Associação Espanola de Fisioterapeutas  
 Associação Portuguesa de Fisioterapeutas  
 Auckland Hospital New Zealand  
 Australia – China Council  
 Australia – India Council  
 Australian Commission on Safety and Quality in Health Care  
 Australian Food and Grocery Council  
 Australian Kidney Trial Network  
 Australian Physiotherapy Association  
 AUSTRROADS Incorporated  
 Bill & Melinda Gates Foundation  
 Cambia  
 Cardinal Systems  
 Commonwealth Department of Families, Housing, Community Services & Indigenous Affairs  
 Commonwealth Department of Health and Ageing  
 Curtin University of Technology  
 Danske Fysioterapeuter  
 Deutscher Verband für Physiotherapie  
 Diabetes Australia Research Trust  
 Diabetes Vaccine Development Centre  
 Dr Reddy's Laboratories Limited  
 Drugs for Neglected Diseases Initiative  
 Edwards LifeSciences LLC  
 Eisai Global Clinical Development  
 Eli Lilly and Company  
 Elsevier Limited  
 F. Hoffmann-La Roche AG  
 Foundation for High Blood Pressure Research  
 Fresenius Medical Care  
 GlaxoSmithKline Australia Pty. Ltd  
 Global Alliance for Vaccines and Immunisation  
 Global Forum for Health Research  
 Government of Canada  
 Guild Insurance Limited  
 Halfpennys Lawyers  
 Hamilton Health Sciences  
 Imperial College London  
 Injury Prevention Network of Aotearoa  
 Instituts de Formation en Pédiatrie-podologie, Ergothérapie et Masso-kinésithérapie de Rennes  
 Intensive Care Foundation  
 International Life Sciences Institute Australasia  
 Irish Society of Chartered Physiotherapists  
 James Cook University  
 Johnson & Johnson Australia  
 Julius Clinical Research BV  
 Kidney Health Australia  
 Koninklijk Nederlands Genootschap voor Fysiotherapie  
 Laverty Pathology  
 Liverpool Hospital Australia  
 McDonald's Australia  
 Menzies School of Health Research  
 Merck Sharp & Dohme  
 Motor Accident Insurance Commission  
 National Heart Foundation of Australia  
 National Stroke Research Institute  
 New Zealand Society of Physiotherapists  
 Northern Territory Government, Department of Education  
 Northern Territory Government, Department of Lands & Planning  
 Northern Territory Government, Department of Planning & Infrastructure  
 Novartis  
 NRMA – ACT Road Safety Trust  
 NSW Department of Industry & Investment  
 NSW Food Authority  
 NSW Motor Accidents Authority  
 NSW Office of Science and Medical Research  
 PeopleD Pty Ltd  
 Pfizer Australia Pty Ltd  
 PharmaConsulting Pty Ltd  
 Physio Austria  
 Physioswiss  
 Physiotherapy Research Foundation  
 Port Kembla Hospital  
 PriceWaterhouseCoopers  
 Prince of Wales Medical Research Institute  
 Princess Alexandra Hospital  
 Prognomix Inc  
 PscBITE  
 Queensland Cerebral Palsy and Rehabilitation Research Centre  
 Queensland Health  
 Reed Business Information Pty Ltd  
 Research Institute for Asia and the Pacific  
 ResMed Australia Ltd  
 Royal Prince Alfred Hospital Australia  
 Sanofi-Aventis Australia Pty Ltd  
 Servier Laboratories Australia  
 Singapore Physiotherapy Association  
 Stroke Society of Australasia Inc.  
 Sunnybrook Health Sciences Centre  
 Suomen Fysioterapeutit-Finlands Fysioterapeuter  
 Swedish Physiotherapy Association  
 The Alliance of Girls Schools Australasia  
 The Council of Health Research for Development  
 The Endocrine Society  
 The F Matthias Alexander Trust  
 The Heart Research Institute  
 The Hong Kong College of Anaesthesiologists  
 The Oxford Health Alliance  
 The Royal Australian College of General Practitioners  
 The Sax Institute  
 The University of Auckland, Auckland Uniservices Ltd  
 The University of Melbourne  
 The University of New South Wales  
 The University of Oxford  
 The University of Queensland  
 The University of Sydney  
 The Wellcome Trust  
 Transport Accident Commission  
 Tufts Center for the Study of Drug Development  
 UK Department of Health  
 UNICEF  
 Universitair Medisch Centrum Utrecht  
 University of Cincinnati  
 University of Oslo  
 Vancouver General Hospital Canada  
 Victorian Government Department of Transport, Vic Roads  
 Wolters Kluwer Health  
 WorkSafe British Columbia  
 World Health Organization  
 Worldwide Clinical Trials UK Limited  
 Yale School of Medicine

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for Global Health