

Reflections



The George Institute
for Global Health

20
years
1999 – 2019

About us

Our Mission

Our mission is to improve the health of millions of people worldwide.

Our Values



Humanitarian commitment

Spurs us to tackle the health issues affecting high-risk and disadvantaged people worldwide



Focus on excellence

Ensures we will produce scientific evidence that is ethical and of the highest quality



Creativity

Encourages us to challenge traditional thinking and provides an impetus for new and innovative solutions to the world's leading health problems



Integrity

Underpins all our work and interactions, including our collaborations with partner organisations worldwide



A 'can-do' approach

Helps produce timely, effective action, even in the face of adversity or other barriers to implementation



Emphasis on impact

Will ensure our work has real consequences for those who are most vulnerable to disease and injury



Acknowledgement of Country

The George Institute acknowledges the Gadigal People of the Eora Nation as the Traditional Custodians of the land on which our Australia office is built and this book was written. We pay our respect to Elders past, present and emerging.

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We are a registered charity in Australia and the United Kingdom. All currency is in Australian dollars unless otherwise indicated.

introduction

The George Institute for Global Health is a not-for-profit global medical research institute established and headquartered in Sydney (Australia), with major centres in China, India and the UK, and an international network of experts and collaborators.

Our work is generating effective, evidence-based and affordable solutions to the world's biggest health challenges. We research the chronic and critical conditions that cause the greatest loss of life, the greatest impairment of life quality and the most substantial economic burden, particularly in resource-poor settings.

2019 marks 20 years since our founding. During this time, our researchers have been profoundly impacting international treatment guidelines for a number of non-communicable diseases (NCDs) and critical conditions, as well as devising new strategies and technologies for providing better primary care and contributing towards healthier societies.

As you'll read in this publication, we have many achievements to celebrate during the last two decades. We have grown to more than 700 people globally, with partnerships and projects in more than 50 countries. Since 1999, we have raised \$1 billion for research and generated

more than 8,000 publications and other academic outputs, building much needed evidence to effectively and sustainably transform care and health systems globally.

However much work remains to be done. Each year, NCDs kill 41 million people and injuries claim 5 million lives, the vast majority of which are in low- and middle-income countries. Compounding this is the fact that half the world's population lacks access to essential health care, and each year an estimated 100 million people are pushed into extreme poverty because of unexpected out-of-pocket health expenses.

The reflections in the following pages highlight our impact over the past two decades. Our ground breaking research. Our values and culture. Our people and their commitment to improve the health of millions of people worldwide.

While our organisation has changed significantly in the last 20 years, our vision today remains the same – to challenge the status quo and use innovative approaches to prevent and treat the world's biggest killers, namely NCDs and injuries.

Thank you for joining us in celebrating this milestone in our history - we look forward to what we can achieve together in the next 20 years.



The George Institute has sought to be at the forefront of addressing the global burden of non-communicable diseases and injuries for the last 20 years, says co-founder and Principal Director Professor Robyn Norton AO.



twenty years of

research leadership

The mission of the Institute is to improve the health of millions of people around the world. This global vision continues to be as relevant today as it was 20 years ago, when two Chinese and one UK research fellow joined Robyn and [fellow co-founder] Professor Stephen MacMahon AO in their move from New Zealand to Australia in 1999 to establish the Institute.

“Our aim from the outset was to undertake research to raise awareness of and address the growing burden of non-communicable diseases in low- and middle-income countries, at a time when people were not really aware of this alarming trend,” Robyn explains.

“This has always been a focus of our work and as a result, we have been privileged to have people join the organisation because they are committed to our mission and want to make the world a better place, especially for those in resource poor settings. Our move to working in China and India was based on the premise that if we can make a change to policy or practice

in these countries, with the biggest populations in the world, we have the potential to change many people’s lives.”

In addition to scale of impact, Robyn says equity is a fundamental principle that remains deeply engrained in the Institute’s ethos. This quest for equity, at its simplest, is based on the belief that the most under-served and disadvantaged around the world should have as good access to quality health care as anyone else.

“Even though a significant proportion of our work has relevance for high-income countries, there’s no question that people are attracted to working with us because we have that equity focus,” she says.

To this end, Robyn and her colleagues have always insisted that the practical application of research should be a top priority, rather than just the publication of the research itself. Another underlying principle guiding all of the Institute’s work has been that treatment must not only be medically effective, but also cost-effective.

“We don’t want to find good treatments if they’re going to cost 50 times more than current treatments,” she says. “We’ve got to find better treatments that cost less. That way, more peoples’ lives can be affected, particularly those who cannot afford current options.”

Two decades on, no-one can question the Institute’s impact – it has grown from a handful



Professor Robyn Norton AO speaking at the Oxford India lecture in 2014.

Robyn's top moments:

- Leading the way:
"We have been at the forefront of addressing the burden of non-communicable diseases and injuries for the last 20 years, and we've been consistent in that approach."
- Building a team:
"It's been an amazing 20-year journey of building an extraordinary group of people who are doing extraordinary things."
- Taking on the world:
"Twenty years ago, Stephen and I were young, enthusiastic, passionate, ambitious people knocking on peoples' doors. They probably thought 'Who are these young upstarts from New Zealand? What makes them think they can take on the world?' Well, we did."



Professor Robyn Norton AO visiting community health workers in India in 2017.

"We've been a mission-driven organisation for 20 years and now we have a culture where people live and breathe it."

of Sydney-based researchers to a global organisation of more than 700 people across centres in Australia, India, China and the UK, raising \$1 billion for medical research.

The secret of the organisation's success is, as Robyn says, disarmingly simple: "Our view has always been that we want to work with people who are better than us. We know how to identify these kind of exceptional people, and they have been crucial to the growth and impact of the organisation."

Looking ahead, the Institute's strategy for the next five years is focused on three key areas: finding better treatments for the world's biggest health problems, transforming primary health care to support better health for more people, and harnessing the power of governments, markets and communities to improve health.

Part of this strategy is the Institute expanding its "juxtaposition of research, advocacy and the private sector," in Robyn's words, with a greater focus on

disruptive entrepreneurship and thought leadership for increased impact.

With such a clear strategic focus, Robyn is confident the Institute will continue to build on its achievements and play an even greater role in establishing better health outcomes for all.

"There will always be challenges but it's that can-do attitude we have of 'well, if no one else is going to tackle a big challenge, then we've got to,'" she says. "We've been very good over the years at addressing these kind of challenges because we've got a clear goal to accomplish."

"We've been a mission-driven organisation for 20 years and now we have a culture where people live and breathe it. Together, we'll continue to be a voice for addressing the leading health conditions that affect people in every country in the world."

For co-founder and Principal Director Professor Stephen MacMahon AO, The George Institute has always been about finding affordable, scalable solutions for the world's biggest health problems.



twenty years of

seeking solutions

Prior to co-founding The George Institute, Stephen spent a decade in research on new treatments for cardiovascular and metabolic diseases, mainly among patients in high-income countries. Towards the end of that decade, it became apparent that cardiovascular diseases in lower-income countries accounted for many more premature deaths and much more disability than in higher income countries.

"So we thought, instead of just continuing what we'd done before, which was to make increasingly smaller incremental improvements in the health of people in wealthy countries, we'd try to do something in lower-income countries where there was greater potential to make bigger health improvements for more people," Stephen explains.

Two large five-year projects underwrote a significant part of the Institute's early growth: ADVANCE – the world's largest-ever study of treatments for diabetes (see page 16), and PROGRESS – a ground-breaking study on the prevention of stroke. Both these studies included large numbers of people from low- and middle-income countries in Asia, where both diabetes and stroke were known to be major health problems.

"The results of these studies had a major impact on guidelines for medical care in many countries, including Australia, and we realised the power of very large studies to bring about change in health policy quickly. But once these studies ended, we also realised, that finding the money to support new projects of similar size was not going to be easy. Nor was it going to be easy to support the growth of our new centres in China and India," says Stephen.

"So, we wondered whether a way to increase our financial resources might be to utilise the global networks we had developed for ADVANCE and PROGRESS as a research platform for clinical trials being conducted by other academic groups and industry. We saw this as a way to increase our impact as well as generate money that we could reinvest in our people and projects".

"And that's how George Clinical began (see page 20). In the first year, we won just one contract and had doubts about whether we would succeed, but we did and now we have hundreds of contracts and clients from around the world. Its financial success really underpinned our global expansion and the growth in staff numbers worldwide."

However, while the Institute's research continued to go from strength-to-strength, Stephen and his colleagues began to realise that the Institute could do more to drive improvements in global health.

"It became increasingly clear that while evidence-based medical care was expanding rapidly in high-income countries, this was not the case in most middle- and low-income countries," he says. "I got frustrated by the slow pace of change in regions with the greatest needs and thought that we needed to be much more part of the last mile – we needed to be directly involved in scaling up."

"You can change clinical guidelines, you can even change national health policies, but it doesn't necessarily mean you're actually changing health care and having a real impact on people's lives."

So, the Institute identified two areas where there were significant unmet needs: the availability of

Stephen's top moments

- Realising the vision:

"From three people in an abandoned nurses' home to where we are now – every day of my life, I can't quite believe it, and I think how did it happen? I feel tremendously privileged to have played a role together with so many other extraordinary people."

- Harnessing the private sector:

"We saw there was an opportunity to use a 'profit for purpose' model to raise investment capital for businesses that will drive improved health outcomes by creating solutions that are affordable for those in need, while also providing the financial returns required by investors."

- Capacity building:

"We've trained a lot of people in India and China and there are many who we recruited as PhD students or post-docs who are now in senior roles there. I think that's what's different about the Institute – we have a permanent presence in many of the countries in which we work, and we don't just fly in and fly out."

affordable innovative drugs treatments for chronic diseases, and medical technologies designed specifically to support the management of chronic diseases in resource-poor settings.

"We started thinking about different ways by which we could provide better treatment for the most common serious chronic diseases affecting low- and middle-income countries, where there were not enough skilled medical professionals to meet population needs," Stephen says.

"I guess the light bulb moment was recognising that we had figured out how to run a large clinical trials business,

expertise to maximise impact. We are believers in 'profit with purpose'."

When asked which of the Institute's achievements he is most proud of over the years, Stephen is clear it's all about impact.

"We've fundamentally changed how people think about the treatment of many common serious conditions such as heart disease, stroke, kidney disease and several other critical conditions – not just in high-income countries, but in low- and middle-income countries as well," he says. "Our research will continue to change thinking about the control of the world's biggest killers and our social

"We've fundamentally changed how people think about the treatment of many common serious conditions...not just in high-income countries, but in low- and middle-income countries as well."

and therefore maybe we could also develop businesses around innovative drug treatments and digital health technologies," he explains.

An umbrella company, George Health, was established in 2014 and now comprises of four divisions: George Clinical providing clinical trial services; George Medicines developing innovative, affordable drug treatments; George Health Technologies developing digital health tools for the management of common chronic and infectious conditions; and Ellen Medical Devices developing the world's first truly affordable dialysis system (see page 22).

"These four divisions will not only provide financial returns to the Institute, but they also allow us to control the scale-up and impact of the healthcare solutions our research generates," Stephen says. "We're not alone in using 'social business' models to deliver benefits to low- and middle-income countries – there's growing global recognition that it's important to leverage private sector resources and

enterprises will provide specific scalable solutions."

Looking ahead, Stephen sees many challenges that still need to be addressed, such as the underrepresentation of women in research, inequity in access to effective affordable health care, and the emergence of a new epidemic characterised by multiple co-existing chronic diseases, to name just a few.

"We need to move to understanding that medical care isn't just about treating individual diseases in isolation, it's about treating patients and considering of all their healthcare needs and preferences," he says.

"Increasingly, all around the world, any person with any one type of chronic disease will almost certainly have others, so we need to be able to manage multiple diseases simultaneously, taking full account of patient priorities. The George Institute aims to play a key role in providing the evidence about how best to do that."

Professor John Chalmers AC has been part of The George Institute's story from the very beginning.



twenty years of

fostering talent

John, now a Senior Director at the Institute and a Professor of Medicine at UNSW Sydney, was instrumental in laying the foundations for The George Institute.

The Institute's first major successes were the PROGRESS and ADVANCE trials of the early 2000s, which looked at strokes and diabetes, respectively (see page 16). John was one of the two principal investigators, with [co-founder] Professor Stephen MacMahon AO, for both studies, which set firm foundations for the Institute's future growth.

"I had known about Stephen's outstanding work in cardiovascular epidemiology for some time but it wasn't until 1996 that I met Robyn, who was working in the injury field at the time,"

John says. "Stephen and I began collaborating on several big projects but it took another few years to formally establish the Institute."

Over the past two decades, the Institute has gone from strength to strength, conducting landmark study after landmark study. John says core to this success has been attracting outstanding individuals driven by a relentless desire to be a force for good in the world.

"One of the great things about the Institute is that it's been able to recruit, foster and encourage talented young people and help them mature and develop," John explains. "It's always given people the opportunity to reach for the stars, to go for big, demanding and impactful projects."



An ADVANCE trial investigator meeting in Vienna, 2007.

John's top moments

- The vision:

"They wanted to go beyond the research into translating it into real gains for the health of the population. They wanted to go beyond the developed world and impact the massive populations of Asia, Latin America and Africa, where two-thirds of the world's population exists."

- The recognition:

"I think what I'm most proud of really is that the Institute has been recognised as the number one independent research organisation in Australia in such a short space of time."

- The PROGRESS study:

"PROGRESS was a resounding success and helped to launch the Institute with a big bang. Between 35-40% of its patients were in China, Japan, India quite deliberately, so we could demonstrate that they suffered equally and benefited equally from the treatments."



PROGRESS results are presented in China, 2002.

Such opportunities have also meant that researchers have stayed for much longer at the Institute than is usual in the sector, with many having spent almost their entire careers there. Again, this is a source of immense satisfaction and pride for John, who has mentored a number of these now world-class researchers from their earliest days at the Institute.

"The Institute's always been a stimulating place to work and that's why it done so well," John explains. "There's a real sense that if you can think of something big, then it's achievable. Researchers learn here that nothing is necessarily beyond our scope, no matter how overwhelming or tough it might sound. It's still worth a try."

"There's a real sense that if you can think of something big, then it's achievable. Researchers learn here that nothing is necessarily beyond our scope, no matter how overwhelming or tough it might sound. It's still worth a try."

"Time and time again, the Institute has hired young people, given them a go and seen them develop into international stars. That's what I've been most impressed by over the years," he says.

Looking back, John is understandably proud that the organisation he supported from its earliest days has so quickly gone from a tiny shared office with just a handful of staff, to the top independent research institute in Australia, as ranked by the Times Higher Education in 2018.

He's also confident that the future holds the promise of even greater achievements.

And the reason?

"We're breaking new ground time after time," John says. "We're always at the frontier of research, pushing at the edges – that's a very special kind of excitement for driving people to greater successes."

Peter Burrows AO is one of the lesser known heroes of The George Institute. Without his passion for medical research and financial acumen, the Institute might never have been established.



twenty years of

driving growth

A stockbroker by trade, supporting health and medical research has long been a family tradition. Peter's father had been President of the Sydney Children's Hospital for many years before Peter himself joined its Board for 14 years, 12 of them as treasurer.

However, it was while he was President of the Medical Foundation at the University of Sydney that Peter first heard about a talented young academic, the Institute's co-founder Stephen MacMahon.

"I was told that Stephen was a very promising researcher and that he was going to accept an offer at the University of Oxford," Peter recalls. "He was based in New Zealand at the time and was coming through Sydney. There was an opportunity to meet and try to persuade him to

come to Sydney instead of Oxford. As a result of that interview I offered Stephen a three-year research grant from The Medical Foundation."

Fortunately, Peter was successful and soon after began helping Stephen and fellow co-founder Robyn Norton navigate the maze of legal and financial decisions related to establishing research programs in injury and cardiovascular disease.

"My strong advice was not to join a faculty but instead establish an independent institute so they wouldn't be bound by the strictures of university red tape," he says.

Peter helped negotiate a unique partnership with the University of Sydney that resulted in the Institute being self-funded from year one.



Professor Rachel Huxley and Associate Professor Fiona Turnbull in the early years of The George Institute.

Peter's top moments

- The growth:

"Each year we got bigger and bigger and we reinvested in ourselves all the time. The global scale, the size and the areas of research have all expanded so dramatically."

- The Institute's achievements:

"Its success has been just phenomenal, and I take my hat off to them. It's really all about its drive, vision and culture."

- Personal satisfaction:

"It was a challenge to begin with but it came together beautifully. I've just been so pleased to see the Institute reach the heights it has already achieved and it is clearly going to achieve even more."



Visiting the China Center for Disease Control and Prevention in 2002. Left to right: Dr Lucy Chen, Dr Wang Xiaochun, Dr Li Quan Le, Professor Robyn Norton AO, Professor Yang Xiaoguang, Professor Jiang Yuan, Professor Stephen MacMahon AO and Professor Qiang Zhengfu.

"That was the first time anybody had done a deal like that with the university, or any university that I know of in Australia, so it was quite groundbreaking," he says.

He joined the newly established Institute's Board as Chair – a role he held until 2006. As a result of Peter, Stephen and Robyn's combined efforts, the Institute was almost immediately able to start attracting the best and most promising researchers in their fields.

"Each year, the Institute was able to grow and reinvest in itself," says Peter.

"There was the vision and commitment right from the beginning to make a big difference, and with an international reach, although the extent of that has amazed me in the end," he explains. "I'm absolutely staggered by what the Institute's been able to achieve in the past 20 years."

Looking ahead, Peter sees plenty of opportunities for building on its past achievements.

"The Institute has clearly succeeded in helping to deliver better health outcomes to underprivileged people in a very cost-efficient way," he says.

"There was the vision and commitment right from the beginning to make a big difference with an international reach."

"Stephen and Robyn recruited very good people who shared their vision, stayed with the Institute and have all been extremely successful. The combination of these factors inspires a deep sense of loyalty."

Peter is equally clear about other crucial factors that have, in his view, ensured the Institute's continuing success.

"There is therefore huge potential for replicating these outcomes across more of the developing world, which is very exciting. I think much more needs to be done in Africa in terms of health, and the Institute is well placed to achieve this."

As Executive Assistant to The George Institute co-founder Robyn Norton for the last 19 years, Kristina McDaid has had a unique perspective on the growth of the organisation.



twenty years of

vision to reality

Kristina joined the Institute in 2000 following a meeting in a café with Robyn, which set events in motion that would determine her career for the next two decades, and counting.

“I remember feeling very comfortable chatting with Robyn,” she recalls. “She had such a calm and gentle manner. I don’t really remember what we talked about – it was such a long time ago – but I remember being very excited about joining an organisation involved in medical research, a totally unfamiliar area to me.”

When Kristina came on board there were just 12 staff and three research programs at The George Institute: Heart & Vascular Diseases, Injury and Biostatistics. The organisation was based in a small office in the Royal North Shore Hospital, with not a great deal of room.

“We all squeezed into that space, Robyn and I shared an office – she sat at one end and I sat at the other,” Kristina says.

The Institute grew rapidly. A year after Kristina joined, it numbered 50 staff and moved to a “quirky” two-storey building at the University of Sydney, where Kristina says the beginnings of the Institute’s unique workplace culture began to evolve.

“Two new programs had been added – Policy & Practice and Mental Health – and we started having regular staff meetings, which everyone took turns chairing. Each meeting ended with a quiz, and a prize was given to the winner,” Kristina says.

“Already we had staff from quite a few different countries and we organised multi-cultural lunches to get to know one another, with everyone bringing a dish from their home countries.”

During those days, it was a small organisation on the rise where everyone knew each other’s names. Today, with more than 700 people



Staff at The George Institute, India's Hyderabad office in 2014.

Kristina's top moments

- Being inspired:
"I am assistant to the most amazing and inspiring woman, who is just fantastic to work for, and I am so proud to be supporting her, which I have done for the last 19 years!"
- Sense of comraderie:
"Over the years, I have found everyone to be very pleasant and helpful, which makes the Institute an exceptional and enjoyable organisation to be a part of."
- Women's health:
"It is great to see the Global Women's Health Program starting to take off because I know that Robyn has had a long-standing commitment to improving women's health."



Professor Stephen MacMahon AO, Professor Robyn Norton AO and Dr John Yu AC in 2007.

across six different offices in four countries, it can be a challenge to keep up with all the rapid changes across an organisation that has become truly global in nature.

"It has been incredibly exciting to be a part of it all," Kristina says. "The growth in staff and diversity in research programs has been amazing, and it has

So what has kept Kristina at the Institute for so long? She says it's all down to the inspiring people and brilliant work being done, with Robyn of course getting a special mention.

"Robyn is such an incredible person and so wonderful to work for – I couldn't ask for a better boss!" she says. "But, everyone is so passionate, enthusiastic

"There's no doubt the Institute has made a real difference around the world and that is a pretty special thing to be a part of."

all happened so quickly. From that one small office in Sydney to what we have today is remarkable."

There's never a dull moment providing crucial day-to-day support for Robyn, who travels constantly and works across multiple time zones to fulfil her complex responsibilities at the Institute.

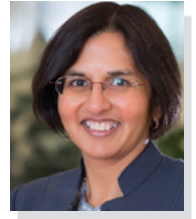
"There's a lot of variety and a lot of challenges in what I do," Kristina explains. "It is never boring, that's for sure and I never know what to expect as no day is like any other – it certainly keeps me on my toes!"

and committed to what they're doing here. To be surrounded by such bright, dedicated and motivated people doing such great work is such a privilege."

At this stage, Kristina has no plans to step back from her frenetic role and responsibilities anytime soon, as she continues to enjoy helping build on the Institute's achievements.

"There's no doubt the Institute has made a real difference around the world and that is a pretty special thing to be a part of," she explains. "I am just so proud of Robyn and Stephen for following their dreams and turning their vision into reality."

From its first days, The George Institute has always been thinking big and challenging the status quo, as Professor Anushka Patel explains.



twenty years of

challenging the status quo

It's very rare for career researchers to overturn prevailing opinion so early in their career and then see their research help millions of people, but that's exactly what's happened to cardiologist Anushka Patel and her colleagues after she arrived at the Institute in 2001.

"At that time, there was little awareness that so-called diseases of affluence had become so prevalent in poorer countries," she says. "We were excited to work in such a new area."

Anushka joined the Institute to lead the ADVANCE diabetes clinical trial. This ambitious study included over 11,000 people in 20 countries across Asia, Australia, Europe and North America, and to this day it is still the most comprehensive study of diabetes across the globe.



An ADVANCE group meeting in 2002.

ADVANCE was hugely successful and identified a new treatment approach for Type 2 diabetes that has helped transform the way diabetes is managed around the world. The study also helped establish the Institute as a global research heavyweight, tackling a global health problem for which very little research funding had been invested.

Today, as the Institute's Vice-Principal Director and Chief Scientist, Anushka remains just as determined not to shy away from less orthodox – and less popular – areas of research. She is as focused now as she was in 2001 on finding new ways to help some of the world's most vulnerable people – even when this means challenging accepted wisdom head-on.

"We have lots of evidence about effective ways to prevent and manage non-communicable diseases, but it's now clear that globally there's been a massive failure to get those treatments to those who need it most," she says. "So, for the past 10 years we've grown our research around how to have greater impact, particularly to help the most disadvantaged people globally."

One current example of convention being turned on its head is the Institute's Systematic Medical Appraisal, Referral and Treatment (SMART) digital health program. *SMARThealth* is a mobile technology-supported primary care intervention that has already been proven

Anushka's top moments

- ADVANCE study:
"This is still to date the biggest trial ever for people with Type 2 diabetes. It has had a major impact on clinical guidelines worldwide".
- Driving success in India:
"While we were still very small, I was acting Executive Director of the India office. It was a great experience to get to help build the foundations of the Institute there."
- Expanding access:
"Our research has provided really strong evidence that you don't need doctors to provide much basic preventative care. Shifting away from the traditional doctor-centric models to more affordable and more accessible models that can provide as good, if not better care, than doctors has been one of the major outputs of our research."



The SMARThealth app, changing the way primary health care is delivered.

to positively impact on the health of thousands of people in Australia, India, Thailand, Myanmar and Indonesia.

Covering a range of conditions such as cardiovascular disease, diabetes, chronic kidney disease, mental health conditions, and high-risk pregnancies, SMARThealth is demonstrating that in countries with too few doctors,

Another area of progress has been in the novel use of existing medications. A study published by the Institute in 2014 tested a blood-pressure treatment that is ingenious in its simplicity. Researchers found that when three existing drugs (each at half-dose) are combined in one pill, a polypill, they are much more effective than existing approaches to hypertension care. Another polypill

"While we've stuck to our strengths, we are also not afraid to let people develop and expand new ideas."

community health workers can fulfill many of their roles supported by mobile technology.

"We are showing that with the right support and technological infrastructure, community health workers – usually women with as little as eight or nine years of formal schooling – can provide high-quality advice and referrals to doctors for people who need them."

This approach significantly expands access to quality, patient-centred care, reduces gender income gaps and promotes strong community role models.

initiative, the SPACE project involved 3,140 patients with established cardiovascular disease (CVD) or at high risk of CVD from Europe, India and Australasia. The results showed a 43 percent increase in patient adherence to medication at 12 months with polypills containing two blood pressure lowering drugs, a statin and aspirin, compared to usual care.

"While we've stuck to our strengths, we are also not afraid to let people develop and expand new ideas," says Anushka. *"It's not only exciting, it's essential for our survival if we want to improve the health of millions of people worldwide."*

For two decades, The George Institute has searched for new ways to influence health decision makers so that lives can be improved around the world, says Executive Director of The George Institute, Australia, Professor Bruce Neal.



twenty years of

influence

When Bruce, a researcher specialising in cardiovascular disease, came to the Institute as its first research employee in 1999, he never dreamed what the team would have achieved 20 years later. But nor did he foresee the challenges they would need to overcome to ensure that the Institute's research breakthroughs were translated into real impacts on people's lives.

Major early discoveries at the Institute came with the PROGRESS study and the ADVANCE trial which redefined the optimal approach to managing blood pressure in high risk patients (see page 16). Together, the results from these studies had direct implications for the care of hundreds of millions of patients with diabetes or a history of stroke. But it soon became clear that many who might benefit were missing out.

"Early on, we just did science and tried to make research discoveries – did this drug prevent stroke? Did that lifestyle change improve blood pressure?" Bruce explains. "But we quickly realised this wasn't enough. Because while our work was getting published in top journals, it wasn't changing how people got treated. We had to go the next step and start figuring out how to get our discoveries used."

"This has been a big focus for the second decade of the Institute. We still spend a lot of time trying to discover new treatments, the CANVAS studies in diabetes being a great

current example. But we now put at least as much effort into figuring out how to influence the practical end of medicine – getting doctors to use treatments more effectively and getting patients access to life-saving treatments."

The Institute put significant effort and resource into ensuring new discoveries were translated from academic journals into the clinical guidelines that doctors use to define patient care.

Work also began on new research programs designed to find innovative ways to influence government policies that could improve the use of medicines and consumer access to health care. This shift into the policy space soon spilled over into nutrition with Institute researchers starting to work increasingly hard on the behavioural and environmental causes of chronic conditions like diabetes, kidney disease and heart attack.

A major milestone in 2012 was the launch of the FoodSwitch program, developed by Bruce and the Food Policy Research Group. The FoodSwitch smartphone application allows the Institute to directly target the health behaviours of consumers and put the team on the map as key players in food policy in Australia.

FoodSwitch is a technology platform that collects and processes data about packaged foods. Currently active in 12 countries it holds detailed information on around 650,000

Bruce's top moments

- Landmark trials:
"One of the very first studies we did was a stroke trial called PROGRESS, which identified a new treatment option applicable to about 50 million stroke survivors. Likewise, the ADVANCE and CANVAS trials identified effective new interventions that could improve the care of literally hundreds of millions of people with diabetes."
- Inspiring better eating en-masse:
"FoodSwitch is bringing unprecedented accountability and transparency to the food system. We now know exactly what manufacturers are selling, whether it's getting better or worse – and how one company stacks up against another."
- Becoming trailblazing influencers:
"Committing large amounts of resource, time and effort to working on chronic diseases in China and India made The George Institute a standout on the global scene. Many other organisations have now followed our lead but we were out there at the pointy end."

different food items. This information is shared with consumers through a mobile phone app, which has been downloaded by more than 500,000 users in Australia alone. Consumers can scan barcodes and see the healthiness of foods for themselves, at the same time receiving suggestions about healthier items they might want to switch to.

However, the broader objectives of the FoodSwitch program go beyond just influencing consumers.

"FoodSwitch allows us to bring accountability and transparency to

program designed to support people with a range of chronic diseases. It uses sophisticated algorithms to deliver SMSs that encourage people to take their medications as prescribed, stop smoking, exercise or eat better.

The Institute also co-hosted the inaugural International Digital Health Symposium in 2018 with UNSW Sydney and the Australian Digital Health Agency, which brought leaders from 13 countries together with representatives of the World Health Organization, universities, industry and clinical medicine. Participants learned different global approaches to using

"While our work was getting published in top journals, it wasn't changing how people got treated. We had to go the next step and start figuring out how to get our discoveries used."

the food system in a way that wasn't possible before. We know exactly what each company is selling, if it's changing, whether it's getting better or worse, and how one company stacks up against another," Bruce explains.

FoodSwitch already has the potential to help millions of people live healthier lives, but Bruce believes that even more can be done to create a 'food revolution' and ultimately prevent many more people suffering from chronic illness.

"My dream is to have data that describes and tracks the entire world's food supply and to use this data to positively influence the way food is made, manufactured, consumed and marketed around the world," says Bruce.

The Institute's innovative approach of harnessing technology to combat chronic disease was recognised in 2016 when its program, TEXTCARE, won the Google Impact Challenge. TEXTCARE is a personalised text messaging

digital innovation to develop inclusive, sustainable and high-quality healthcare systems.

Along with SMART*health* (see page 16) this suite of projects seeks to use technology to change the systems underpinning health care and change the way that we approach the treatment and prevention of chronic diseases all around the world.

"The Institute has a vision that encompasses the health system in its entirety, from the political, commercial and environmental factors contributing to ill health, right through to the care and behaviours of individuals," Bruce says. "Alongside our huge geographic reach, the potential for positive impact on health is enormous."

"By moving beyond just discovering the science, to figuring out how to also get things implemented, we've moved beyond many other organisations working in this space. It's been a really important point of difference for us."

George Clinical was formed in the early days of The George Institute, with a view to it playing a critical role in providing financial resources for the Institute to expand and strengthen its impact globally, as former CEO Dr Marisa Petersen explains.



twenty years of

teamwork

Marisa first heard of The George Institute while head of the Australian Association of Regulatory & Clinical Scientists (ARCS). Having spent a number of years in contract research organisations (CROs) and pharmaceutical companies, she found herself accepting the role of CEO of George Clinical with a mandate to build an ‘internal CRO’ to deliver high-quality clinical trials for both commercial customers (at a profit), and for the Institute itself.

“I was missing the cut and thrust of actually delivering trials so it was exciting to have an opportunity to work with academic researchers focused on the scientific design of important clinical studies,” she recalls. “At the same time, I really appreciated being able to bring my expertise in commercial CRO operations and help deliver high quality trials for the Institute, as well as building the commercial side of the CRO.

“There’s always been a little bit of a difference between the way academic and commercial

studies are conducted. I saw an opportunity for the Institute to close that gap.”

One of the things that quickly became clear when she took on the CEO position was the distinctive synergistic relationship between The George Institute and George Clinical.

“When I joined in 2010, there were only about 60 people in George Clinical across China, India, Australia, and they were all employed by the Institute,” she says. “George Clinical had been operating for a couple of years, but really it was emerging from the Institute, and the people who identified as George Clinical were by and large people who were conducting academic trials within the Institute. We only had two commercial customers at the time!”

As a for-profit subsidiary, George Clinical’s key mandate was to provide additional funds and some sustainability for the Institute.

“At the same time, we were intertwined with the Institute because we could use the



Dr Marisa Petersen visiting the George Clinical Asia-Pacific offices.

Marisa's top moments

- Fulfilling a mandate:
"Seeing George Clinical emerge as truly an entity in its own right, and fulfilling that mandate to be sound financially and provide surpluses, particularly in the early years, when it was critical for the Institute to have that money coming from George Clinical."
- 'Growth for purpose':
"By the time I left, we had offices across the globe and were providing a full range of services to support clinical trials. It was just fabulous to be part of that growth which supported the Institute and not just delivering on a financial bottom line, unlike many other CROs."
- Part of a team:
"With The George Institute, all parts of the organisation - the researchers, George Clinical, the newer social enterprises - are all working together to improve treatments and health care in both developing and developed parts of the world. That's a really great thing to be a part of."

scientific expertise of the Institute to differentiate ourselves as a commercial CRO and thereby win more work from the pharmaceutical industry," Marisa explains.

A niche was quickly identified for George Clinical to become a Pan-Asia CRO, aligning with where the Institute conducted most of its work, and drawing on its research expertise in Australia, India and China.

"While we were successful in delivering trials and giving surpluses back to the Institute, I was always most proud of the amazing contributions of the teams

is where academic science and the commercial sector intersect. Indeed, this translation of the Institute's research to scale up and greater impact is at the core of the synergistic relationship between the Institute and George Clinical.

"George Clinical's role has always been to help in the design of studies to meet clinical need, engaging with the commercial sector to secure funding and then delivering those studies such that any new treatments, new devices or new technical innovations are acceptable to regulators and can be commercialised effectively," she says.

"There was always a double bottom line – to provide money for the Institute to grow but also to provide high-quality data to support new treatment options"

in all our locations because we weren't a big business that could put a whole lot of infrastructure in place," Marisa says. "We were constantly demanding that they figure out how to deliver the studies, find the people to do the work, work remotely from head office in Australia etc., and those teams just constantly delivered."

Marisa believes this team spirit and passion is born from the 'profit for purpose' role that George Clinical plays in the Institute's mission (see page 8).

"Our mandate was to always deliver back to the Institute and thereby support its mission, and a lot of our people really align themselves with that - they want to work for George Clinical because they believe in the Institute," she says. "They can see the virtue - they believe in the mission and in providing strong evidence to drive change, particularly in developing countries."

In terms of the role George Clinical plays in scaling up the research findings of the Institute, Marisa is clear this

"We were always there as a facilitator, if you like, between the idea and the reality to actually produce the evidence," says Marisa.

Marisa ended up staying in the role for over eight years before retiring at the end of 2018 after having grown George Clinical into a global organisation with 15 offices, more than 300 people, 300,000 patients globally and more than 500 completed studies.

Her greatest sense of achievement?

"I am delighted that George Clinical has been able to establish itself as a global scientifically backed CRO that is credible in the global marketplace, while also supporting the Institute," she says.

"There was always a double bottom line – to provide money for the Institute to grow but also to provide high-quality data to support new treatment options. I am very proud of having helped develop the structure and processes that enabled us to do that."

For two decades, The George Institute has been at the forefront of global efforts to improve kidney disease treatment around the world, as Professor Vlado Perkovic explains.



twenty years of

game-changing kidney disease research

Vlado has dedicated his entire professional life to expanding knowledge around kidney disease. Already deeply involved in the field when he joined the Institute in 2005, Vlado was immediately drawn to the international breadth of the Institute's early trials.

"The amazing thing was these trials were being run in many parts of the world, but centrally coordinated from Sydney," he recalls. "They were going to make a big difference to large numbers of people around the world and I found that irresistible."

After 14 years, Vlado left the Institute in 2019 to take up the role of Dean of Medicine at UNSW

Sydney but he still finds time to practice kidney medicine and ensure he stays grounded in the patient experience.

"Every week I come face-to-face with people with severe kidney damage who are staring kidney failure in the face and looking at dialysis as the only way to keep them alive," he says. "In every one of my clinics some aspect of the Institute's work is impacting on the health of my patients directly."

However, tragically, millions of people die unnecessarily each year around the world because they cannot access kidney disease treatment or receive ineffective treatments.

"At the moment, people with kidney failure have worse outcomes than most people with cancer," he says. "So finding better ways to try and improve those outcomes, or more importantly, prevent people from reaching kidney failure in the first place has been a real passion for many of us at the Institute over the years, and an area where we have had some real success."

Indeed, from early achievements in slowing the progress of diabetic kidney disease in the CANVAS study, to testing new dialysis protocols in the ACTIVE Dialysis trial, or assessing the safety and efficacy of 40-year-old treatments in the TESTING study, researchers at the



The Affordable Dialysis Machine, developed by Ellen Medical Devices, changing the way dialysis is delivered.

Vlado's top moments

- New discoveries:
"It's absolutely thrilling when you see new information that you've worked on for many years and you are one of the first in the world, sometimes the first, to see that information and understand what it means."
- Celebrating diversity:
"I'm very proud that we now have two Aboriginal and Torres Strait Islander women leading our Aboriginal program. This was a huge step forward for us."
- Leadership growth:
"Watching people move from students right through to junior staff to leadership positions and seeing them develop and mature and become independent leaders in their own right is incredibly exciting and rewarding."

Institute have been regularly rewriting international kidney disease treatment guidelines, potentially saving countless lives.

Most recently, CREDENCE, a landmark global study led by Vlado, identified the first new treatment in nearly two decades for the prevention of kidney failure due to type 2 diabetes. The groundbreaking trial involved more than 4,000 patients with diabetes and kidney disease from 34 countries.

"We identified a drug that can reduce the risk of kidney failure by a third, reduce the risk of heart failure by more than a third, and also reduce the risk of things like heart attack and stroke," he explains. "With five million people

development of a cost-effective dialysis machine that could meet the treatment guidelines of existing dialysis systems at a fraction of the cost.

"Standard dialysis systems in developed countries costs between \$70,000-\$100,000 per year for each person who needs treatment," says Vlado. "In developing countries, it's perhaps a half or even a third of that, but there are also many more people with far lower-incomes."

"With an affordable dialysis system, the aim was to build something for less than \$1,000 and cost less than \$5 per day to run, opening up treatment for millions of people who would otherwise die."

"I've had the immense privilege of watching the kidney disease group grow from just a couple of us when I started into a huge and dynamic team. It is now probably the leading kidney trials group in the world."

predicted to have kidney failure by 2035 this is a major breakthrough, and the future for people with diabetes and kidney disease is looking a lot better than it was just 10 years ago. A lot of that is due to work that's being done by or led out of the Institute."

Despite these successes, much remains to be done, with between half and three-quarters of people with kidney failure without access to dialysis.

"Millions of people are dying each year from a condition that we've known how to treat for more than 50 years," he says. "The only reason they are dying is because they don't have enough money for the incredibly expensive dialysis treatment."

In 2015, the Institute launched a competition to encourage innovation in dialysis, offering a prize for the

Not only was a winner found, chosen by an independent panel, but the Institute has since set up a company, Ellen Medical Devices, that has raised close to \$6 million in funding to transform the groundbreaking idea into a reality – the world's first affordable dialysis machine. Trials are expected to begin in the next two years.

For Vlado, this pioneering approach has always been key to The George Institute's success.

"It's incredibly thrilling to be right at the very cutting edge of medical knowledge," he says. "I've had the immense privilege of watching the kidney disease group grow from just a couple of us when I started into a huge and dynamic team. It is now probably the leading kidney trials group in the world."

Injury prevention research has always been part of The George Institute's DNA. Head of the School of Public Health and Community Medicine at UNSW Sydney, Professor Rebecca Ivers was a key figure in the program's early development.



twenty years of

reducing injury

Rebecca has dedicated her professional life to the prevention and management of injury. As Director of The George Institute's Injury Prevention Research Program for 12 years, she was one of its earliest staff members, intimately involved in expanding the scope and depth of injury work.

"I have always been interested in injury prevention, which I think was and still is a really unrepresented area in research," she says. "I ended up doing my PhD in injury, drawing on some data from one of Robyn's [Institute co-founder] studies. She gave me a job soon after they moved to Australia from New Zealand to set up the Institute."

Unlike much of the other work done at the Institute, injury prevention involves generating epidemiological evidence and then working

across multiple sectors, including governments and other agencies, to develop, implement and enforce laws and policies to reduce trauma.

"If you're a cardiovascular researcher, your intervention might be a blood pressure tablet and you study the effect of people taking different types of pills," Rebecca explains. "If you are working in road injury, you can't do a randomised controlled trial of motorcycle helmets. Instead, your intervention might be a seat belt law or a particular type of child car seat, which requires support from the highest levels of government to implement."

Rebecca has been involved in numerous injury research successes at the Institute over the years. In 2002, she led a large study of 20,000 young drivers to identify risk-taking behaviours in young drivers. The findings revealed numerous factors influenced crash risk, including risky behavior, driving at night, mental health and driving experience.

"We took the research to government and lobbied them about stronger restrictions on young drivers as part of the licensing program," she recalls. "Likewise, we also did a major study examining the risk factors for crashes in heavy vehicles, as fatigue in long distance truck drivers is of huge concern. That second study was then used to influence government policy on the regulation of safe hours of work for these drivers."



Driving Change, helping young Aboriginal and Torres Strait Islanders obtain their driving licence.

Rebecca's top moments

- Aboriginal leadership: *"The Aboriginal and Torres Strait Islander research program at The George Institute is led by Aboriginal and Torres Strait Islander researchers who set policies and practices. They oversee all Aboriginal and Torres Strait Islander health research undertaken."*
- Working with governments: *"We had great success working with governments to understand what their priorities are, conducting the research and then identifying changes that could be put into policy and practice."*
- Injury research program: *"We built a really strong and consistent injury program at The George Institute with such a great team. I'm delighted that injury research now takes place across all its offices and in so many different locations globally."*

Like chronic diseases, injuries tend to disproportionately affect the most underserved populations globally. In Australia, Aboriginal and Torres Strait Islander children under the age of four are four times more likely to die from a road-related injury and twice as likely to suffer a serious road-related injury than other Australian children. Mortality rates for Aboriginal children from injury-related causes are almost five times higher and hospitalisation rates two times higher than for non-Aboriginal children.

"If we're going to really reduce inequities in Aboriginal health, we have to acknowledge the role that colonisation, whiteness and power imbalances in policy and health services play," Rebecca says. "The George Institute has grown a strong and vibrant Aboriginal and Torres Strait Islander health program led by Aboriginal and Torres Strait Islander people, and this leadership will be key to addressing inequities in injury and other conditions."

"The George Institute has always been a very intensive incubator for really high-quality, pragmatic research that's focused on impact. That's extremely important when it comes to injury prevention, because to really reduce injuries, you have to move beyond just publishing great research."

From projects to strengthening child safety in cars and helping young Aboriginal and Torres Strait Islander people obtain driver licenses, to improving access to burns treatment and preventing falls, the Institute's injury program has expanded from an Australian focus to an international one with ambitious but practical objectives.

"At the moment we're recruiting 40,000 people from low- and middle-income countries into a study looking at which factors make people survive once they've been admitted to hospital after a traumatic fracture," she says. "We're trying to identify what are the things that kill you and what makes you survive once you get to hospital."

Now a leading global injury research centre and a designated WHO Collaborating Centre in Injury Prevention and Trauma Care, The George Institute is carrying out over 30 injury-related projects in Australia, India, Bangladesh, China, Vietnam, Uganda and South Africa, including projects relating to reducing drowning and snakebite, preventing falls and burns, improving management of hip fracture patients, and reducing road crash injuries.

"The George Institute has always been a very intensive incubator for really high-quality, pragmatic research that's focused on impact," Rebecca says. "That's extremely important when it

comes to injury prevention, because to really reduce injuries, you have to move beyond just publishing great research – you have to work outside the academic world if you're really going to make a difference."

Over the past two decades, researchers' findings have improved millions of lives – but there are less well-known staff behind the scenes who play just as pivotal a role, like Helen Monaghan.



twenty years of

project management

Helen's career began in a cancer registry where smoking was shockingly allowed in the office at the time. Processing death certificates of people who had died from cancer seemed very much at odds with this practice. Coincidentally, it was while working in Oxford for Sir Richard Doll, the person who finally proved that smoking causes lung cancer, that Helen first saw the power and impact of scientific research close at hand.

But it was something else that cemented her resolve to commit to what has become a long and passionate career in medical research – the chance to join The George Institute in 2000 to work on ADVANCE, the world's largest, most ambitious diabetes clinical trial (see page

16). The opportunity was so attractive, Helen moved from the UK to Australia to embrace it.

"It was my dream job and still is," says Helen. "From the beginning, The George Institute was a very motivating and dynamic environment to work in; one of real optimism and growth."

Helen, now Director of Global Project Operations, is the longest-standing member of Project Operations – a team of around 80 people globally that provide supporting services for studies and trials carried out across the Institute.

It is one of the most interesting aspects of research. Helen and her colleagues play a vital role planning, managing and continuously



Professor Anushka Patel and Helen Monaghan at an ADVANCE meeting, 2005.

Helen's top moments

- Making history:
"Working on the ADVANCE clinical trial was huge. I was involved in the study for about 14 years, right from the beginning until the end of the post-trial follow up. That was 11,000 people from 20 countries. It's definitely been one of my proudest achievements."
- Expanding research areas:
"Something I love about being part of the Institute is its ability to take on a breadth of therapeutic areas, from where we started with cardiovascular disease, diabetes and injury programs, then expanding to critical care, food policy, respiratory, stroke, mental health and renal programs of work. Alongside that there has been the crosscutting focus on women's health and Indigenous health. I think this makes the Institute's contributions stronger."
- Being part of an agile organisation:
"One thing I really like about the Institute is our ability and agility to make big changes, to change our strategic direction, take on new programs and embrace new technologies."



Professor John Chalmers AC and Associate Professor Martin Gallagher reviewing a grant application.

improving the way research projects are conducted at the Institute.

This includes everything from involvement in grant applications; assisting with the development of protocols; ensuring a research project is completed on time and to budget; making sure that participants' rights, safety and wellbeing are protected;

together to achieve something bigger and more important than any of them could achieve alone.

"I have been really lucky to work with researchers who really understand the importance of project management and we work alongside each other as peers," she says.

"Our results have a big impact on people's lives, so getting it wrong is not an option."

and ensuring that data is acquired thoughtfully, curated and used respectfully, stored securely and shared carefully.

"There are examples where studies are poorly designed and run; this can mean that results can't be published, disseminated or implemented," says Helen. "Our results have a big impact on people's lives, so getting it wrong is not an option. The project operations staff at the Institute are dedicated to contributing to high-quality research where risks are managed and mitigated, and where the integrity of project data is a primary focus."

As Helen and her team celebrate 20 years of helping researchers carry out complex studies around the world, she is still very excited about the possibilities ahead.

"Our focus will remain on helping under-served people around the world, and I think we can get even more creative and brave in our research conduct by developing innovative initiatives to improve how we do things in a way that saves time, money and consequently lives," she says.

Helen is incredibly proud of the collective determination of staff from across the organisation to work

Neurologist Professor Craig Anderson has played a key role in The George Institute's efforts to improve stroke treatment.



twenty years of

success in stroke treatment

Previously Director of the Institute's Neurological & Mental Health Division until moving to China three years ago to be Executive Director of The George Institute, China, Craig has been involved in evaluating different treatment management strategies for stroke since the 1990s.

His first major success at the Institute was the INTERACT 2 project, the origins of which began in 2003.

"We looked at a category of stroke that is most damaging when bleeding occurs in the brain," Craig explains. "We were trying to determine whether blood pressure could be controlled more intensively and therefore significantly reduce bleeding."

INTERACT 2 demonstrated that this management strategy improves patient outcomes. The trial's results were published in 2013 and were very soon written into

international guidelines for stroke treatment, transforming clinical practice worldwide.

"It led to a number of other trials that have had equally significant results," says Craig. "It also helped establish a very cohesive research team with strong links in China and build a global network, which has fostered a number of other research projects."

This network helped develop skills, expertise and collegiality among researchers, particularly in China.

"One of the reasons I came to China is because of this camaraderie and the successful collaborative partnerships I've had with colleagues in the country," says Craig.

Craig has continued to build on these early successes and currently leads two international stroke-related projects and oversees several others. The first is a huge study of 70 hospitals across China, appropriately called INTERACT 3 which includes blood pressure lowering and other simple treatments within a 'care bundle' of quality improvement for the management for patients with intracerebral haemorrhage.

"We are trying to determine what's the best way to control blood pressure after an acute stroke for the best patient outcome, as well as manage other variables such as temperature, and glucose and sugar levels," says Craig. "We will expand this project to countries as varied as Chile, Peru, Nigeria, Pakistan and Vietnam."



The SSaSS study, examining the impact of a low sodium salt substitute.

Craig's top moments

- INTERACT 2:

"The study results were written into international guidelines for strokes. That was a very significant result in clinical practice and meant The George Institute had some significant influence."

- Pioneering research:

"Being able to make a difference while working in epidemiology, public health, and randomised control trials on an international scale – no other institute was doing that at the time."

- Transforming China's approach to clinical research:

"We can be proud of the fact that we have contributed to China's capacity to do high-quality meaningful clinical research in chronic diseases. We've put China on the research landscape internationally and demonstrated how to undertake good research in China for the benefit of Chinese people."

The second study, INTERACT 4, looks at the control of blood pressure in the ambulance, immediately after patients have suffered a stroke in the home, to be undertaken across two cities in China.

"This is vital, as the control of elevated blood pressure on the way to hospital can make all the difference to the chances of a patient's survival," Craig says.

Craig and his team continue to help strengthen China's research capacity and improve the country's management of stroke patients. However, he is also

To this end, the ambitious SSaSS study, involving 21,000 people across 600 rural Chinese villages, aims to determine if reducing sodium intake translates directly into health benefits. The five-year study is the first and largest-ever study of a dietary intervention for stroke prevention worldwide, as well as one of the largest health research studies ever undertaken in China. Likewise, the Institute's ASK project is looking at ways to influence the population to reduce its salt consumption through advertising, interventions in restaurants and education.

"From the outset, The George Institute has always insisted on trying to solve major health problems on a global scale. That means we've never shied away from trying new things, in different ways and in new places to increase our impact."

a strong believer in prevention and the Institute is carrying out projects aimed at reducing the burden of cardiovascular diseases such as heart attacks and strokes among the population.

"All of the projects we're involved with are designed to encourage China to move away from its hospital-focused approach to healthcare and instead look to prevention, as well as cure," he says.

Excessive salt intake is responsible for high blood pressure and is closely related to hypertension, one of the most serious risk factors for cardiovascular disease. Based on disease models from elsewhere, it has been estimated that reducing the average Chinese person's intake by just a gram a day could save 125,000 lives a year.

The George Institute carries out a number of other salt reduction projects in Australia, the Pacific and Vietnam and was designated a World Health Organization Collaborating Centre on Salt Reduction in 2013. Craig is adamant that these kinds of innovative projects are just as important as his earlier landmark stroke studies, and reflect the Institute's multi-sectoral approach to improving population health.

"From the outset, The George Institute has always insisted on trying to solve major health problems on a global scale," he says. "That means we've never shied away from trying new things, in different ways and in new places to increase our impact."

Professor Vivekanand Jha was originally attracted to working at the Institute by its novel approach to research and its global mandate. These days he finds himself working on tough health challenges closer to home.



twenty years of

expanding access to health

A kidney disease specialist for over 30 years and Executive Director of The George Institute, India since 2013, Vivek has witnessed the tragedy caused by chronic diseases countless times over the years.

This year he was the first Indian to receive the prestigious title of President of the International Society of Nephrology but it's the recurring experience of treating patients in his homeland that remains close to his heart.

"I have been deeply affected by the catastrophic healthcare expenditure that

many families in India incur while caring for loved ones with a chronic disease," he says. "They go into deep poverty and destitution due to treatment costs and other associated expenditure. This poverty trap extends to next generations."

"Ensuring people can access affordable health care is therefore very, very important, especially for chronic diseases because they develop and progress silently."

With less than 10% of the population of India covered by health insurance, those suffering



Demonstrating the IMPACT Diabetes app to the Hon. Gladys Berejiklian MP, NSW Premier.

Vivek's top moments

- A growing office
"I've been really glad that we have grown so much in terms of staff strength over the last five or six years."
- Building local capacity:
"Initially, our research programs were mostly led by academics based outside of India. Now we have large number of high-quality India-based, mid-level investigators who are leading their own programs."
- Unique impact:
"The Institute is almost unique in India because there are very few independent research organisations focused on discovery and implementing research findings, while also focused on delivering impact and social change."

from chronic disease will often ignore their affliction for as long as they can.

"As a result, it's not uncommon that people at the peak of their productive years are affected," he explains. "In a country like Australia, someone with a bad chronic disease will be in their 70s or 80s. In India, they are typically in their 40s or 50s."

Once they do finally seek medical attention, patients are usually compelled to travel long distances to hospitals that can provide specialised care.

Travel is in itself a financial burden, but nothing compared to the cost of treatment. People will sell what they can – perhaps their only piece of land

affordable and sustainable preventive care to patients at high risk of chronic diseases.

In India, community health workers are using this technology to deliver essential care to those who previously had little or no access, potentially saving many thousands of lives.

Initially developed for cardiovascular disease, the Institute is now expanding SMARThealth to cover the most common conditions that are responsible for death and disability in the Indian population.

"My dream is that majority of the Indian population are able to access high-quality, essential, primary health care and that they don't have to

"We want to continue working on finding solutions that are affordable, sustainable and scalable, and that can be translated relatively quickly to other parts of the world."

– to raise enough money, and often take out loans, usually with high interest rates. More often than not, this locks them into a cycle of poverty.

"That's why The George Institute has always focused on those at the bottom of the pyramid," says Vivek. "We develop – and test using proper scientific methodology – solutions that are closer to the people, rather than expecting the people with a disease to come to the hospital."

Vivek's team runs the Institute's SMARThealth digital health program in India.

SMARThealth is a mobile-based clinical decision support system for primary health care workers which has had demonstrated impact on the health of thousands of people across six countries already, including India (see page 16). It enables health workers of all skill levels to provide high-quality,

incur out-of-pocket expenses," Vivek says. "SMARThealth is one of the key strategies that we are using to democratise healthcare accessibility and take it to the population that really needs it."

Looking ahead, Vivek hopes that The George Institute continues to build its global capacity while responding to local health challenges.

"Quite simply, I hope that the Institute will become the go-to organisation for finding evidence around major challenges related to health problems in India," Vivek says. "We want to continue working on finding solutions that are affordable, sustainable and scalable, and that can be translated relatively quickly to other parts of the world."

One of The George Institute's greatest global contributions to health care has been reducing the cost of treatments, according to Professor Norbert Berend.



twenty years of

reducing treatment costs

A former member of The George Institute's first Board, Norbert has closely watched the organisation's growth and successes over the years. With a background in clinical respiratory medicine and research, and significant experience in medical and research administration, he was among its very early supporters.

"It was a very exciting time because we recognised the tremendous potential of the Institute, which was still in its infancy then, but was obviously headed for great things," he recalls.

Now in the twilight of a highly distinguished career, Norbert recently completed a major respiratory study with the Institute involving approximately 2,400 patients across China and India.

The objective of the study, called TASCs, was to determine whether a relatively cheap treatment made a difference to patients with chronic obstructive pulmonary disease (COPD).

COPD is a respiratory condition that ranks amongst the top 10 causes of death in almost every country in the world. It is particularly prevalent in developing countries such as China.

"One consequence of COPD is that patients get exacerbations where breathing becomes extremely difficult – often due to respiratory infections," Norbert explains. "These exacerbations have a high mortality rate and reducing them is a major goal of current therapy. There are established successful therapies for reducing exacerbations, but they tend to be very expensive."



Professor Norbert Berend delivering training in Beijing, China.

Norbert's top moments

- Help where it's needed most:

"I think the biggest contribution of the Institute has been finding low-cost therapies that can be applied to treat large numbers of people in low- and middle-income countries."

- Changes to critical care:

"The Institute has made an enormous contribution to critical care – and reducing its cost – and made sure that patients really get cost-effective medications."

- Excellence across the board:

"With multi-disciplinary research institutes, it is seldom that there is the same quality of research across their various branches. But the Institute has maintained an extraordinarily high quality across all of its research endeavours."

Norbert and his team set out to ascertain the efficacy of this much cheaper treatment in an ambitious trial across 48 sites throughout China. While the challenging study ultimately found the treatment to be categorically ineffective, its contribution to medical guidelines will be extremely valuable.

"These drugs are widely used in developing countries because they're quite cheap," he says. "Our research should stop countless numbers of patients receiving a useless treatment, which doesn't have any benefit. It will save many developing countries an

Another example is a major study published in 2014, which found that paracetamol, the pain relief medicine that was universally recommended to treat people with acute low-back pain, does not speed recovery or reduce pain for this condition. The PACE study was the world's first placebo-controlled trial for low-back pain and found the effect is the same whether paracetamol is taken regularly or as required, compared to a placebo.

"A lot of the Institute's work in the intensive care sector has also been to debunk the use of really expensive

"It's difficult to think of another institute which has had the impact on global health that The George Institute has had."

enormous amount of money that could be better spent elsewhere."

This approach to reducing the cost of treatment is something Norbert has witnessed the Institute do many times over the years. Indeed, he believes it is the Institute's greatest contribution during its 20 years of research.

"There are many examples of this across different chronic diseases," he says.

"I think it's a theme that runs through much of the Institute's work – reducing unnecessary treatment costs and making sure that patients get cost-effective medications."

Norbert cited the Institute's groundbreaking work in simplifying dialysis treatment in the ACTIVE trial, and guideline-changing work on angiographies in the PRESERVE trial as further examples of generating evidence to streamline treatments and reduce associated costs.

or unnecessary interventions," he says. "One key study showed that normal saline is as good as albumin in maintaining intravascular volume in an intensive care environment – albumin is very expensive while normal saline is very cheap (see page 36). The salt substitution studies are similarly a relatively cheap innovation aimed at decreasing dietary salt intake to reduce hypertension, which will save huge amounts of money in treating strokes and associated complications (see page 29)."

For Norbert, it's this practical cost-effective approach to identifying and carrying out research that makes the Institute so unique.

"It's difficult to think of another institute which has had the impact on global health that The George Institute has had," he says. "It really is outstanding both in the scope of the work it does and the benefits it's achieved for patients around the world."

Thanks to the foresight of the Institute's founders, researchers like Professor David Peiris can today draw on a vast global network to help overcome some of the toughest health challenges at home – and overseas.



twenty years of

partnerships

Professor David Peiris joined the Institute in 2006 as a PhD candidate researching how to improve the quality of care in Aboriginal and Torres Strait Islander health services.

A pivotal step in the Institute's vision was realised soon afterwards, with research offices opening in India and China – where both countries faced massive chronic disease crises.

Thirteen years on, David is a leader in health systems science and Director of the Institute's Global Primary Health Care Program, helping to discover ways to deliver better care to people in complex and often under-resourced health systems.

"I don't think I appreciated at the time what a strong and visionary move establishing research hubs in China, India and the UK was," says David. "In building large-scale research programs, leadership from within the countries in which we are working is essential. This helps to ensure our work is well-designed, locally responsive and underpinned by strong regional relationships."

Today, David and the team regularly connect with likeminded experts around the world, and the Institute is affiliated with the University of Oxford, UNSW Sydney and Peking University Health Science Center.

Other multilateral agencies and key global and regional stakeholders are regularly engaged to

increase the impact of the Institute's research on policy and practice and ensure it has real consequences for those most susceptible to chronic diseases, injuries and inequity. This includes various government bodies, international groups such as the Global Sepsis Alliance (see page 43), NCD Alliance, Child Health Initiative, European Global Health Research Institutes Network, Taskforce on Women and NCDs, among others.

These relationships simply didn't exist in the Institute's early years.

More recently, a priority has been expanding such global partnerships, participating in multilateral meetings and consultations, and delivering evidence-based advocacy campaigns to impact global commitments driven by the United Nations, the World Health Organization, and others towards the Sustainable Development Goals set by the UN General Assembly in 2015 (see page 47).

Such a global approach now provides countless opportunities for knowledge exchange.

For example, research David undertook during a fellowship in the US examined positive changes to the health system under Obamacare. These new models of care are gaining traction internationally and David is investigating how similar models could

David's top moments

- 'Can do' attitude:
"Ever since I've been with the Institute, the mindset people have is to get on with the job, stay focused on the big goals and not to get too bogged down in minutiae."
- Global collaboration equals big impact:
"Our strong international presence means that when something is learned in one region there is potential to disseminate lessons to other regions. It increases the possibility that other researchers and policy-makers elsewhere in the world can pick up on a learning and apply it in their country."
- Tackling the great unknowns:
"With regards to big questions like 'Does digital technology strengthen health systems?', we've got research that says 'Yes' and research that says 'No'. I think what the Institute has contributed is a more nuanced understanding that with complex questions come complex answers. In the future we will look to further understand how this complexity can be better understood and harnessed to improve health outcomes."



be deployed in Australia to make healthcare services both more affordable and of high quality.

Another exciting focus for the health systems team has been discovering ways to overcome doctor shortages in resource-constrained environments such as India (see page 30). Community health workers with low levels of schooling have been successfully

designed studies could work effectively in other settings such as in rural China (see page 28).

"I see addressing health needs everywhere as being a universal right, but the solutions play out differently within and across countries, whether I'm in my role as a doctor in a clinic in downtown Sydney or researching in a remote health clinic in India," says David.

"Nothing good happens in a vacuum and our work is really about partnerships."

supported to perform some of the doctors' duties. This has provided further learnings on how best to deploy multi-skilled primary health care teams to deliver services traditionally undertaken by doctors.

David continues to collaborate with Aboriginal Community Controlled Health Services on many health services research projects. This collaboration model helps to ensure that the research is culturally safe and relevant (see page 39). The models of care used in these services has inspired ideas for how co-

"Nothing good happens in a vacuum and our work is really about partnerships. I think in the next 20 years we'll be cementing much stronger collaborations across the spectrum from grassroots local organisations through to global players like the United Nations, World Health Organization and World Bank, and becoming even more active contributors to the global health agenda, collectively solving great health system challenges."

The George Institute's different approach to critical care research has not only saved countless lives, but also been highly cost-effective, says intensive care specialist and researcher Professor John Myburgh AO.



twenty years of

improving critical care

In the early 1990s, there was limited research on how to improve outcomes for intensive care unit (ICU) patients in Australia.

Up to 15% of ICU patients were dying but a determined group of Australian and New Zealand ICU doctors, including John, wanted to change this. They began running small clinical trials to try to improve both care and survival rates for their sickest patients.

By 1999, the year The George Institute was formed, John and the team were making good progress and were ready to conduct their biggest trial yet – the ambitious SAFE study – which aimed to establish if a commonly used resuscitation fluid called albumin was actually increasing deaths.

“People said we were crazy for attempting this major trial of 7,000 patients – that we

didn't have the expertise and ability,” recalls John. “But when we went to see [The George Institute co-founders] Robyn Norton and Stephen MacMahon, they didn't say ‘It can't be done’; they said, ‘How can we help you?’”

It was fortunate they did. The study proved to be a game-changer in ICU medicine, demonstrating beyond question that recovery rates for patients with traumatic brain injury were indeed much higher if doctors avoided administering albumin.

The study also offered an exciting new model for large-scale clinical trials, paving the way for the Institute to conduct numerous other trials over the next two decades.

“A subsequent study we did in intensive care called CHEST looked at whether or not the use of a particular starch for fluid resuscitation



Studies such as SAFE, CHEST & ADRENAL have influenced guidelines and clinical practice worldwide.

John's top moments

- Running the SAFE study:
"Stephen and Robyn had a can-do, how can we help you approach, which I found very inspirational. It's something I'm extremely grateful for and, when people come and ask me for help, something I've modelled my own responses on."
- Turning research into results:
"It's really inspirational when we finish a trial, publish the results and see changes take place in clinical practice globally."
- Saving lives and money:
"The implementation of the results of our studies over the last 20 years has resulted in thousands of deaths avoided and millions of dollars saved."

was increasing death and kidney failure in ICU patients," he says. "Our study showed it did and was instrumental in getting this product removed from clinical practice around the world. It's likely tens of thousands of lives have been saved as a result."

"The George Institute was front and centre with that study, I was the lead investigator. In many ways, that study was one of the highlights of my 40-year ICU career and I think a highlight of The George Institute's contribution to the sector."

critically ill patients across 40 study sites, with preliminary findings suggesting the latter reduced relative risk of death by 12.5%. Full results are expected to be published in 2021.

These trials have significantly influenced clinical practice and medical regulatory authorities worldwide, and have helped improve how common life-threatening problems facing ICU patients are treated around the world.

However it's not just lives that are saved by such ambitious research.

"A study looking at the impact of our trials found thousands of lives have

"A study looking at the impact of our trials found thousands of lives have been saved and significant savings have been made to the Australian economy."

Another study, ADRENAL, looked at the use of hydrocortisone steroids in reducing mortality in patients admitted to an ICU with septic shock. It found the steroids not only reduced the duration of septic shock, but also the time spent on life support therapy in intensive care, thereby saving treatment costs.

ADRENAL's impact was clear from the outset. It was the first Australian ICU trial to be included in the UK's Portfolio of the National Institute of Health Research, facilitating UK resource support. It was also a finalist in the 2019 Australian Clinical Trials Alliance's (ACTA) Clinical Trial of the Year Award and won the STING Award for Statistical Excellence.

SAFE and CHEST were the two largest Randomised Controlled Trials (RCTs) ever conducted in intensive care medicine until the Institute's PLUS study was launched in 2016. PLUS is examining the impact on mortality of normal saline compared with a balanced solution among 8,800

been saved and significant savings have been made to the Australian economy," John says. "As intensive care units emerge in less-developed countries like Brazil and China, a lot of the research we've done will be just as applicable there as it is in Australia, Europe and the US."

John believes this patient-centred, outcome-based approach to research has been a fundamental ingredient in The George Institute's ability to affect change for so many people around the world in such a short amount of time.

"None of us really had any idea when we first started doing these trials 20 years ago that we could have ended up where we are now," he says.

"The George is a can-do place, led by some extraordinary people. Nothing is too hard, and things are done in a way to find solutions. For career researchers like myself, this makes research enjoyable and fulfilling."

Originally trained as an epidemiologist, Professor Maree Hackett joined the Institute in 2005, completing her PhD soon after in a field that would remain her focus to this day – the effect of chronic diseases on mental health.



twenty years of

improving mental health

Maree's first major success at the Institute was with the POISE study in 2008, which recruited 441 people under the age of 65 in Australia who had experienced their first ever stroke.

The five-year study's key aim was to determine whether psychosocial factors were associated with a return to paid work after one year in younger stroke survivors. Its secondary aim was to determine the economic impact of not returning to work for younger stroke survivors and their families.

"What we successfully highlighted in POISE and my PhD was that depression following a stroke is much more common than many people realised – it affects about a third of all stroke survivors," Maree explains. "At any one time, one-in-three people will experience depression or related clinical concerns after a stroke, and about 50% of people will experience depression in the first year after an event."



Getting it Right. Validating a screening tool for depression for Aboriginal and Torres Strait Islander peoples.

Like other studies done by the Institute, Maree's past work has included examining the economic and emotional benefits of an intervention in order to advocate for increasing access to treatment.

"We looked at the impact of cataract surgery in Vietnam beyond just curing blindness, and generated evidence to indicate the household economic benefits to improving eyesight, as well as benefits to mood," she says.

For Maree, one of the key factors that differentiates the Institute from other organisations working on mental health is its global reach and clear focus on the links between mental health and chronic diseases. She currently leads the Institute's Australian mental health program, but has carried out successful trials in Sweden and the UK. The George Institute, India's Deputy Director, Professor Pallab Maulik, is a psychiatrist and is leading a project to integrate mental health screening into the Institute's SMARThealth app (see page 16).

"We're also working on a study on emotionalism, which is the tendency to uncontrollably laugh or cry inappropriately after strokes, and strategies for treating depression after a stroke," she says.

The Australian mental health program has expanded over the years to include mental health challenges facing Aboriginal and Torres Strait Islander people.

Maree's top moments

- New screening tool for Aboriginal and Torres Strait Islanders:
"Up until now, we couldn't reliably ascertain the scale of mental health problems in communities in a culturally appropriate way, which has remained a huge concern. We hope this tool will be a turning point."
- Mentoring:
"I really like helping students navigate the system. I love mentoring them, that's been a constant thing throughout my career because I had some great mentors when I was doing my PhD."
- From ideas to impact:
"Ideas are born, and we take a bizarre concept and work it through to a fundable grant. It's quite special when you see the outcome from a completed study."

"Mental health problems experienced by Aboriginal and Torres Strait Islander people have been overlooked, dismissed and marginalised for too long," Maree says. "We recently validated a culturally appropriate tool with and for Aboriginal communities and researchers to help us assess and address the scale of mental health problems in communities."

Dr Anne-Marie Eades, a Noongar woman from Western Australia and a descendant of a Wilman father and Minang mother, is also working with mothers and children to increase the resilience and strength of Aboriginal

screening, treatment and combating discrimination.

"We need affordable, non-threatening, widely applicable interventions for things like depression that people can access – regardless of their location," she says. "It can be straightforward enough to diagnose someone with a mood disorder, but there might be no supply of antidepressants or access to talking therapy anywhere near that patient. Or perhaps the patient might not be able to afford that antidepressant or therapy, or not for very long."

"At any one time, one-in-three people will experience depression or related clinical concerns after a stroke, and about 50% of people will experience depression in the first year after any health event."

women who have experienced some vulnerabilities.

"The aim of her work is to reduce the number of child removals from Aboriginal families and help maintain the wider family unit," Maree says.

For Maree, the Institute's biggest contribution to the field of mental health has been the normalisation of mental illness in a chronic disease setting.

"Along with other organisations, we've highlighted that depression and anxiety happens after almost every chronic disease, and raised awareness of the consistency of the problem, which is not an excuse to do nothing about it," she says. "If we can normalise it and say it's slightly unusual if it doesn't happen, then people are more likely to seek help and tell us they're unwell."

Despite the progress made, Maree is the first to acknowledge that much more remains to be done in terms of

"We also need to get rid of the stigma and make sure that when people visit a doctor or other healthcare professional, they can be confident that the healthcare professional knows what to do. We need to make sure they are reassessed if they are prescribed a treatment, so they won't be left on it forever."

These challenges require the broader education that comes from high-quality research.

"There's still a common misunderstanding between symptoms and diagnosis, and what a diagnosis actually means," she says. "We all experience symptoms of depression, anxiety, and other disorders – sometimes on a daily or weekly basis. But we're only clinically unwell if the accumulation of those symptoms stops us from being ourselves."

One of the key challenges to improving health care in low- and middle-income countries is strengthening the local healthcare workforce, says Associate Professor Rohina Joshi.



twenty years of

building capacity

Like so many other long-time staff members, Rohina started at The George Institute as a PhD student in 2003 and never left. Now an Associate Professor and Scientia Fellow at the Faculty of Medicine at UNSW Sydney, and Senior Research Fellow at the Institute, she looks back on her early days fondly.

“I really liked the clarity of thought in those initial months,” she recalls. “The Institute was so small at the time and it was just a fantastic atmosphere.”

Raised in northwest India on a mission hospital by a dentist and dietician, Rohina grew up in the medical world surrounded by healthcare professionals. It was there she first witnessed efforts to strengthen the capacity of local healthcare workers.

“Both my mum and dad did quite a lot of community outreach work so I heard a lot about the challenges,” she says. “My Alma Mater, Christian Medical College, Ludhiana established one of the first primary health care centres in the world. The community medicine department trained lay health workers and supported them to deliver primary health care.”

Rohina took these experiences into her professional life, beginning with a project to train community health workers to run a mortality surveillance system to determine which diseases were the biggest killers in rural India. Part of her PhD with The George Institute, the project identified premature deaths from cardiovascular disease and cancer as the biggest challenges.



Community health worker training to strengthen the primary health care system in India.

"There were people with established cardiovascular disease who needed to be on full medication but were on nothing – only 6-10% were on adequate treatment," she recalls. "These people did not have access to doctors, so we began to ask ourselves, if doctors aren't available in these areas, who else can we train?"

Through her research with the Institute, Rohina and her colleagues began identifying ways that the health system could support non-physician trained health workers already in the community. However, she soon realised

help them determine the cause of a person's death. In the Philippines, most deaths occur at home which makes it difficult for the doctors to assign a cause of death. Inaccurate reporting of causes of death leads to poor decision-making, hence this initiative will enable the government to have reliable and timely data.

"We tested this approach in 50 municipalities and completed the pilot in July last year," she says. "Looking at the data and acceptance by the doctors and community members, the government is now rolling out the

"These people did not have access to doctors, so we began to ask ourselves, if doctors aren't available in these areas, who else can we train?"

Rohina's top moments

- Building a global research workforce:
"I find it very rewarding when my students publish a paper or submit their thesis and graduate."
- Research to practice:
"After finishing the project, the Philippines government said: 'We like this – we want to roll it out across the country'."
- Making a difference:
"Knowing that the work we do is actually going to have an impact and not just end up as a publication really keeps me going – it's exciting."

that training workers alone was only one piece of the puzzle.

"After the first study, we trained health workers to screen members of the community," she says. "We soon realised that people can be screened easily enough, but if there are no medicines available in the pharmacy, or if the community simply doesn't believe in the primary health care system, then there's no point doing the screening in the first place."

Those early realisations led to projects with more emphasis on policy advocacy to facilitate greater change at the system level. Rohina has carried this approach throughout her 16 years with the Institute and now has PhD students in India, Ethiopia, South Africa and Nigeria working on similar issues.

She currently collaborates with the University of Melbourne and the Philippines Government to train doctors in using an electronic support tool to

intervention in a phased manner. I went back this year to train 90 trainers, who are going to train all the community doctors throughout the country."

"This project started as research but now it's been translated into policy and is already in practice."

For Rohina, it's these kinds of concrete examples of impact that keeps her so passionate about the work the Institute does.

"Academic publications are important, but how do they translate into day to day practice? How do they improve somebody's health outcomes? How do we respond to local contexts and deliver impact? Answering those kinds of questions is really exciting for me – it keeps me going and I really enjoy the work."

Working with The George Institute for 20 years, critical care physician Professor Simon Finfer has led transformational studies into intensive care to reduce mortality and shed light on one of the world's most serious silent killers – sepsis.



twenty years of

saving lives

Now Professorial Fellow in the Critical Care and Trauma Division at The George Institute, Simon first came across the Institute shortly after its establishment in 1999.

“By chance, it had just been set up in an office in one of the old buildings at Royal North Shore Hospital, which is where I worked at the time and still do,” he says. “The Institute only had about eight people then but they were open to really ambitious ideas.”

Simon and others soon designed and found funding for the world’s first intensive care unit (ICU) mega-trial, the SAFE study (see page 36), which was the first to demonstrate that robust, high-quality research could be done with critically ill patients.

“It really changed the whole landscape of critical care and research around the world because most people believed it was not possible to recruit that number of patients into a critical care trial and make sense of it,” he says. “I think our greatest achievement at the Institute has been to demonstrate that really robust, high-quality research could be done in the critical care population and lead to improved mortality.”

The success of that trial led to numerous other ICU guideline-changing studies (see page 36) until Simon found himself coming full circle to focus on a condition about which he had conducted pioneering research many years earlier as a founding member of the Australian



Research done by the Institute has been adopted widely and has helped to reduce mortality.

and New Zealand Intensive Care Society (ANZICS) Clinical Trials Group.

"I did the original study of the epidemiology of sepsis in Australia and New Zealand in 2003 and it was quite clear that sepsis was one of the major issues that we needed to tackle in ICUs to reduce mortality rates," he says.

Sepsis is a life-threatening condition that occurs when the body's response to infection damages internal organs and tissues. If not treated, it can lead to worsening organ failure and death. Many who survive sepsis are left with horrendous life-changing conditions,

Simon and his team at the Institute, along with other research teams trialed a number of medical interventions to reduce the mortality rate, which included raising awareness about the disease among hospitals.

The results speak for themselves.

"The mortality rate across the world of patients with sepsis shock 20 years ago was just short of 50%, and now it's in the high 20s," he explains. "I can confidently say that we collectively achieved the 2% figure quite easily and substantially."

"I think our greatest achievement at the Institute has been to demonstrate that really robust, high-quality research could be done in the critical care population and lead to improved mortality."

including amputation and post-traumatic stress disorder.

"Sepsis kills more Australians each year than breast or prostate cancer, but there's no public outcry about this, or national campaign to reduce the shockingly high death rate," says Simon. "It is still the most common cause of death in patients in ICUs."

When Simon began his initial study into sepsis, around 100,000 people were being admitted to ICUs in Australia each year, with the average mortality rate at around 15%.

"One in six-to-seven people who went to intensive care would die during their hospital admission," Simon says. "We set ourselves the goal of reducing that by 2%, which would mean saving 2,000 lives per year – the same number of people killed on the roads in Australia each year."

Nevertheless, much more needs to be done and Simon now sees raising awareness of sepsis among medical practitioners and the general public as another key factor to reducing mortality, particularly among vulnerable groups such as children.

"More than 50 percent of sepsis deaths in children occur within 24 hours so it is essential parents are aware of early symptoms and seek urgent medical care," he says.

"Sepsis can be prevented and, in many cases, can be treated successfully. We need to ensure that when patients present with symptoms they receive the best care possible, and that treatment begins as quickly as possible."

Simon's top moments

- Changing the culture:
"Nearly all Australian intensive care units are now conducting high-quality research and that comes from the Critical Care and Trauma Division at The George Institute, who led the country in conducting high-quality research and changed the culture."
- Reducing mortality:
"Research done by the Institute has been adopted widely and has helped to reduce mortality."
- Cost-effective treatments:
"We have frequently demonstrated that cheaper treatments are better and have saved the health services substantial amounts of money."

Just as a lack of trained doctors can cost lives, a shortage of researchers can also mean opportunities to save them are lost. That's why building an international research workforce is a top priority, says Peter Dolnik.



twenty years of

empowering researchers

When Peter Dolnik, Director of Research Strategy and Services, arrived at The George Institute in 2007, it was an exciting time of new possibilities, with offices being launched in both China and India (see page 34).

But a massive challenge quickly emerged.

"We not only needed well-trained health and medical researchers, but ones that could speak the local languages and display the necessary sensitivity and cultural skills to ensure success," Peter says.

However, just as the health systems in these countries lacked the proper resources to tackle chronic disease, there were also not enough local researchers.

It therefore became clear that helping to build the local research workforce in countries such

as China and India had to become a key part of the Institute's operations.

Today, as part of a broad range of responsibilities, Peter oversees the Institute's intensive research training program. Since it began in 2015, the program has trained over 250 researchers from around the world with the necessary skills to make a crucial difference to some of the world's most disadvantaged regions.

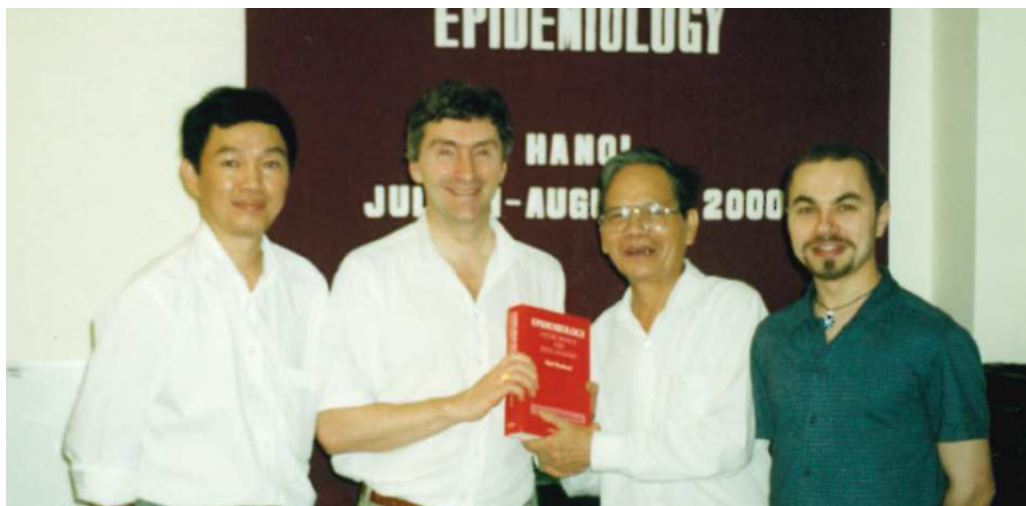
"Our research training program is something I am really passionate about," says Peter. "It is based on the belief that, in addition to research we conduct in low- and middle-income countries, we also have a moral obligation to contribute to training the next generation of researchers – to make sure that in 10 or 15 years from now there is sufficient capacity for



PhD Students from China, in Sydney to complete the Future Stars Clinical Training Program.

Peter's top moments

- Establishing the Research Services Unit:
"When I joined the Institute there was no Research Services Unit: no system, no database, no processes for submitting funding applications. Now I have five staff globally supporting the submission of more than 200 funding applications every year, coordinating internal academic reviews of all applications to ensure that only high-quality applications are submitted to funding bodies. I'm quite proud of that."
- Establishing a new research centre:
"I was responsible for establishing a health research centre in China in collaboration with a group of cardiovascular physicians that we had long-established collaborations with. A lot of our research has been done in China in the past but to actually play an active part in establishing a vehicle that further enhances our opportunities to contribute to improving health in the country, I feel very proud of that."
- Working with the best of the best:
"When you know that you lead a service group providing support to some of the most prominent experts and international leaders in their respective fields, it's quite exciting."



Epidemiology training conducted in Vietnam, by The George Institute in 2000.

them do really high-impact research independently."

In addition to the intensive training program, the Institute staff currently also supervise more than 70 students who come to Sydney to undertake their PhD at UNSW Sydney, or travel to the UK to study at another Institute affiliate, the University of Oxford. Others, already more advanced in their career, are supervised, mentored and further trained by the Institute's senior researchers in one of our centres to further hone their skills.

countries. However, their research ability is not the only skill from which so many others will benefit: they also play a vital role in training local researchers when they return home.

"It is really exciting when a researcher spends months or years training with us and then returns to their country and becomes a leader in their field," Peter says. "I really look forward to contributing to training future generations of the world's high-impact researchers."

"It is really exciting when a researcher spends months or years training with us and then returns to their country and becomes a leader in their field."

Students from as far afield as Bangladesh, China, Ethiopia, India and Nigeria are both trained and mentored across The George Institute offices in Australia, India, China and the UK. Short courses to absorb and learn more specialised research skills are also provided in various countries and contexts.

These early-career researchers could go on to make discoveries that help millions of people in their home

Peter is optimistic about the future of the Institute and proud to be working with such a dynamic organisation.

"The Institute is at the forefront of efforts to translate research into policy and practice and I get to work with some of the best researchers in the world," he says. "I believe we are one of the most influential global research organisations in our field."

Health economics is now a key part of The George Institute's work. Professor Stephen Jan explains how its importance and impact has evolved over the years.



twenty years of

making a difference

Health economics was not considered a key element of research when The George Institute was established in 1999. No longer. Today almost all of the Institute's work involves some economic analysis.

"When I joined the Institute in 2005 there was no health economics research program," says Stephen. "Up to that point, the Institute's reputation rested on undertaking large clinical trials and trialing new treatments. There was little emphasis on health services, health systems or health economic analysis."

"So a good part of my work early at the Institute was simply to raise awareness about the importance of health economic analysis and of including it in the design phase of the research programs."

Today, the crucial role that health economics plays in informing research is well understood at the Institute. At its core is an insistence that any healthcare innovation must unequivocally demonstrate value for money.

"It's one thing to say 'it works' but quite another to say whether money should be spent on it," he says. "So when we do a clinical trial, the primary question is whether the new drug, medical device or medical procedure is effective. If so, the next question is whether it represents value for money. To assess this, we collect data on the costs and effectiveness of the new initiative, compare it to the alternatives,

and then recommend whether it makes sense to switch."

Stephen's work has involved designing new ways to fund health care that not only enable healthcare systems to become more sustainable, but also operate more equitably.

This approach to advocating for change based on health economics research findings has already had a profound impact. The Institute's ACTION study followed 9,513 cancer patients through their first year after diagnosis to determine the economic impact of the disease on households in eight Southeast Asian countries. It demonstrated that patients in low- and middle-income countries were obliged to pay much of the cost of cancer treatment, if not all of it.

"A crucial element of ACTION was to focus not only on the burden of households accessing care, but also the rates of cancer treatment discontinuation," explains Stephen.

This meant a very strong direct association could be made between cancer patients that stopped treatment and their level of health insurance coverage and socio-economic status.

"ACTION was the first of its kind to examine the human cost of cancer to help governments improve access to cancer care and reduce the burden of costs associated with the illness," he says.

The policy impact of this research has been extensive. It was acknowledged in the Philippines Senate during the passing of the National Integrated Cancer Control Act, which provided subsidies for treatment and expanded the services available throughout the country; in successful advocacy efforts to exempt cancer drugs from a goods and services tax in Malaysia; and in the development of cancer treatment guidelines and reimbursement decisions for cancer drugs in Indonesia.

Stephen and his team's work is also contributing to discussions at the

Another relatively new area of the Institute's research is exploring the impact environmental factors have on the development and progression of illness. Researchers are using existing and pioneering methods to find patterns in large-scale data and gather information about the impact of urban settings on health.

By harnessing the concept of cities as data networks in which feedback can be crowdsourced through, for example, monitoring wearable sensors, research can support the evidence-based design and implementation of healthier, safer,

Stephen's top moments

- Wide-reaching impact:
"The impact we have is on policy, on clinical practice and ultimately on the lives of people."
- The recognition of the importance of health economics:
"Health economics and process evaluation are recognised as a really important component of research and are having an increasingly significant role in all the research we do across the Institute."
- Informing national policy:
"The ACTION study helped to frame the Integrated Cancer Services Act in the Philippines."

"We've been able to expand and harness our work in health economics to increasingly address the needs of the most disadvantaged around the world, which is probably the most rewarding part of the work that we do."

highest levels regarding the global push for universal health coverage. In 2018, they identified some of the economic issues surrounding non-communicable disease in low- and middle-income countries.

"I think that work has been quite influential in recent global discussions around the funding of non-communicable diseases," he says. "In 2018 and 2019, our work was used to inform discussions at the annual United Nations General Assembly High-level Meetings on Non-communicable Diseases and on Universal Health Coverage. Part of our message has been that a key responsibility of governments and health systems around the world is to protect individuals and families from the high costs of diseases such as cancer and heart disease."

more equitable and sustainable urban spaces.

However, for Stephen, the growing recognition of the importance of health economics in translating research to policy and impact has been particularly gratifying.

"Most researchers go into research not just with the ambition of publishing papers and being recognised by their peers, but of making a real difference," he says. "We've been able to expand and harness our work in health economics to increasingly address the needs of the most disadvantaged around the world, which is probably the most rewarding part of the work that we do."

Reflections



The George Institute
for Global Health

20
years
1999 – 2019