STRONGER TOGETHER



IMPACT REPORT

2019-2020

Sydney HealthPartners

Sydney Health Partners

OUR PARTNERS

NSW Health Northern Sydney Local Health District

NSW Health Sydney Local Health District

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The George Institute for Global Health

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Woolcock
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We are an Australian Government-accredited Advanced Health Research and Translation Centre. Our vision is to transform the way research improves patient care and public health in our health system through strong collaboration, inclusive thinking and an overriding commitment to meet the health needs of our community.

Australian Government
National Health and Medical Research Council

NHMRC accredited Advanced Health Research and Translation Centre

STRONGER TOGETHER

Sydney Health Partners brings together four health services, one of the world's leading universities, and ten affiliated medical research institutes.

We draw strength from the leadership of our Local Health Districts, a long history of successful research collaboration between the University and other Partners, and our large scale of operation.

IMPACT REPORT
2019-2020

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ABOUT THE REPORT



It's been a momentous year for everyone including Sydney Health Partners. Covering the period since our last Impact Report was presented in May 2019, this publication reflects the reality that COVID-19 overshadowed all other considerations.

We have, accordingly, dedicated the opening section of the report to the responses of our partners to the pandemic.

COVID-19 also influenced the choice of theme – *Stronger Together* – which is represented by woven strands of rope. Throughout the report you will find inspiring examples of the ways in which our partners have come together in new and innovative collaborations to strengthen translational research activity.

Here also are stories of our current Medical Research Future Fund projects and examples of translational research that, after seed funding from SHP, have grown to make an impact on our mission of better healthcare outcomes.

It's a compelling read and I hope you enjoy it.

Professor Garry Jennings AO
Executive Director

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Medical Researchers Enlist in Battle Against COVID-19

In the scorched days of late January 2020, as much of Australia was coming to terms with the shocking aftermath of the worst bushfires in living memory, a few clinicians and medical researchers were more worried about a different kind of conflagration.



A new and unnamed virus had flared up in China, and those who had long been warning of the potential threat posed by emerging infectious diseases were on high alert. One of those was Professor Tania Sorrell, who leads the University of Sydney's Marie Bashir Institute for Infectious Diseases and Biosecurity and the Centre for Infectious Diseases and Microbiology at The Westmead Institute for Medical Research.

"Westmead is the New South Wales referral hospital for infectious diseases of high consequence, although originally we had things like Ebola and other viral haemorrhagic fevers in mind," said Professor Sorrell.

"We were preparing our staff for the opening of the new NSW Biocontainment Centre at Westmead. So, when the second, third and fourth cases of COVID-19 in Australia were detected in NSW, Westmead Hospital and the surrounding Westmead Precinct was able to respond quickly – from both a clinical and research point of view."

The Westmead Precinct became the epicentre of an enormous amount of genomics, rapid diagnostics for virus detection and blood serology test development. Within a week of diagnosing the first case, a team at Westmead Hospital's Institute for Clinical Pathology and Medical Research (ICPMR) had developed one of the first antibody tests in the world able to identify whether a person had been previously been infected with the coronavirus.

That test, which was sensitive and specific, assisted Professor Kristine McCartney at the neighbouring National Centre for Immunisation Research and Surveillance (NCIRS) to track early outbreaks in schools and to assess levels of community transmission in Sydney and NSW. Professor Sorrell says NCIRS was able to show there was little in the way of transmission between students at school and "there was much more likelihood of transmission from adults in the home environment or, in the school setting, between teachers in the tearoom environment."

"In addition, a team led by Professor Vitali Sintchenko (University of Sydney/ICPMR) and Dr John-Sebastian Eden (Westmead Institute for Medical Research) used viral genome sequencing to distinguish between COVID-19 cases coming from China and Iran. The contribution of cases from Iran to global spread wasn't really understood at the time and their findings had international implications."

Associate Professor Nick Wood (also from NCIRS) and Professor Craig Munns at the Children's Hospital Westmead collaborated with investigators at several other Sydney hospitals, to commence the NSW leg of an international trial investigating whether the Bacille Calmette-Guérin (BCG) vaccine could protect healthcare workers exposed to coronavirus from developing severe COVID-19.

Leader of SHP's Infection and Immunity Stream, Professor Ben Marais, said that trial had wider benefits. "Even if BCG is not an effective intervention for COVID-19, we are setting up the systems to test new vaccines."

"We are establishing a network so that when new vaccines become available, they can be rapidly tested in an Australian setting. Such a vaccine trials network will be a strategic resource beyond COVID-19."

At the Westmead Institute, Professor Tony Cunningham AO and Professor Sarah Palmer turned lessons learnt when developing a successful shingles vaccine to designing a vaccine adjuvant for older people who are at greatest risk from COVID-19.

"All the vaccine trials have been done in people under 60 and some of the immune stimulants used have not provided the level of efficacy we need," said Professor Cunningham. "So we are looking at vaccine adjuvants that have proven value in stimulating an enhanced immune response in the elderly."

The flurry of activity at Westmead was typical of the speed with which the research community across Sydney Health Partners pivoted and repurposed its knowledge, skills and research infrastructure. In a sector where projects take years and programs can stretch over decades, needs were identified and research proposals written in mere weeks.

At the University of Sydney, for example, Professors Patrick Brennan and Stuart Grieve adapted their award-winning DetectED-X imaging platform to create the world's only free, online, image-based tool to assist healthcare workers with COVID-19 X-ray diagnosis.

Meanwhile, Professor Eddie Holmes was at the forefront of the worldwide scientific race to understand SARS-CoV-2, helping to establish that the virus which causes COVID-19 emerged from nature rather than a lab.

And pioneering work by Professor Thomas Snelling to develop an adaptive model which could speed up the outcome of clinical trials, was suddenly in great demand.

"Tom Snelling's stuff on Bayesian adaptive trial design was seen as a quirky area, that only a handful of people understand," said the University of Sydney's Executive Dean of Medicine and Health, Professor Robyn Ward.

"But all of a sudden, traditional randomised clinical trials were not fast or nimble enough, and faced with the urgent need to get answers about new therapies it became highly applicable."

This story of medical researchers and clinician scientists thrust suddenly into the frontline of the pandemic battle was repeated many times. In the face of a once-in-a-century crisis, the Australian health system was tapping the enormous intellectual, scientific and clinical research resources within its hospitals, universities and associated research institutions.

Professor Ward says the University was able to quickly mobilise its national and international networks and tap into core capabilities that "come from being at the top of the research game."

"It points to the importance of developing capabilities in areas which may not have an immediate application," she said. "Our researchers were able to apply their knowledge and skills to this new problem, which I think is marker of very good researchers with strong capabilities."

According to the deputy chair of the Northern Sydney Local Health District COVID-19 Clinical Research Group, Associate Professor Rory Clifton-Bligh, such was the volume and diversity of ideas being proposed by researchers, the immediate challenge became one of co-ordination.

"It became very obvious to our group early on that we needed to triage studies coming through the pipeline, otherwise some nationally-funded clinical trials would be disadvantaged and possibly underpowered," he said.

He launched a research project to study the loss of smell reported by many people as an early symptom of COVID-19 infection and a fellow clinician at Royal North Shore Hospital, Professor Ravinay Bhindi, commenced an Australia-wide study to confirm early overseas data that people with cardiovascular conditions were particularly susceptible to the coronavirus.

"There has been a huge amount of extra work, but it's about asking what we can do to help," said Associate Professor Clifton-Bligh. "This is a once-in-a-lifetime existential threat to us all and you've just got to roll up your sleeves."

CONTINUED >

Medical Researchers Enlist in Battle Against COVID-19



The Research Director at Sydney Local Health District (SLHD), Professor Warwick Britton, says he's "never seen this level of commitment across the system."

"Having worked at Royal Prince Alfred Hospital for 40 years, the degree of cooperation and collaboration to manage this problem has been unprecedented."

SLHD's Director of Public Health, Dr Leena Gupta, says the NSW Health system has done a brilliant job of adapting to the extraordinary circumstances.

"Before COVID, our preparations had focussed on the possibility of another influenza pandemic," she said. "Normally in that situation you'd expect a vaccine to be available within three months. This time we've had to implement our public health measures without knowing when we'll get a vaccine."

Dr Gupta said SLHD found itself with unique challenges. Charged by the NSW Government with providing care to those in quarantine hotels who were found to be COVID-positive, the District quickly adapted its newly-launched telehealth hospital service, RPA Virtual.

"It became clear that many of the COVID-19 patients didn't need to be hospitalised so we started referring them to RPA Virtual because we knew they were in good care and being monitored two or three times a day," said Dr Gupta.

"We are now doing a case series analysis of the first couple of hundred of those patients to understand what the outcomes were."

One of the benefits of RPA Virtual was the availability of a large and well-defined cohort of COVID-19 patients to study and learn from.

Using the cohort, RPA Virtual Clinical Director, Dr Owen Hutchings, commenced research into the mental health effects of isolation on the quarantined, and Associate Professor Greg Fox and colleagues began looking for serological evidence of past infection amongst household members and healthcare workers who had come into contact with COVID-19 patients.

At the Woolcock Institute of Medical Research, Professor Brian Oliver and Dr David Chapman adapted techniques developed in breathing research to try to define one of the great unknowns of the COVID-19 pandemic: exactly how much physical distance is required to prevent the spread of the disease.

"What this may ultimately tell us is whether the 1.5 metre physical distance rule is appropriate. Maybe half a metre is enough, or maybe we need three metres. We really don't know," said Professor Brian Oliver.

The George Institute for Global Health commenced a trial, led by Associate Professor Meg Jardine and Professor Carol Pollock at Royal North Shore Hospital, to test whether a group of common blood pressure medications called angiotensin receptor blockers could reduce the duration and severity of lung failure due to COVID-19.

And at the Centenary Institute a team led by Professor Phil Hansbro, leveraged research infrastructure developed to study tuberculosis to investigate novel anti-inflammatory and anti-viral drugs and other immuno-therapeutics. Professor Jamie Triccas developed novel vaccine approaches based on previous BCG research and Professor Britton undertook research into ways to maintain immunological memory in mild COVID-19 cases. He believes basic laboratory research like this will be crucial.

"While it's important to have all the clinical trial activity, its vital that the basic research is not neglected, if we are to beat the coronavirus," said Professor Britton.

Professor Marais predicts the big research question of the future will be about the efficacy of vaccination.

"We've known about coronaviruses for a long time but research into them has been neglected, because they were not regarded as major pathogens," he said. "There's a desperate need to improve our understanding of the immune response induced by SARS CoV-2 infection, its protective efficacy, durability and the potential risk of future reinfection."

"It's taken the world a while to understand that the SARS CoV-2 virus that causes COVID-19 is with us now; it is here to stay. It has changed the way the world operates with no immediate end in sight. However, with improved scientific insight and consistent application of evidence-based approaches we will find our way out of this conundrum."

Translation Centres Coordinate the Fightback



In the face of the COVID-19 pandemic, coordination between research teams, healthcare systems and governments became more important than ever.

With collaborative networks that span most of Australia, the seven Advanced Health Research and Translation Centres, including Sydney Health Partners, and three Centres for Innovation in Regional Health found themselves in a unique position to identify research priorities, fast track projects and provide governments with expert advice.

The Australian Health Research Alliance (AHRA), which serves as the peak body for the Translation Centres, said its members had demonstrated the ability to quickly and strategically mobilise the diverse skill sets needed to address the issues confronting health services as a result of COVID-19.

"AHRA was asked to help and we responded," said the Executive Director of Maridulu Budyari Gumal SPHERE, Professor Christopher Levi.

"We could speed up Australia's ability to find answers to clinical and population health questions and implement solutions at scale."

Sydney Health Partners, along with fellow New South Wales Translation Centres Maridulu Budyari Gumal and NSW Regional Health Partners, organised a priority-setting roundtable on behalf of the NSW Health Ministry.

The highly consultative process – jointly sponsored by the NSW Agency for Clinical Innovation and the Office of Health and Medical Research – was undertaken to help determine which research questions should be addressed by applicants for millions of dollars of COVID-19 grants by NSW Health.

Some states charged their Centres with leading the medical research response to the coronavirus.

The Western Australian Minister for Health asked the Western Australian Health Translation Network (WAHTN) to co-ordinate the state's COVID-19 research efforts and formed the WA COVID-19 Research Collaboration. It aimed to concentrate efforts to study and minimise the health and other consequences of COVID-19, as well as providing the infrastructure required to enable these efforts.

"We are the only body that could have combined the research efforts of our universities, hospitals, health department, medical research institutes and Pathwest in such a timely and coordinated way" said the Executive Director of WAHTN, Professor Gary Geelhoed.

CONTINUED >

Re-deploying Existing Technology in Reponse to a Pandemic

As COVID-19 spread around the world, and health districts and networks all over the country began preparing to significantly increase the capacity of their ICUs, the Public Health Unit at Sydney Local Health District adapted existing programs to support local aged care facilities.

MRFF PRIORITY
Primary care research

PROJECT
Evaluating an online risk assessment tool for influenza in aged care facilities.

RART GRANT
$100,000

CHIEF INVESTIGATOR
Dr Emma Quinn

LEAD PARTNER
Sydney Local Health District

The Influenza Outbreak Communication, Advice and Reporting application (FluCARE) was being rolled out across aged care facilities throughout the District as part of a Sydney Health Partners-funded project. FluCARE's purpose is to identify influenza outbreaks among nursing home residents and help coordinate a rapid response by staff through real-time monitoring of patient data.

The research team had planned to evaluate its effectiveness during the 2020 flu season, but the impending COVID-19 pandemic made the team change tact, and fast. Dr Leena Gupta, the Public Health Unit's Clinical Director, recognised the app's potential to monitor residents for the coronavirus as well as influenza.

"People living in nursing homes are extremely vulnerable to influenza and now COVID-19," said Dr Emma Quinn, Epidemiologist in the District's Public Health Unit and Chief Investigator on the SHP project.

"We're hoping the app will improve the quality and reporting of data which will in turn improve the timeliness of our response to outbreaks."

The team at the Public Health Unit, including Dr Quinn, collaborated with the District's ICT department, emergency physician Dr Kai Hsiao, and the app's developers, FAQ, to adapt it for COVID-19. After just two months of frantic work, the modified version launched in May 2020.

"It was a huge amount of work in a very short time frame, but it means everything if we can save lives by minimising the spread of COVID-19"

DR QUINN.

Staff enter data about respiratory illnesses among elderly residents, which the app analyses in real time. If criteria for an outbreak are met, the app sends alerts and automatically emails key response personnel, such as the aged care facility manager and the District's on-call public health officer.

It also provides an online action checklist to help guide the facility's staff in their immediate response while the Public Health Unit provides further guidance on isolation and infection control measures.

The Unit then uses the data entered into FluCARE by nursing home staff to detect and monitor early signs and symptoms of COVID-19 in residents.

In 2017, the Unit won $48,000 in funding for FluCARE at The Pitch, where staff across the District pitch ideas for innovation in healthcare service delivery and patient care. The app launched in June 2019 at the Sydney Innovation and Research Symposium.

As part of the SHP-funded project, the app's effectiveness in helping aged care staff manage outbreaks will be scientifically evaluated, and the team has received ethics approval to include its COVID-19 modifications.

Following the pilot, the aim is to roll out FluCARE to all residential aged care facilities in the District next year. But the app's makers believe it has the potential to be used further afield.

"As far as we're aware, it's the only app of its kind in NSW and even Australia," Dr Quinn said. "It could also be adapted for other settings with vulnerable populations, such as childcare centres."

"We've shown the app can be rapidly adapted for a new pathogen and we could modify it in the future for new epidemics."

Translation Centres Coordinate the Fightback (cont.)



DR EMMA QUINN AND DR LEENA GUPTA

The Collaboration established direct streams of work that allowed researchers across the state to contribute to this endeavour in a range of ways: from data and relevant specimen capture, to studies to help mitigate the effects of the virus.

In South Australia, SA Health's COVID-19 Taskforce charged Health Translation SA and the South Australian Health and Medical Research Institute (SAHMRI) with leading the synthesis of evidence and data modelling to inform service planning and decision making, as well as to coordinating research activities across the state.

Brisbane Diamantina Health Partners hosted a series of roundtable discussions to support the coordination of research efforts for COVID-19 and leverage the resources of its research and health services partners.

Elsewhere, the Translation Centres brought together medical engineers, clinicians and researchers to adapt and test new ventilation masks and prototype new Personal Protective Equipment (PPE) in response to the growing concerns of shortages.

Through a collaboration with the Monash Institute of Medical Engineering, Monash Partners linked clinicians with engineers and scientists to assist in the production and design of novel ventilation and PPE – including adapting and gaining clinical trials approval for a recreational snorkel mask that was adapted into a safe, sealed CPAP mask system.

Monash Partners' Executive Director, Professor Helena Teede, said the crisis highlighted the value of research integration into healthcare.

"Never before in Australia's history has there been a more important time for greater integration between research and clinical care," she said.

The centres also helped clinical trials managers and hospital research managers to fast-track the commencement of multiple research projects and enabled rapid, adaptive trials of novel diagnostic and therapeutic options that address unmet needs.

Professor Garry Jennings, SHP's Executive Director, said that Translation Centres formed networks of key people to build links between clinical research, prevention and treatments.

"By linking key research and health services leaders and their teams together to address the right questions, AHRA's efforts made a real difference," he said.

The Executive Director of the Melbourne Academic Centre for Health, Professor Sir John Savill, said the coordination was crucial.

"In a highly pressured and time-critical situation there was a risk that lack of co-ordination would waste precious efforts across Australia's many universities, medical research institutes and health services," he said.

"Governments and health services recognised that our Translation Centres are uniquely positioned to steer a more integrated and cohesive approach."

Implementation Science Symposium Seeks Key to Unlocking Innovation

Sydney Health Partners' third annual Implementation Science Symposium, *Unlocking Innovation*, held in October last year, attracted a capacity crown to the Kerry Packer Education Centre in Sydney.





PROFESSOR JEAN-FREDERIC LEVESQUE



PROFESSOR FIONA COYER









Attendees heard from local and international experts in Implementation Science who discussed the scale-up and spread of novel, evidence-based interventions across health systems, and how healthcare professionals embrace change.

"We know more than enough about what the causes of lack of health are," Professor Ross Brownson, international keynote speaker from Washington University in St Louis, told the Symposium.

"Implementation Science is about trying to make a difference using what we already know, and applying the knowledge we already have," he said.

Leaders of SHP's major Partners debated how to strike a balance between implementing existing evidence that can transform healthcare now, versus undertaking research into "the shiny new thing".

The University of Sydney's Executive Dean of the Faculty of Medicine and Health, Professor Robyn Ward, said the Symposium was a "reminder of how important the enthusiasm and creativity of individuals is in the translation of research."



PROFESSOR GARRY JENNINGS







SYMPOSIUM ORGANISERS: (L-R REAR) DR MICHELLE BARAKAT-JOHNSON, PROFESSOR ANDREW BAILLIE, DR NICOLE RANKIN, DR PAULA BRAY, PROFESSOR GARRY JENNINGS. FRONT ROW: PROFESSOR DON NUTBEAM AND KEYNOTE SPEAKER PROFESSOR ROSS BROWNSON



PROFESSOR ROSS BROWNSON, WASHINGTON UNIVERSITY ST LOUIS – KEYNOTE SPEAKER AT 2019 IMPLEMENTATION SCIENCE SYMPOSIUM

HIGHLIGHTS

2019

MAY

- Launched new Sydney Health Partners strategy
- Held inaugural Translational Research Showcase

JUNE

- Announced Accord for the Sharing of Health Data across Sydney Health Partners

SEPTEMBER

- Awarded third round of Rapid Applied Research Translation grants totalling $1.7 million

OCTOBER

- Provided ClinTrial Refer v2.0 with $150,000 of funding
- Held second annual Implementation Science Symposium: Unlocking Innovation
- Commenced major Partner collaboration for cellulitis prevention (Healthy Legs Program)

NOVEMBER

- Held second annual Implementation Science Masterclass
- Independent review of Sydney Health Partners by Professor Ed Byrne AC

2020

FEBRUARY

- Commenced development of a Research Passport across Sydney Health Partners

JUNE

- Co-organised NSW Government roundtable on priorities for COVID-19 research
- Announced Implementation Science pilot grant program

Cellulitis Prevention Program Demonstrates the Power of Partnership

MRFF PRIORITY

- Primary care research
- Improving the health of vulnerable groups
- Consumer-driven research and engagement
- Clinical variation using data linkage

PROJECT

Preventing Cellulitis: Healthy Legs Program (HeLP)

The skin condition cellulitis became a major focus of Sydney Health Partners in 2020.

In an major collaboration, a multidisciplinary team of allied health professionals, clinicians, data scientists, administrators and consumers from across four local health services and the University of Sydney came together during the year to find ways to prevent cellulitis and reduce the cost and morbidity associated with it.

Dubbed the Healthy Legs Program (HeLP), the group proposed a new allied health-led model of care focussing on cellulitis of the lower limbs (legs, feet and toes).

Cellulitis is a bacterial infection characterised by reddened, swollen and painful skin and, if left untreated, can make patients sick enough to require hospitalisation.

More than 23,000 patients were admitted to New South Wales hospitals with cellulitis in 2018, making it the biggest cause of preventable hospital admissions in the state.

According to the University of Sydney's Professor of Clinical Education, Peter Hockey, cellulitis is a condition that no-one "owns", but exacts a great toll on patients and health services.

"Cellulitis is common, costly and often preventable with early intervention," said Professor Hockey, "but the condition has not been adequately addressed despite the excellent efforts of medical and nursing staff."

"And while it's relatively easy for a doctor in the Emergency Department to prescribe someone with cellulitis a course of antibiotics and sort out the immediate problem, at the moment there's no real attention given to why that patient got the infection in the first place or what can be done to prevent it happening again.

"This is why we'd like to enable our highly skilled allied health workforce to fill in the gaps in care which are not always identified and resourced."

HeLP aims to develop and test a new, multidisciplinary model of care led by allied health professionals such as occupational therapists, physiotherapists, dietitians, podiatrists, social workers and pharmacists. Together they are developing a secondary prevention strategy which targets the major risk factors for recurrent cellulitis including obesity, diabetes, poor foot care and, particularly, lymphoedema.

Lymphoedema is a localised fluid build-up in the lymphatic system that creates chronic and progressive swelling, resulting in a significantly increased risk of developing cellulitis. Occupational Therapist and researcher, Dr Robyn Sierla, is using her experience of treating lymphoedema at Sydney Local Health District to help advance the Program.

"I think HeLP is a pretty exciting project because it's something I've wanted to see happen for such a long time," she said. "Caring for lymphoedema patients is often complex and I think they sometimes fall into the 'too hard' basket. While treatable, their symptoms are severe and place a very high burden on them and the health system."

The University of Sydney's Professor of Allied Health with Western Sydney Local Health District (WSLHD), Vicki Flood, said the Healthy Legs Program was also looking at how to prevent vulnerable populations from developing cellulitis.

"People with cellulitis are often complex patients, requiring support to attend appointments and for follow-up care," she said. "And so, as part of this project, we are developing digital technologies to enhance service delivery and we'll be working closely with a range of existing health services."

Professor Flood said patients with cellulitis often needed support and treatment for more than one risk factor.

"This is where a tailored multidisciplinary approach is key. For example, people may not only have lymphoedema but may also have poor wound healing exacerbated by micronutrient deficiencies, so we know we can support this with a combination of care from occupational therapy, dietetics and podiatry."

As part of Sydney Health Partners' strategy, the Healthy Legs Program is led by WSLHD and supported by the other major organisations in the Partnership. Sydney Local Health District has taken responsibility for involving consumers from the community to co-design the intervention, while the Sydney Children's Hospitals Network at Westmead is leading a team to extract an SHP-wide data set of cellulitis cases.

"We know there is lots of data about cellulitis but it isn't always used very well," said Professor Hockey.

"So we sought to make this a data-driven project to demonstrate to people that the problem is of the size that we think it is.

"It's not been without its challenges because every health service collects patient data in a slightly different way. But we've worked really well together to come up with some data sets which allow us all to be talking the same language.

"It's demonstrated basically that we all have the same problems across all the LHDs."

In addition to reducing the burden of cellulitis on health services, patients, and the community, it is hoped the Program will demonstrate that new evidence-based interventions can be successfully implemented and scaled-up across large and diverse health services.

"From the outset we've been aiming for a much broader reach and planning a systemic intervention," said Professor Hockey. "The reason we've got four health services involved is to come up with a consistent model of care that can be adopted as common practice across several health services and at scale."

"This is a proof of concept. Here is a group of clinicians and partners who wouldn't traditionally have worked with each other in this space, collaborating to solve a common problem. Let's show the system what can happen when we get people to problem solve together."



(L-R) PROFESSOR VICKI FLOOD, DR ROBYN SIERLA, PROFESSOR PETER HOCKEY

Making an Impact #1

Increasing the SPEED of Data Use to Improve Patient Care



A pioneering research project supported by Sydney Health Partners has proven that patient data from hospital electronic medical records (eMR) can be presented to doctors in a clinically useful way to help drive quality improvement.

In a process likened to trying to find needles in a haystack, a research team led by Professors David Brieger from Concord Hospital and Jonathan Morris from Royal North Shore Hospital was able to extract and collate the eMR data of heart attack patients and use it to describe cardiovascular care and outcomes in patients with acute coronary syndrome (ACS), particularly ST-elevation Myocardial Infarction (STEMI).

“Despite having one of the best healthcare systems in the world, with expanding electronic medical record capacity, to date there have been limited efforts to extract the data in a meaningful way to improve our clinical practice,” said Professor Brieger. “SPEED-EXTRACT is providing us with an opportunity to address this.”

The project brought together a multidisciplinary team with expertise spanning cardiology, population health, software engineering and data science from the University of Sydney, Local Health Districts, NSW Ministry of Health and eHealth NSW.

SHP funding from the first round of the Rapid Applied Research Translation scheme was leveraged to attract additional funding from NSW Health and other sources. In late 2019, Sydney Health Partners provided additional financial support to the project as part of its leadership of the Australian Health Research Alliance national systems-level initiative in data-driven healthcare.

Using existing and bespoke software infrastructure, the SPEED-EXTRACT team mined five years of eMR data about chest pain patients at hospitals within Northern Sydney and Central Coast Local Health Districts to compare their treatment to national clinical care benchmarks.

Senior Research Fellow and Project Manager Charmaine Tam says results presented to the NSW Health Senior Executive Forum demonstrated the validity of the concept and its potential for wider application.

“We have shown that eMR data is helpful to doctors and that they trust it to measure clinical performance and identify variations in care,” said Dr Tam. “The research taught us what ingredients and skills are required for success – what the ICT teams need, how to work with the performance analytics units, and what level of engagement we need from hospital clinicians.”

Dr Tam says that thanks to the success of SPEED-EXTRACT there is greater appetite for using eMR data for near real-time quality improvement.

“There’s real enthusiasm now for the process and the value that insights generated from routinely collected information systems can bring.”

SPEED-EXTRACT is now working on a process to provide the performance data to clinicians on a more frequent basis. It plans to access the data through a continuously updated duplicate of hospital eMR systems known as a data lake, which is being established by eHealth NSW.

Professor Morris, who co-chairs the Digital Heath and Informatics Network and leads Sydney Health Partners’ Informatics and eHealth theme, says while it’s clear that data-driven healthcare will become core business for health services in the coming years, some major barriers and impediments must be overcome.

“We have a wealth of patient health information in our systems, we can use that information to generate knowledge and that knowledge can then be used to measure the quality of the healthcare we provide,” he said.

“The challenge is to make the data accessible and have the health system articulate its priorities when measuring the quality of care. It would be preferable if we didn’t collect data in the hospital system for one thing, the university system for another and use a third system to collect data on the outcomes of clinical trials. The mantra here should be, collect data once and use it often.”



Community Outreach to Micro-eliminate HCV

The aspirational goal of eliminating hepatitis C (HCV) from the Australian community took another step towards realisation during the year thanks to an innovative research project which tested ways to "micro-eliminate" the disease amongst marginalised groups.

Injecting substance users, the mentally ill, the homeless and others with hepatitis C were the target of a community outreach program which sought to overcome the social and practical barriers to the testing, diagnosis and prescribing of drugs to treat HCV.

Researchers who conducted focus groups amongst marginalised people found that one of the biggest barriers to them undertaking HCV treatment was the need to attend multiple appointments in public institutions like hospitals.

"It's been an eye-opener to learn about the real-life situation of some of these patients and why they don't come to treatment. For example, if they don't have enough money to eat or for a bus ticket to the hospital, how are you going to treat them?" said co-leader of the project Professor Jacob George.

The Director of the Storr Liver Centre at The Westmead Institute for Medical Research and Head of the Department of Gastroenterology and Hepatology at Western Sydney Local Health District said the project aimed to minimise the number of steps in this "treatment cascade".

"We know that, if there are 100 people tested for HCV, at every step of the traditional treatment process we lose some. A person might agree to a blood test but not return to get their result. Even if they do get the result, they don't return a third time to get their prescription, a fourth time to see the pharmacist, and so on. The result is that on average only about 20 out of the 100 actually start treatment for their hepatitis C."

One possible solution the project is testing is the use of a mobile treatment van to reach marginalised groups in community settings like mental health or opioid substitution clinics. There, a team works intensively to screen, diagnose and treat all HCV patients in just two visits.

"By doing so we are finding that the treatment failure rate is quite low, about the same as the broader community," said Professor George.

Since 2016, Australia has made a new class of Direct-Acting Antivirals (DAAs) available through the Pharmaceutical Benefits Scheme. Taken orally over two-to-three months, DAAs are highly effective, curing HCV in 95 per cent of cases. Despite their remarkable results, many in marginalised community groups are reluctant to get tested or treated.

"Our focus group research confirmed what we hypothesised – for marginalised people with substance use, mental health or homelessness problems, treating their HCV infection is a low priority. Some mistakenly believe there will be serious side effects of treatment. But we've also found that once our community nurses have engaged with them about the new drugs and their HCV status, they are generally committed to addressing it."

A key tactic trialled by the project has been micro-elimination, which involves the testing, diagnosis and, if necessary, treatment of everyone in a particular social circle.

"We know from social network theory that everyone has five- to-ten close friends," said Professor George. "So, what we try to do is identify that group and micro-eliminate the disease within it. If we do that, the chances of HCV re-infection – even if they continue their high-risk behaviours – is quite low."

Professor George said the experiences afforded through the community outreach van have been a revelation for the nursing staff, who have been drawn from the hospitals of Sydney Local Health District and WSLHD.

"Many have said to me 'now I know why you wanted to push me out to the community – that's where the disease is, not in the hospital'. So they've learnt a lot".

"It's not as economical or time-efficient to send doctors out, and there is something about the way that marginalised community members respond to our nurses that gets great results. These people don't engage very often so you must make the most of it. They've often felt rejected by society, so if you show an interest, many will respond very positively and take that as an affirmation that the health system cares for them."



MRFF PRIORITY

- Improving clinical pathways and care by building collaboration across the care continuum
- Improving the health of vulnerable groups
- Primary care research

PROJECT

Maximising cures for HCV infection in marginalised communities: Micro-elimination

RART GRANT

$230,000

CHIEF INVESTIGATORS

Professor Jacob George and Professor Geoff McCaughan

LEAD PARTNER

Western Sydney Local Health District

PROFESSOR JACOB GEORGE

Better Health Literacy Helps CKD Patients

Living with Chronic Kidney Disease (CKD) is challenging, and can be even more so for those people from Culturally and Linguistically Diverse (CALD) backgrounds.

Maintaining the correct diet, fluid intake and exercise to manage the disease can be particularly difficult in the face of cultural expectations.

A Sydney Health Partners-funded project which seeks to educate and empower CALD CKD patients made significant progress during the year by completing an initial trial of digital information technology.

The SUCCESS project aims to support informed choice and shared decision-making in the planning and delivery of care pathways among patients with CKD by increasing their health literacy.

In Phase II of the project, a purpose-developed mobile phone app provided more than 100 trial participants at hospitals across Sydney Health Partners with information about foods, drinks, medications and exercise.

The CKD patients – and their carers – used the app to complete health literacy training modules. They could also make lists of questions for doctors and nurses, empowering them to exercise their choices and select options that they prefer.

Chief investigator and University of Sydney Professor of Clinical Epidemiology, Angela Webster, said the trial resulted in a significant improvement in the health literacy scores of the participants.

"We observed a significant increase in the confidence of CKD patients from CALD backgrounds to read and understand food and medicine labels, and an increase in their confidence to talk with their healthcare team about what matters to them," said Professor Webster, who is a Senior Staff Specialist in Renal Medicine and Transplantation at Westmead Hospital.

"Preliminary findings suggested some improvement in quality of life through using the SUCCESS app because patients realised they have choice and agency in healthcare decision involving them where previously they did not perceive choice"

During the trial, feedback from users provided a few surprises and the lessons learnt were incorporated in a second version of the app.

Project manager Jennifer Isautier says refining functions in the app was an iterative process.

"We really took the time to listen to participants to understand what features worked well and what could be improved.

"We realised that CKD patients are provided with a lot of medical and health information – both verbal and written – and, depending on their level of health literacy, some may struggle to take it all in.

"The trial made dialysis clinic staff aware of the different health literacy needs between patients. They were surprised by how much the app helped to improve those information exchanges."

Participants told researchers they preferred the information to be provided via videos rather than text. As a result, Version 2 of the SUCCESS app will now include multiple videos and a text-to-speech function so that written text within the app can be listened to rather than read.

"Several patients also expressed a strong desire for an additional section on support for emotional wellbeing for themselves and for carers of people living with CKD," said Ms Isautier. "They like hearing other people's stories – for example, short videos from patients about their experience living with CKD."

The project has now received additional funding from the NSW Government for a randomised control trial of Version 2 across several hospitals. The grant will also enable the translation of the app into Arabic, simple Chinese, Vietnamese and Tagalog.

While the SUCCESS project grows in scale and scope, Professor Webster says one of its most important achievements to date has been identifying the emotional needs of CKD patients from CALD backgrounds.

"I think it's become clear that something these patients find difficult is the isolation and loneliness of living with a chronic disease in a CALD community. One of the biggest benefits of the app has been to show them that other people with CKD are going through similar things."

MRFF PRIORITY

- Improving clinical pathways and care by building collaboration across the care continuum
- Improving the health of vulnerable groups

PROJECT

Implementing a re-imagined patient-engagement program called SUCCESS to support informed decision-making by CKD patients with lower literacy and/or from CALD backgrounds

RART GRANT

$110,000

CHIEF INVESTIGATOR

Professor Angela Webster

LEAD PARTNER

Western Sydney Local Health District



JENNIFER ISAUTIER, PROJECT MANAGER

Easier Approvals for the Use of Patient Data



(L-R) DR FELICITY GALLIMORE, PROFESSOR GARRY JENNINGS, DR TERESA ANDERSON, PROFESSOR JONATHAN MORRIS

A signature, a smile and a slice of celebratory cake. With those symbolic actions, Sydney Health Partners took a significant step towards making life easier for researchers seeking safe access to de-identified patient data.

The breakthrough was the Accord for the Sharing of Health Data across SHP. Developed in consultation with ethics and governance committees at Northern Sydney Local Health District, the Sydney Children's Hospitals Network (at Westmead), Sydney Local Health District, Western Sydney Local Health District, and the University of Sydney, the Data Sharing Accord standardised the information health and medical researchers are required to provide in order to get approval to conduct research that involves the sharing of patient health data.

Sydney Local Health District was the first Partner to sign the Accord, with Chief Executive Dr Teresa Anderson AM adding her signature in the presence of Sydney Health Partners' Executive Director Professor Garry Jennings AO.

At the ceremony, Dr Anderson predicted the Accord would boost researchers in their efforts to increase the pace at which research is translated from the lab to patient care.

"This Accord is really historic; to be able to use data in a way that informs research and clinical practice for the very best outcomes for our patients is really exciting," Dr Anderson said.

The agreement addressed concerns in the medical research community about the lack of consistency in the information required by different organisations in order to give ethics approval for data access.

One of the authors of the Accord, University of Sydney's Fellow in Clinical Informatics Dr Felicity Gallimore, works with SHP to help unlock the potential of stored health data within electronic medical records in order to achieve better outcomes for patients.

She said the Accord explains the principles around sharing data in common-sense language, which can be used by researchers when submitting protocols to ethics and governance offices.

"Essentially the Accord and accompanying researcher checklist follow the journey of the data. They cover all the elements, such as specifying which data fields are required, how the data will be extracted and stored locally, the de-identification process, how the data will be transferred and stored in a new location before safe access and analysis and, if datasets are being formed from more than one organisation, making sure there are appropriate governance arrangements around who owns that new dataset and who controls the access to it."

"By making the researchers think logically about each of these steps when they write their protocols and provide the required information, they will find the necessary approvals much quicker and simpler to secure."

At the heart of the Accord is mutual trust between local health districts and their Human Research and Ethics Committees (HRECs). Dr Gallimore described the Data Sharing Accord as a "confidence exercise on both sides".

"The Data Sharing Accord gives the HRECs confidence that if a research protocol has been approved in one district then the necessary questions have already been asked of that project, and appropriately answered by the researcher."

It also seeks to prevent the confusion sometimes experienced by researchers. "If a researcher is seeking access to patient data from two organisations, the same questions should be asked by each jurisdiction. In other words, what is required by one organisation should be the same as that which is required in another organisation.

The co-leader of the Digital Health and Informatics Network and SHP's Informatics and eHealth theme, Professor Jonathan Morris, said the ability to more easily access research data from more than one District had been welcomed by the research community. "Researchers who are interested in improving healthcare desperately want access to data, particularly the more granular data that resides within hospitals," he said.

"The guidance provided by the Accord will mean approvals will be faster, access to data will be faster and most importantly research findings will be available faster."

Implementation Science Upskills Clinicians to Change Practice



A positive outcome in clinical research doesn't mean practice change will necessarily follow.

Even if change is implemented, there can be many barriers to incorporating changes into routine care. It's a critical issue of clinical research, and a question asked by Implementation Science: how can we ensure that successful research reaches the patients it has been designed to help?

"Implementation Science is the study of methods to promote the integration and uptake of research findings and evidence into healthcare policy and practice," says Dr Nicole Rankin, Director of Sydney Health Partners' Implementation Science Program.

"So much research goes to waste, and interventions fail at the final hurdle because they haven't been designed in a way that makes them straightforward to put into practice," she said.

Dr Rankin has been working to further SHP's goal of better health outcomes by delivering a program of work to provide clinicians and researchers with the skills and knowledge to more effectively translate their research into routine clinical practice.

Implementation Science seeks to understand, and make allowances for, the behaviour of healthcare professionals and other stakeholders to ensure sustainable uptake and adoption of evidence-based interventions.

Following a successful Symposium in October 2019 (see page 12), Sydney Health Partners held its second annual Master Class, which attracted more than 60 local healthcare professionals and researchers to the University of Sydney to learn about how they can use Implementation Science in their research.

"We want to share knowledge with our clinicians and researchers to help them design interventions with implementation in mind from the beginning, and not as an afterthought," Dr Rankin said. "In this way, clinical research can more directly impact on patient care."

In 2020, SHP broke new ground in clinical-driven research, launching a pilot grant scheme for collaborative Implementation Science projects that seek to put robust evidence into practice. The grants are expected to help teams build translational research foundations that will lead to longer-term impacts on health services and policy.

Sydney Health Partners also established an Academic Network and Clinical Partners Roundtable, both comprising a wide range of experts from SHP with a wealth of clinical and academic perspectives across multiple disciplines in medicine and health.

These networks will guide the formation of an online community of practice and the development of a new teaching curriculum as Sydney Health Partners expands its training offerings in 2020 and 2021.

The online community of practice will provide a space for researchers and clinicians to come together to network and serve as a knowledge hub for implementation science resources.

This body of work is being delivered through Platform 4 of SHP's 2019-2022 strategy, which is spearheaded by the University of Sydney, with key support and mentoring from Professor Don Nutbeam, Sydney Health Partners Senior Advisor and Steering Committee Chair for Implementation Science.

"There's a buzz developing around Implementation Science, and the huge level of interest in the Master Class and Symposium last year was evidence of that," said Dr Rankin. "There's a growing recognition that the implementation of research into practice is complex and specific efforts to implement change are warranted."



MRFF PRIORITY

- Research translation and Implementation Science
- Clinical researchers capacity

Making an Impact #2

Putting My Health Record to the Test

At its launch in February 2019, the Commonwealth said My Health Record (MHR) would help to improve the consistency and quality of the care experienced by patients as they move between their General Practitioner, specialist and hospital.



To assist in fulfilling that goal, the Australian Digital Health Authority (ADHA) funded an $8.5 million Digital Health Test Bed program to trial the use of patient information gathered by MHR for new approaches in chronic healthcare, palliative care, and post-hospital support.

Under the program, members of Sydney Health Partners led by Professor Clara Chow and supported by Professor Tim Shaw and members of the Digital Health and Informatics Network, established the Western Sydney Cardiology Care Test Bed.

“The project aimed to test the use of MHR data to improve patient care in existing Rapid Access Cardiology Clinics (RACCs) and scope the feasibility of a cardiology application populated with information from the MHR,” said Professor Chow.

“We looked at how the data could help the risk assessment of patients referred to RACCs, identify the patients who most need RACCs, reduce duplicate testing, and support improved communication between healthcare providers via shared health summaries.”

RACC is a novel, hospital-based, cardiologist-led outpatient clinic which provides rapid assessment and management of low-to-intermediate risk patients who present to emergency departments with chest pain. Research supported by SHP demonstrated that at hospitals using the RACC model of care, the proportion of people who were admitted after presenting to emergency with chest pain fell significantly, and fewer patients underwent unnecessary invasive testing.

Over two years the Test Bed project determined that the MHR system was not able to effectively include data from outpatient services like RACC. eHealth NSW, which has responsibility for the implementation of MHR in the state, was called upon to find a solution.

The result is the addition of a Specialist Letter Template to the MHR system. When implemented, it will enable RACCs to upload significant clinical data to the MHR platform and send secure messages to a patient’s GP to alert them to the information.

“People with complex medical needs such as cardiology patients require integrated, accurate and complete health records across multiple health platforms,” said Professor Chow.

“Without effective integration of the RACC model into the MHR, there is a risk that important information about a patient’s condition will not get to other healthcare providers and the effectiveness of our treatment will be compromised. An accurate and seamless flow of information between patient, RACC, specialist and GP is fundamental in guiding clinical decision-making.”

In June 2020, the Western Sydney Cardiology Care Test Bed received additional funding from the Australian Digital Heath Agency to support the next stage of the project.

The initial site for integration with MHR will be the RACC at Westmead Hospital, but Professor Chow expects the solution will translate to other RACC sites across Sydney Health Partners.

It is also hoped the solution will be scalable across NSW, enabling all Local Health Districts and Speciality Health Networks to publish a wider variety of clinical documents.

Mobile App Helps Patients Stay in Bed

Most people know the feeling of tossing and turning in bed, unable to get to sleep, but for those who experience persistent insomnia getting a good night’s sleep can feel near impossible.

The current best practice treatment for people with significant insomnia is cognitive behavioural therapy delivered by a psychologist. But a shortage of psychologists and undertreatment by general practitioners mean that effective treatments are not being delivered to the people who need them most.

“Insomnia is the most common sleep disorder, but many people don’t realise that treatment is available,” said University of Sydney Associate Professor Christopher Gordon.

“Research shows that 90 per cent of insomnia presentations to general practice result in at least one prescription of sleeping pills,” he said. “While that can improve sleep in the short term, that doesn’t address the underlying causes of insomnia, and can result in problems with sleeping pill dependency and associated issues like falls.”

Insomnia affects one-in-three Australians, with 50 per cent of the population experiencing one symptom of insomnia at least once in their life. It has an estimated societal cost of $11 billion annually.

Associate Professor Gordon has spent the past two years developing and testing SleepFix, a mobile app that uses therapy techniques to treat insomnia – and it’s working.

“The app delivers sleep therapy to patients with insomnia, gradually training them to spend more time in bed asleep, than in bed awake,” he said.

“There have been two systematic reviews comparing face-to-face and digital therapies, and clinically the outcomes are almost identical. Patient drop-off is also very similar between the two.”

Now, supported by a Sydney Health Partners grant, he’s working with GPs, pharmacists and nurses in primary care to help bring the app into their routine clinical care.

“We’re seeing if primary care clinicians can deliver the app and investigating whether it’s something that they’d take into their arsenal of therapy options into the future,” he said.

“Our belief is that if a trusted health professional tells a patient to use the app, they will be more likely to have a go with it and stick to it, compared to other health professionals or a self-help type approach.”



MRFF PRIORITY
Primary care research

PROJECT
Testing an app-based treatment support tool for patients with insomnia in general practices

RART GRANT
$130,000

CHIEF INVESTIGATOR
Associate Professor Christopher Gordon

LEAD PARTNER
Sydney Local Health District

ASSOCIATE PROFESSOR CHRISTOPHER GORDON



MRFF PRIORITY

Improving clinical pathways and care by building collaboration across the care continuum

PROJECT

Molecular profiling of bowel polyps as a tool to define colonoscopic surveillance intervals

RART GRANT

$100,000

CHIEF INVESTIGATORS

Professor Alexander Engel and Professor Mark Molloy

LEAD PARTNER

Northern Sydney Local Health District

New Test to Reduce Unnecessary Colonoscopies

Researchers at Northern Sydney Local Health District began a project to devise a reliable molecular test to predict bowel cancer risk and potentially reduce the frequency with which patients require follow-up colonoscopies.

With the support of a Sydney Health Partners grant, NSLHD Director of Cancer and Palliative Care, Professor Alexander Engel and fellow principal investigator, University of Sydney's Professor Mark Molloy, pioneered a process to take biopsies of polyps just before they are removed from patients when undergoing otherwise routine colonoscopies.

The molecular profiles of the biopsies were then identified in order to define "signatures" of genetic mutational load and microbiome profiles.

Comparing the molecular testing with the results of standard pathology should enable the researchers to determine which molecular features indicate greater risk of developing cancer.

Professor Engel says that 80-90 per cent of bowel polyps will not develop into cancers.

"Colonoscopy is a great clinical tool," he said, "but it's not very pleasant for the patient and there's a small chance of accidental bowel perforation, which can cause nasty complications. And colonoscopies place an enormous logistical and financial burden on the health system."

"If we had a technique to identify the patients at lower risk of developing bowel cancer, it would lead to an associated reduction in the need for follow-up colonoscopies."

Between 2006 and 2016, the number of colonoscopies performed in Australia almost doubled and, following the introduction of the National Bowel Cancer Screening Program in 2014, now exceeds one million procedures a year.

The purpose of these colonoscopies is to find and remove polyps from the large bowel. Although the polyps are normally benign, they have the potential to become malignant and their removal is a highly effective strategy for the prevention of bowel cancer.

However, Professor Engel says the current system for planning follow-up colonoscopies is far from perfect, and the huge number of colonoscopies for bowel polyps is driven not just by its effectiveness but also by doctors erring on the safe side.

"Currently, doctors look at the number, size and tissue-specific character of the polyps they've removed. The patient's family history of cancer is also considered and following surveillance guidelines, we arrange for follow-up in 'one, three or five years'," he said.

"We think that's a crude assessment. The guidelines have simply not kept up with the advancement in molecular profiling techniques and don't take into account what is happening at a genetic level in those problem polyps."

Professor Molloy says the research aims to define how well the current risk assessment done in pathology matches the molecular profile.

"You could imagine cases where a polyp is just large enough in size to fall into a moderate or high risk category, but when you look at the molecular signature it actually correlates with low risk polyps. In those patients it might be suitable to delay follow-up colonoscopy," he said.

"We might also see the other extreme where we should be offering greater surveillance for an individual because their signature is of high-risk. We will model the differences in surveillance interval times between the two risk tools to assess the scale of difference and likely saving of hospital resources."

Professor Engel says the project is a rare example of basic research and clinical service delivery being integrated to benefit patients.

"Projects like these are of huge importance because they shed new light on a very common problem and offer a solution that not only works but can be used on a large scale," he said.

"I am very enthusiastic about the numbers and the implications of this project. We've already shown that collecting the biopsies is not the hard part – it makes hardly any difference to the efficient delivery of colonoscopies."

Thanks in part to the preliminary work performed under the SHP grant, Professors Engel and Molloy subsequently received a grant from the Cancer Council of NSW to expand their work over the following three years.

PROFESSOR ALEXANDER ENGEL

PROFESSOR MARK MOLLOY



MRFF PRIORITY

• Primary care research

• Improving clinical pathways and care by building collaboration across the care continuum

PROJECT

Empowering health professionals to optimise high-value evidence-based musculoskeletal care

RART GRANT

$200,000

CHIEF INVESTIGATORS

Professor David Hunter
Professor Manuela Ferreira

LEAD PARTNER

Northern Sydney Local Health District

Unifying Care of Musculoskeletal Conditions

One in three Australians suffer from musculoskeletal conditions, and it remains the leading cause of disability worldwide, costing the Australian economy in excess of $35 billion in lost labour each year.

Despite this, treatments given to patients often fail to adequately address their problem, contributing to the burden of disability in Australia.

For musculoskeletal researchers, the evidence is clear: surgery isn't always the best treatment option for patients. Instead, early intervention, exercise and weight loss often remove the need for a patient to have surgery at all.

The problem, according to Professor Manuela Ferreira, Principal Research Fellow at the Institute of Bone and Joint Research at the University of Sydney, is that these treatment options don't reach patients as often as they should.

"In general, current medical practice does not align with what is recommended in guidelines, leading to inappropriate care, poor outcomes and waste of healthcare resources," she said.

She, along with Professor David Hunter, who is a co-leader of Sydney Health Partners' Musculoskeletal Stream, Professor of Medicine at the University of Sydney and Staff Specialist Rheumatologist at Royal North Shore Hospital, are leading a collaboration of musculoskeletal researchers and clinicians to develop new training resources and patient information for a range of musculoskeletal conditions.

"We're creating resources that will cover the whole care pathway and patient spectrum – from people with acute and mild symptoms, to post-surgical care, and for younger and older patients as well," said Professor Ferreira.

The group, which includes surgeons, physiotherapists, occupational therapists, nurses and rheumatologists amongst others, has received a two-year grant as part of Sydney Health Partners Rapid Applied Research Translation Grant scheme. They have commenced an international review to help identify the form and type of resources developed, and how they should be implemented, to ensure they are taken up by clinicians and patients as part of routine care.

It's part of a wider push to unify care of musculoskeletal disease. Professor Hunter previously received SHP funding for another program of work that investigated the enablers and barriers to implementation of the Osteoarthritis Chronic Care Program (OACCP) and enhanced its implementation in hospitals.

OACCP, a diet and exercise model of care for osteoarthritis patients considering a joint replacement, had been rolled out by NSW Health across the state but wasn't being uniformly taken up – despite the potential benefits to patients and cost-saving to the health system. For every one dollar NSW Health spent on the OACCP, they saved five dollars in joint replacements.

"One of the barriers to implementation that we found was the lack of resources," said Professor Ferreira. "Our current project can address part of that gap, but also goes beyond OA to other conditions and locations, including rural communities that often don't have access to the resources to inform care."

PROFESSOR MANUELA FERREIRA

Placing Physiotherapy in Patients' Hands

Since emerging in Sweden more than two centuries ago, physiotherapy has steadily gained acceptance for its health and medical benefits.

In recent years the discipline popularly known as "physio" has become a common tool of public healthcare, and can now be used to treat conditions as diverse as osteoarthritis, multiple sclerosis and the effects of stroke.

Such has been the diversification of the applications for physiotherapy, the public health system has been unable to keep up with the growing demand for face-to-face physio treatment. Research is now underway to determine whether some patients can successfully undertake physiotherapy exercises in their own home and still experience at least the same level of benefit provided by attending a clinic.

"Demand for physiotherapy is increasing rapidly because we have an ageing population and because clinicians and consumers have a growing appreciation of its benefits for some conditions," said Professor Lisa Harvey from Northern Sydney Local Health District and the Kolling Institute.

"But its popularity has created a patient access and equity issue. There are simply not enough physiotherapists to meet the demand in the NSW health system and in some districts the waiting list for face-to-face treatment is very long."

Musculoskeletal conditions cost $9.2 billion in health services and $7.4 billion in lost productivity. In a Rapid Applied Research Translation project for Sydney Health Partners, Professor Harvey, in collaboration with NSW Health physiotherapists and academics, is conducting a randomised clinical trial to compare the results of home-based, digitally supported, physiotherapy and traditional face-to-face physio.

The trial builds on a previous study by Professor Harvey which showed that patients were more likely to follow an exercise regime if given the instructions in digital form rather than on paper.

The new study, involving patients from five hospitals in three Local Health Districts across Sydney, uses a web-based application to provide trial participants with individually-customised sets of exercises to undertake at home.

"Each patient undergoes an initial face-to-face assessment with a physiotherapist, who uses the web application we've developed to select and compile a set of exercises suitable for their condition," says Professor Harvey. "The patient is then given a unique website link to their individual exercise program."

"But this isn't just about the app. We also provide them with messages of encouragement and support via text messages, and a physiotherapist telephones the patient after two weeks to give them advice, support and reassurance."

The study is comparing patient treatment adherence and outcomes, and also the financial costs of the two approaches.

"We will hopefully show that the new clinical pathway is considerably less expensive and, if it is, it may be possible to improve the supply of physio treatment in health services," says Professor Harvey. "In addition, there's the possibility that the new approach will actually be more effective."

"In the case of many conditions requiring physio, so much of the patient's problem can be addressed by their own actions," says Professor Harvey. "The solution can often be in their own hands."



MRFF PRIORITY

• Improving clinical pathways and care by building collaboration across the care continuum

• Improving the health of vulnerable groups

PROJECT

Comparing clinic-based physiotherapy for musculoskeletal conditions with home-based exercise programs

RART GRANT

$166,867

CHIEF INVESTIGATOR

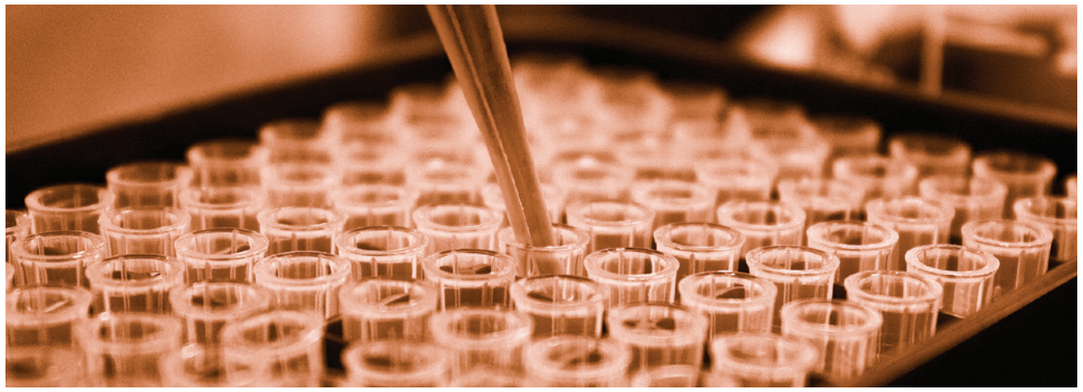
Professor Lisa Harvey

LEAD PARTNER

Northern Sydney Local Health District

PROFESSOR LISA HARVEY

Strategic Platform Investigates Possible Research 'Passport'



A collaborative group led by Northern Sydney Local Health District (NSLHD) began investigating the feasibility of one type of health service "passport" which would make it easier for health and medical researchers to access electronic medical records in more than one hospital or health district for approved research studies.

MRFF PRIORITY

- Research translation and Implementation Science
- Clinical researchers capacity

The proposal, to be piloted initially by NSLHD and Western Sydney Local Health District (WSLHD), aims to eliminate the need for researchers to repeatedly provide the same credentialing information in order to gain access to data held at different locations and in different IT systems.

NSLHD Research Strategy and Partnerships Manager, Rebeka Freckleton, said the working group felt a research passport would be particularly useful for university researchers conducting multi-site studies.

"Researchers who commence large three or five-year funded projects sometimes find that a significant proportion of time in the first year is dedicated to obtaining approvals, access to sites and the like," said Ms Freckleton. "Anything we can do to minimise the time required for these processes will benefit research."

Clinical Trials Manager at WSLHD, Sharon Lee, said the proposed passport had prompted both her district and NSLHD to look again at the processes they each use to achieve the same outcome.

"No one wants to be going backwards and forwards, so we want to know whether the information we seek from researchers is based on policy," said Ms Lee. "Or is it a cultural thing particular to a local health district, or is it something we do for historical reasons? We are trying to strip it back to ensure that the credentialing questions we are asking researchers and the answers we are getting back are what is necessary for policy, and no more."

The research passport project was the first major initiative of the newly-formed Platform 3 of Sydney Health Partners, whose mission is to remove barriers to the timely conduct of research.

NSLHD took leadership of the Platform as part of its contributions to the new strategy adopted by SHP in 2019.

"I'm really excited that Northern Sydney Local Health District is leading this particular project for Sydney Health Partners, because when we talk about supporting research the first thing we have to do is reduce the barriers to actually doing research," said NSLHD Chief Executive, Deb Willcox.

Ethics and governance officers from across the Partnership met regularly during the year to discuss other aspects of approval processes that could be streamlined across SHP and potentially NSW. Representatives began work on developing a standardised governance review process across the Partnership, and compiled an aggregated list of Human Research Ethics Committee meeting dates for publication on the Sydney Health Partners website.

Ms Freckleton described SHP as a "sandpit environment" where the various processes, hospitals and health services used for establishing research projects – such as ethics and governance approvals – could be compared and new ideas like the research passport could be conceived and trialled.

"We've had a lot of support from the governance officers in particular, and the managers of the research offices are also enthusiastic," she said. "This project has brought together staff from research offices, human resources, ICT and health information services at both NSLHD and WSLHD, which is an amazing achievement."



Encouraging Consumer and Community Involvement in Research

The past decade has seen growing recognition of the importance of consumer and community involvement (CCI) in healthcare delivery. More recently, there has also been an increased focus on increasing the involvement of community members in health research.

Despite this, determining the best ways for researchers and consumers to work together remains challenging. How can the health system and academia create and support new kinds of partnerships, in ways that are genuinely beneficial for the individuals involved?

Sydney Health Partners has been working with advocacy and consumer groups in developing a body of work to enhance this process, creating educational and capacity-building resources for consumers and clinicians alike.

"We know that when health consumers are involved in designing services, care pathways and policies, we get better, more patient-centred care," said Dr Anthony Brown, Executive Director of Health Consumers NSW (HCNSW). "There's a good body of evidence that shows that the more patients are involved in co-design and co-governance of care, the better the care is for them and their families." Evidence is building for the same kind of benefits when patients and consumers are involved in research. So, in 2020, SHP commenced working with HCNSW on a project to increase the capacity of Sydney Health Partners members to involve health consumers in their research activities.

Health Consumers NSW is undertaking a scoping review and needs assessment of consumer and community involvement across SHP, which will then inform a series of training seminars for consumers, researchers and clinicians.

"There are some great examples of consumer and community engagement and involvement within the Partnership that we want to identify and build upon," said Carrie Hayter, a consultant and consumer advocate who is working on the project with HCNSW.

Dr Ilse Blignault, consultant and university researcher, will be developing the content of the training sessions based on the results of the needs assessment. She said that building the capacity of researchers and clinicians, as well as consumers, will result in a better understanding on all sides of what each group brings to the table.

"In the end, consumers and researchers need to meet each other in the same space. It can be hard for consumers, if they've received training and are instilled with confidence, to be put onto a committee or in a team of researchers and then completely dismissed because the researchers don't understand their value," she said.

"On the other hand, if researchers come to a co-design meeting with expectations of consumers that they can't meet, both groups will walk away dissatisfied. So, this project isn't just about developing individual skills, but for both groups to gain understanding and insights into the other, so they work together better."

Making an Impact #3

Every Week Counts Campaign Goes National

In 2019-20, a public health intervention kick-started by funding from Sydney Health Partners, and aimed at women and their care providers considering a planned birth, was enthusiastically adopted in NSW and elsewhere.



The Every Week Counts project encourages planned births to happen as close to 40 weeks as possible, when medically safe to do so. The project developed a brochure designed for consumers – and a more detailed version for clinicians – which were initially trialled in clinical settings at Royal North Shore and Westmead hospitals. Following good initial acceptance by expectant mothers, obstetricians and midwives, distribution of the brochures was extended to all major hospitals in NSW.

The information was also taken up by a group of three hospitals in Brisbane, and adopted into guidelines within South Australia and Western Australia. Wide promotion of the Every Week Counts campaign's key messages was aided by the creation of a website [www.everyweekcounts.com.au] which attracted significant traffic in its first year.

In 2019, Every Week Counts was included in the Australian Safer Baby Bundle, a national campaign of evidence-based interventions designed to reduce Australia's incidence of stillbirth. Additionally, Every Week Counts was also promoted as part of the Australian Preterm Birth Prevention Alliance, aiming to reduce preterm birth and early term birth across Australia.

Project Co-ordinator and Registered Nurse Lyndsey Harvey said while midwives were early and enthusiastic supporters of the Every Week Counts project, many obstetricians became supportive over time.

"I think wherever we've distributed the brochures, the message has really become part of their daily practice. It's a gradual thing, but anecdotally clinicians tell us it's had an impact and I think they've become more thoughtful about the message," she said.

Following the SHP grant, the research project attracted subsequent funding from the NSW Government's Translational Research Grants Scheme.

The second stage of the project collected data and analysed whether the campaign's brochures, website and supporting professional education made a measurable difference to the number of planned births being performed before full term and postnatal infant health outcomes.

The chief investigator, Northern Sydney Local Health District's Professor Jonathan Morris, said Every Week Counts built on evidence that children born before 39 weeks were at increased risk of long-term developmental problems such as poorer school performance and Attention Deficit Hyperactivity Disorder. Even in the short-term, babies born early were more likely to need help with their breathing, be admitted to a neonatal intensive care unit, have jaundice, and spend longer in hospital.

"Those last few weeks of gestation might seem insignificant, but in reality babies are going through crucial developmental phases," said Professor Morris. "The brain at 35 weeks, for example, only weighs two-thirds of what it will weigh at 40 weeks."

"We found there was a general lack of awareness amongst both clinicians and expectant parents of the short, medium and long-term implications of being born even slightly early. But we believe that through this project, awareness and attitudes are starting to change."

New Genetic Tests Improve Diagnoses

When scientists first sequenced the human genome in 2003, it seemed like the dawn of a new era. Now, nearly 20 years on, it's become clear that was just the tip of the iceberg.

This new era of genetic testing and precision medicine has delivered on some of its promises – genetic testing is far faster, cheaper and easier than it was 20 years ago – but concrete diagnoses can still elude clinicians, often leaving patients and their families with more questions than answers.

Professor Sandra Cooper, Joint Head of the Kids Neuroscience Centre, has seen this first-hand in her diagnostic lab, finding that traditional genetic testing was only able to provide an answer for a fraction of the children and families who presented there with suspected genetic disorders.

"We looked at 220 patients with genetic neuromuscular disorders, and traditional genetic testing was only able to provide answers for 40% of them," she said.

The project has changed the genetic classification of 71% of the previously undiagnosed cases

She looked closer, eventually developing a new test that used biospecimens like blood, urine and skin to test for the presence of a different type of genetic cause: splicing variants. Splicing variants occur when mutations in the non-coding region of the DNA interrupt splicing a crucial step in the transformation of DNA into the proteins that make us up.

The test was a success: "Now, when we looked for splicing variants in 50 of our undiagnosed families, we found genetic answers for 90 per cent of the families we tested."

In 2019, Sydney Health Partners provided the funding to help Professor Cooper's lab scale up its diagnostic program, providing the resources for it to expand testing for 46 of the families and changing classification of their genetic disorder in 71 per cent of cases.

She says the importance of providing a specific diagnosis "cannot be overstated", because it can pave the way for precision treatments for patients and assist families through often-difficult IVF and family planning decisions.

For example, the team helped two siblings with a rare neuromuscular disorder by pinpointing the exact genetic cause of their disease, allowing them to undergo the appropriate targeted treatment (in this case, Ventolin). Both patients experienced dramatic improvements in their conditions, allowing them to stand, walk short distances and drive.

Professor Cooper stresses, however, that for many families the most important thing is simply putting a name to their disorder.

"To learn what has caused the disorder in their child, or perhaps what caused the premature death of a baby, and to help parents make informed decisions about what to do next is tremendously valuable," she said.

"Every now and then a diagnosis leads to a treatment that works, but this doesn't happen all the time. Most of the time it's about giving families an answer and helping them make decisions moving forward."

A third of the diagnoses provided by Professor Cooper's lab are helping families through the agonising process of family planning and pre-implantation embryonic testing.

"It's very meaningful for me to be able to give a genetic answer to a family who has had a child who's died," says Professor Cooper. "And then when they can go on and have a healthy child – that's as good as it gets for me."



MRFF PRIORITY

- Improving clinical pathways and care by building collaboration across the care continuum
- Improving the health of vulnerable groups

PROJECT

Making sense of splice variants in rare diseases for precision and preventative medicine

RART GRANT

$215,000

CHIEF INVESTIGATOR

Professor Sandra Cooper

LEAD PARTNER

Sydney Children's Hospitals Network (at Westmead)

PROFESSOR SANDRA COOPER

Reducing Falls in Vulnerable Populations

No health problem has a 'one size fits all' solution, and the same is true for falls.

Falls are a problem, not only for the elderly, but also for those with physical disabilities, and the mentally ill. And while exercise and falls prevention programs do exist for each group, they are not always taken up, either due to exclusionary eligibility criteria or a lack of awareness.

There were 50,000 fall-related hospitalisations between 2017 and 2018 in NSW. Dr Meryl Lovarini is working to see whether an existing falls prevention program can be tailored to reduce falls in adults with mental illness.

While older people with mental illness have many risk factors for falling – including medication side-effects, sedentary lifestyles, and gait and balance problems, among other things access to falls prevention programs that meet their specific needs is limited.

"Adults with mental illness have a higher risk of falls, are hospitalised more often, and have longer hospital stays," said Dr Meryl Lovarini.

The program, Stepping On, has previously been delivered in community locations by allied health professionals, and allows participants to understand their falls risk, explore safety strategies and develop confidence in using these strategies in their everyday lives.

Dr Lovarini is evaluating the program with the help of a Sydney Health Partners grant, with the aim of expanding the program to other locations and for greater numbers of mental health consumers.

"Ultimately, we want to work with people to empower them to stay on their feet and in their own home," said Dr Lovarini. "This study will give us the evidence to make confident recommendations about what works for these patients and the health professionals working with them."



DR MERYL LOVARINI

PROFESSOR CATHIE SHERRINGTON

MRFF PRIORITY

- Improving the health of vulnerable groups
- Improving clinical pathways and care by building collaboration across the care continuum

PROJECT

Better participation in exercise for people aged 50+ and people with physical disabilities through health professional education

RART GRANT

$164,406

CHIEF INVESTIGATOR

Professor Cathie Sherrington

LEAD PARTNER

Sydney Local Health District

MRFF PRIORITY

- Improving the health of vulnerable groups
- Primary care research
- Public health interventions addressing complex and chronic needs

PROJECT

Testing a falls prevention tool for older people with mental illness

RART GRANT

$129,965

CHIEF INVESTIGATOR

Dr Meryl Lovarini

LEAD PARTNER

Northern Sydney Local Health District

Professor Cathie Sherrington is working to improve physical health in two other vulnerable groups : adults over the age of 50 and people with disabilities of any age. For Professor Sherrington, an important challenge lies in supporting clinicians so they can make appropriate recommendations to their patients.

"Research shows these groups are not participating in exercise and other forms of physical activity at the same rate as the general population," said Professor Sherrington "What's more, many healthcare professionals who are in the best position to refer these individuals to appropriate local exercise, sport and active recreation programs don't regularly do so."

In 2019, Professor Sherrington – who is also Leader of the Physical Activity, Ageing and Disability Research Stream at the Institute for Musculoskeletal Health and the University of Sydney – led a Cochrane review that found strong evidence that exercise plays a vital role in preventing falls.

SHP funding is being used to develop a program to support clinicians so they can refer their patients to appropriate exercise, sport and recreation programs.

So far, the study has found that one of the driving factors behind the lack of referrals is that many clinicians aren't aware of appropriate, local activities for their patients and that they lack the time to find out more.

Beyond awareness, for clinicians who see patients with complex physical needs, deeper knowledge of a program may be required for a recommendation to occur.

"While the advantage of clinicians referring patients to exercise programs is that they're aware of their patient's needs and can tailor their recommendation to these needs, they have to trust the program – trust that their patient will feel comfortable and that the instructors are suitably trained to deal with their patient's specific pain or disability needs," said Professor Sherrington.

"In the end, more than education will be needed to change practice. We hope to work with clinicians to identify specific opportunities and help build relationships and trust between the health system and community exercise, sport and recreation providers."



MRFF PRIORITY

- Addressing clinical variation by driving data linkage and integration
- Improving the health of vulnerable groups

PROJECT

Development of a web-based platform for accurate prediction of melanoma prognosis using Australian data

RART GRANT

$165,000

CHIEF INVESTIGATOR

Dr Alexander Varey

LEAD PARTNER

Western Sydney Local Health District

DR ALEXANDER VAREY

Online Calculators Guide Clinical Decision-making in Melanoma

Clinicians around the world now have access to a new online calculator that predicts the risk that a patient's primary melanoma has spread to nearby lymph nodes, thanks to research supported by Sydney Health Partners.

Melanoma has been dubbed "Australia's national cancer". Along with New Zealand, Australia has the highest prevalence of melanoma cases in the world. One Australian is diagnosed with melanoma every half hour. That's 15,000 new cases a year, or 11 per cent of all cancers in Australia.

For patients recently diagnosed with melanoma, one of the first hurdles is to find out whether the melanoma cells have spread. To do this, clinicians will commonly biopsy the first lymph node (known as the "sentinel" node) to see if melanoma cells are present, indicating that this spread has occurred. If it has, it greatly increases the likelihood that it has spread further. This information, in turn, helps determine the patient's best treatment plan.

A team, led by Dr Alexander Varey, reconstructive and plastic surgeon at Western Sydney Local Health District, and Associate Professor Serigne Lo, Head of Biostatistics at the Melanoma Institute Australia (MIA), has built a website that includes a suite of melanoma prognosis and risk calculators for clinicians to use with patients before, during and after melanoma treatment.

It was developed from research funded by SHP which found the calculator has the potential to better identify melanoma patients who are most likely to benefit from a sentinel node biopsy, as well as those least likely to benefit.

"For us, one of the big questions was, can we better predict which patients will be at significant risk of having their cancer spread to their lymph nodes?" said Dr Varey. "That's what this calculator aims to do."

"The calculator takes into account five pieces of basic information about the melanoma and the patient's age to determine the patient's individual risk of the cancer spreading to their lymph nodes."

"This means that patients deemed at low risk of disease spread can potentially avoid having a sentinel node biopsy, which sometimes has complications and usually requires a general anaesthetic."

Current treatment guidelines recommend that if a patient has a tumour with particular characteristics – mainly tumours that are slightly thicker or ulcerated – then removal and examination of the sentinel node should be considered. However, these guidelines are not tailored to individual patients and don't account for important information, including the age of the patient. Younger age is known to be one of the most important risk factors for melanoma spreading to lymph nodes.

The research team used established international calculators as a starting point, tailoring them to Australian demographics using patient data from Melanoma Institute Australia's extensive database, built up over a 50-year period.

The calculator has been trialled at sites including Royal Prince Alfred, Royal North Shore and Westmead Hospitals with enthusiastic responses from clinicians and their patients.

"The calculator enables clinicians to have better informed discussions with their patients based on each individual's percentage risk, rather than a few simplistic criteria that only approximate the risk of disease spread to the lymph nodes," said Professor Richard Scolyer, MIA Co-Medical Director.

"The main benefit of the calculator is likely to be for those deemed to be at low risk of disease spread, who can safely forgo a sentinel node biopsy. This is of benefit particularly to older patients who are less likely to have melanoma spread to their lymph nodes, but who are at increased risk of complications from extra surgery and general anaesthesia," added MIA Co-Medical Director, Georgina Long.

Early and Preventative Healthcare for Indigenous Children

Access to healthcare and good health in the early childhood years is crucial for a long lifetime of good health outcomes and opportunity.

Prevention and treatment are especially important for Aboriginal and Torres Strait Islander children, who often experience worse health outcomes compared to their non-Indigenous counterparts.

Sydney Health Partners is committed to improving the health of Indigenous peoples in Australia, through consultation and an Indigenous-led approach to improving health outcomes.

The Hearing Ear Health and Language Services (HEALS) program, originally funded by NSW Health, provided speech, language and ENT services to Aboriginal children in partnership with Aboriginal Community-Controlled Health Services (ACCHS), accelerating children in need of care through the often labyrinthine path of health services, waiting lists and interventions.

After the program was established with the ACCHS, most services saw waiting times for ENT surgery dramatically reduce, and the wait list completely eradicated in a number of sites. It delivered 8000 speech therapy sessions and over 300 operations, helping set up children for a healthy life.

The HEALS program delivered 8000 speech therapy sessions and over 300 operations

“It changes a child’s life when they can hear and communicate – they become more engaged at school, they want to learn more. The more you want to learn, the better you do at school,” said Dr Gunasekera, Clinical Academic General Paediatrician at Sydney Children’s Hospitals Network (Westmead). Improved levels of school attendance and Year 12 completion are both key priorities of the Australian Government’s Closing the Gap strategy.

The key to success, said Dr Hasantha, was dependent on the program’s implementation in ACCHS.

“The success we saw in HEALS was because it was run locally by Aboriginal people in the community. ACCHS are so valuable to improving health outcomes because those relationships are already in place between the service and the community; the trust is already there,”



MRFF PRIORITY

- Improving clinical pathways and care by building collaboration across the care continuum
- Improving the health of vulnerable groups

PROJECT

Improving ear health among Indigenous children

RART GRANT

$200,000

CHIEF INVESTIGATOR

Dr Hasantha Gunasekera

LEAD PARTNER

Sydney Children’s Hospitals Network (at Westmead)

PROFESSOR HASANTHA GUNASEKERA

said Dr Gunasekera, who is leading an SHP-funded evaluation of the program’s implementation in Tharawal, NSW.

The evaluation aims to demonstrate quantitatively what has already been established qualitatively: that the program was successful in its objectives to improve ear health in Aboriginal and Torres Strait Islander children.

The success of Aboriginal-led health programs has also been seen with the delivery of fluoride varnish to Aboriginal children to improve dental health.

One in six Aboriginal children have some form of tooth decay, nearly double that of other Australian children. To combat this, the NSW Aboriginal Oral Health Plan and the National Oral Health Plan both recommend the use of fluoride varnish – a coating of fluoride applied to the teeth at regular intervals – in a community setting like a school or community centre.

A program, originally developed by the Poche Centre for Indigenous Health to deliver this therapy to rural and regional schools, has received funding from Sydney Health Partners to expand into eight urban schools in the SLHD and WSLHD catchment areas.

While the coating is normally applied by dentists, following significant consultation, the Poche Centre developed an exception process with the NSW Government to allow dental assistants – who are far more likely to be in community already – to deliver the preventative therapy.

“What we found originally in the rural project was that while preventative dental treatment wasn’t readily available, the personnel was,” said Professor Woosung Sohn, Chair of Population Oral Health at the University of Sydney School of Dentistry and Chief Investigator on the SHP-funded project.

In keeping with governments’ recommendations, the Poche Centre and TAFE Digital have trained Aboriginal dental assistants to deliver the program in local schools through a regular series of ‘Fluoride Varnish Days’.

“Aboriginal staff play an important role in providing a culturally safe environment for Aboriginal people and particularly where their kids are concerned,” said Mr Boe Rambaldini, Director of the Poche Centre for Indigenous Health and one of the study’s Principal Investigators.

“We’ve had great feedback from the children and the teachers, and once we’re successful in preventing dental disease at an early age, it has really long-lasting effects. It’s not just about the varnish, the program gives us the opportunity to teach about the importance of oral health to help prevent disease as they grow up.”



MRFF PRIORITY

- Improving the health of vulnerable groups
- Public health interventions addressing complex and chronic disease

PROJECT

Scaling up a school-based fluoride varnish program for Aboriginal children in NSW

RART GRANT

$215,000

CHIEF INVESTIGATOR

Professor Woosung Sohn

LEAD PARTNER

Sydney Local Health District

PROFESSOR WOOSUNG SOHN

Making an Impact #4

Molecular Test For Breast Cancer Wins Support

An innovative and inexpensive molecular test which helps doctors to make crucial treatment decisions about breast cancer patients moved closer to realisation thanks to research funded initially by Sydney Health Partners.

In 2018 Chief Investigator, Dr Dinny Graham identified a novel gene signature called PROSPER-2. Her research indicated that testing for this signature could identify breast cancer patients who were at greater risk of recurrence after the removal of their tumour and therefore guide treatment choices.

Dr Graham said a subsequent clinical trial with PROSPER-2, involving the multidisciplinary teams (MDTs) of clinicians at the Westmead Breast Cancer Institute, had boosted enthusiasm about new generation personalised genomic tests.

"Whereas they were previously more cautious about using molecular tests, the MDTs teams found that, for the most part, the test results confirmed their own judgement and provided reassurance for patients," she said.

For three quarters of patients, after their cancer has been removed by surgery, the standard treatment is with endocrine therapies. These are highly effective in most cases and have the most tolerable side effects. However, a subset of these patients are at an elevated risk of relapse and are additionally treated with chemotherapy drugs.

"The ability to predict which patients are at elevated risk is critical if we are to avoid over or under-treatment, and it is this scenario where precision medicine tools are valuable," said Dr Graham.

"Molecular tests are not essential in all cases because the treatment recommendation is unequivocal – there's either enough concern that the patient is recommended for additional treatment such as chemotherapy, or there is clearly a very low risk of the cancer recurring.

But we found that in a quarter of the patients such a test was considered helpful to the MDTs, and in up to 15 per cent of the cases it changed the treatment recommendation.

"Commercially available molecular tests can guide clinical decisions but they are very expensive and not affordable for many patients. As a part of the clinical trial, we confirmed that our test performs as well as the commercial tests and is much more affordable."

Building on the promising early results, development of the PROSPER-2 test is continuing with the support of the charity Tour de Cure. Recent work has been aimed at confirming initial findings that the accuracy of the new test is comparable with the commercial tests, and translating it to allow routine delivery in pathology labs.

"We went back to a larger cohort of breast cancer patients, for whom we have quite long follow-up data, and where we could compare our genetic signature result with patient outcome," said Dr Graham. "The results so far suggest we have good correlation."

Dr Graham – who is the Deputy Director of the Centre for Cancer Research at The Westmead Institute for Medical Research, said work was underway to further refine the test so that, rather than requiring specialised equipment, it could be processed in standard pathology settings and "we don't have to go through multiple steps to get to an end point".

"Our goal is to make the test easier to apply in our hospital pathology lab, so the specimen doesn't have to go to an offsite facility or require a pathology department to buy an expensive piece of equipment they don't have. This will improve turnaround times and lead to better equity in test provision."

While development of the test has some way to go before it is in routine clinical use, Dr Graham said Sydney Health Partners had been crucial in getting the project this far.

"It really kick-started the project and gave us more visibility. It attracted matched funding from our colleagues in the hospital but, just as importantly, also their enthusiasm."

SHP Enables More Efficient Clinical Trials



(L-R) PROFESSOR JUDITH TROTMAN, SHP'S PROGRAM MANAGER ANDRIA RATCHFORD, ROSLYN RISTUCCIA

Clinical trials are the backbone of medical research; not only do they provide a key link between basic scientific research and full implementation, they also give patients access to new treatments and therapeutics with the potential to deliver better results than current standards of practice.

Despite this, the process of running clinical trials is far from smooth with, at one end, fragmented and incongruous site requirements that delay the setting up of trials, and at the other end, difficulties recruiting and maintaining patient participation. Research shows that up to 90 per cent of trials are delayed due to failure to meet recruitment targets.

In a review conducted by the University of Sydney in 2019, Sydney Health Partners was identified as a key player to improve clinical trial efficiency across the Partnership. The establishment of the Data Sharing Accord (p23), as well as the work being conducted under Platform 3 (p32) to unify approval requirements aim to improve the setting up and conduct of clinical trials across the Partnership.

Meanwhile, SHP has continued to support ClinTrial Refer – an app and website that addresses the second part of the problem by connecting patients and their doctors to clinical trials.

Now in its seventh year, ClinTrial Refer creates and maintains up-to-date databases of clinical trials which are currently recruiting patients, facilitated through a free-to-download mobile app, making it easier for patients or their doctors to find a suitable trial.

In 2019 and 2020, with the support of Sydney Health Partners, ClinTrial Refer was able to expand its capabilities, launching a second version of the app as well as a dedicated platform for COVID-19 trials.

"ClinTrial Refer Version 2.0 integrates all existing apps into a single digital platform with the same user-friendly design," said ClinTrial Refer Co-founder and Executive Manager, Roslyn Ristuccia, following the launch of the app by the Hon Greg Hunt MP, Federal Minister for Health, at the Australian Clinical Trials Alliance (ACTA) International Clinical Trials Conference in October 2019.

"Previously, we had more than 20 separate apps segmented by discipline and location, which was difficult to maintain and hard for clinicians to see the full scope of what trials are happening at any one time. Now, clinicians are able to see all trials, at a glance, and search the platform globally for trials that may be relevant to their patients," she said.

"It's about making sure that people who might otherwise not have had any chance of navigating the system, do that. They can feel that they are in charge of their own healthcare," said Minister Hunt in his opening remarks.

As for all diseases, the availability of COVID-19 vaccines and therapeutic treatments hinges on the completion of successful clinical trials. In February, it became clear that the urgency of COVID-19 required a quick response, and the team moved into action – getting a dedicated, free platform for COVID-19 trials up-and-running by the end of March.

By providing a dedicated platform for COVID-19 trials, ClinTrial Refer aimed to support active trials and their recruitment activities, as well as to help avoid duplication by providing visibility for researchers about what trials were currently underway.

"Awareness of and access to trials are key to being able to advance clinical care through research, and that's what we aim to do," said ClinTrial Refer Co-founder, and Head of Department, Haematology at Concord Hospital, Professor Judith Trotman.

"The support from Sydney Health Partners has been invaluable, it's been a real enabler and will allow us to take the next step in the ClinTrial Refer journey," she said.

Research in the Community Reduces Diabetes Burden

Patients with diabetes often face a lifetime of ongoing disease management, doctors' appointments and long-term complications including cardiovascular disease and nerve damage.

Diabetes costs the health system $2.7 billion a year in treatment, nearly $135 million of which could be prevented through better management of blood sugar levels in individuals.

Sydney Health Partners has funded three projects to reduce the lifelong risk of diabetes-related complications, or prevent patients from developing diabetes in the first place.

Professor Maria Craig, Paediatric Endocrinologist at the Children's Hospital at Westmead, is looking at ways to reduce the burden of variable blood sugar and generating new clinical evidence to assess the viability of new technologies.

She is measuring the clinical and economic outcomes of treating type 1 diabetes (T1D) patients with a new technology known as a hybrid closed-loop insulin pump and comparing the outcomes with those of traditional multiple daily injection therapies.

Unlike conventional insulin pumps, hybrid closed loop systems automatically vary the supply of insulin in response to continuous blood glucose monitoring, helping patients maintain their blood-glucose levels throughout the day.

Principal Co-investigator, Associate Professor Jane Holmes Walker, says that this is the first study into whether the health and lifestyle benefits of the pumps outweigh the costs.

"Because hybrid closed-loop insulin pumps are not currently available to public health patients, it is important to research their health and economic impacts," she said.

"We're attempting to put a dollar value on the quality of life improvements that may result from use of the new technology."

Helping young adults better manage their type 2 diabetes (T2D) is the focus of Dr Timothy Middleton, Endocrinologist at the Royal Prince Alfred Diabetes Centre and the University of Sydney.



MRFF PRIORITY
Improving clinical pathways and care by building collaboration across the care continuum

PROJECT
Implementing insulin pumps for adolescents and young adults with type 2 diabetes

RART GRANT
$224,350

CHIEF INVESTIGATOR
Professor Maria Craig

LEAD PARTNER
Sydney Children's Hospitals Network (at Westmead)

PROFESSOR MARIA CRAIG

"Diabetes is a lifelong condition, and young adults are going to have extended exposure to risk factors," he said. "But these people are busy studying, starting families – they have other commitments and worry about other aspects of their lives, over their diabetes."

To combat this, he and his co-investigators, Professors Jencia Wong and Professor Clara Chow, have developed a program that sends supportive messages and appointment reminders to patients via SMS, so they remain engaged with the treatment and management of their disease, and attend their quarterly clinic appointments.

The TEXT2U project compares the new SMS program against current standard of care. Results so far have been promising. Interim analysis of participants six months into the program has found that 81 per cent maintained a perfect clinic attendance record compared to the 47 per cent of individuals who are receiving the current standard of care.

"Ultimately we want to help these young people develop good habits," said Dr Middleton. "The risk is that if they miss clinic appointments, we miss out on opportunities to identify and address problem areas with them; this will result in poorer health outcomes and impaired quality of life in the long term."

In another project, Professor N Wah Cheung, Director of Diabetes and Endocrinology at Westmead, is also engaging with patients via SMS – attempting to reduce the risk of pregnant women with gestational diabetes developing type 2 diabetes after their pregnancy.

"International data suggest that women who have had gestational diabetes have a 50 per cent risk of developing diabetes in the next 25 years, but studies we've done around western Sydney show that it's much higher here – around 60 per cent risk of getting diabetes or pre-diabetes within five years," said Professor Cheung.

As part of an SHP-funded trial, women with recent gestational diabetes will wear activity monitoring devices and be sent personalised SMS tips and reminders to eat healthily and stay active based on their activity data.

"We know from diabetes prevention studies that if you're active, if you eat healthily and you manage your weight, your risk for diabetes is lower. We want to know if simple technology can be used to help women modify their lifestyle and reduce their long-term risk," he said.

MRFF PRIORITY
Improving clinical pathways and care by building collaboration across the care continuum

PROJECT
Improving clinic attendance by adolescents with type 1 diabetes

RART GRANT
$50,000

CHIEF INVESTIGATOR
Dr Timothy Middleton

LEAD PARTNER
Sydney Local Health District

MRFF PRIORITY
- Primary care research
- Public health interventions addressing complex and chronic needs

PROJECT
Preventing type 2 diabetes among women with glucose intolerance during pregnancy

RART GRANT
$180,000

CHIEF INVESTIGATOR
Professor N Wah Cheung

LEAD PARTNER
Western Sydney Local Health District



DR TIMOTHY MIDDLETON

Improving Treatment of Bacterial Diseases

Bacterial infections pose major problems for hospital patients and clinicians alike.

Just as our understanding and treatment of bacterial diseases have increased, so have the evasive techniques of bacteria. Antimicrobial resistant bacteria are becoming increasingly common in our hospitals and pose a major public health threat.

Cellulitis is a bacterial skin infection and the leading acute cause of preventable hospital admissions in Australia. Sepsis – a potentially fatal condition caused by the body's reaction to infection – kills approximately 5,000 Australians each year, more than colon and prostate cancer combined.

A multidisciplinary team of clinicians, led by Professor Jon Iredell, Senior Staff Specialist in Infectious Diseases and Microbiology at Westmead Hospital, has received Sydney Health Partners funding to spread knowledge, skills and tools for genomic testing of these potentially deadly bacteria.

Identifying anti-microbial resistance (AMR) can be key to treating antibiotic resistant bacteria, as certain treatments can work better depending on the type of AMR, rather than the type of bacteria.

The team is establishing new genomic screening tools to detect and track AMR transmission at Westmead Hospital, and helping other SHP laboratories roll out similar programs.

"By using simple genetic tools we think we can identify the transmission of anti-microbial resistance between bacteria, when it is not apparent from looking at the bacteria themselves," Professor Iredell said.



DR AMITH SHETTY ASSOCIATE PROFESSOR NAREN GUNJA DR ALDO SAAVEDRA PROFESSOR JONATHAN IREDELL

MRFF PRIORITY

- Improving clinical pathways and care by building collaboration across the care continuum
- Addressing clinical variation by driving data linkage and integration

PROJECT

Validate a new computer algorithm which reads eMR data to identify Emergency Department patients who might be suffering from sepsis.

RART GRANT

$160,000

CHIEF INVESTIGATOR

Associate Professor Naren Gunja

LEAD PARTNER

Western Sydney Local Health District

"This will allow doctors to use infection control techniques we know work, but which don't work if you don't know what to apply them to."

Detection (particularly early detection) is similarly crucial for sepsis, but it can be hard to spot in its early stages.

To combat this, clinicians at Western Sydney Local Health District (WSLHD) emergency departments have worked with the WSLHD Informatics team to develop an algorithm that detects cases of sepsis in emergency departments and alerts clinicians so they can commence treatment earlier.

It was rolled out in adult emergency departments in WSLHD hospitals in the last year with great success – improving detection of sepsis by 20 per cent above the previous detection pathways.

"We were expecting to improve detection, but not by that much," said Professor Naren Gunja, Chief Medical Information Officer at WSLHD, who worked on the rollout.

Following this success, the program has now been incorporated into the NSW Clinical Excellence Commission's Sepsis Kills program and is being implemented across emergency departments throughout NSW. The algorithm code is also being shared with Queensland Health to be validated against their patient data from Queensland hospitals, before being incorporated in a state-wide Queensland Sepsis Clinical Decision package in late 2020.

After the successful roll-out in adults in WSLHD, the team received a Sydney Health Partners Rapid Applied Research Translation Grant to adapt the program for use in children.

"At the moment the system is only applicable for adults, but up to half of sepsis cases are children," said Dr Amith Shetty, staff specialist at Westmead Hospital.

"By combining patient information from Westmead Hospital and the Children's Hospital at Westmead, we can create an age-agnostic program that can then be applied to all hospitals in NSW."

The algorithm monitors electronic medical records as patients pass through the emergency department in real time, alerting clinicians when it detects that someone has started to show signs of sepsis so clinicians can begin treatment.

"The algorithm is there to support clinicians in their decision-making," said Dr Aldo Saavedra, Research Fellow in Data Science at the University of Sydney and another investigator on the project. "It can see all the observations and results that are available for a patient – including things the clinician might have missed – and allows them to administer treatment sooner."

MRFF PRIORITY

- Improving the health of vulnerable groups
- Public health interventions addressing complex and chronic disease

PROJECT

Better detection of infection and antibiotic resistance among vulnerable populations.

RART GRANT

$195,530

CHIEF INVESTIGATOR

Professor Jon Iredell

LEAD PARTNER

Western Sydney Local Health District

New Research to Help the Mentally Ill Rest Easy

Researchers at Sydney Local Health District have been tackling the adverse health effects of sleep apnoea on people with severe mental illness by trialling a novel way of overcoming barriers to their treatment.

Sleep disorders, particularly obstructive sleep apnoea (OSA), are common amongst people with Severe Mental Illness (SMI) and contribute to their typically poor general health and premature mortality. In addition, there are concerns that poor sleep might also exacerbate their mental illness.

MRFF PRIORITY

Addressing clinical variation by driving data linkage and integration

PROJECT

Oximetry screening to detect sleep-disordered breathing in severe mental illness

RART GRANT

$142,000

CHIEF INVESTIGATOR

Professor Ron Grunstein
Professor Tim Lambert

LEAD PARTNER

Sydney Local Health District
Woolcock Institute of Medical Research

Despite the potentially serious health effects, SMI patients often refuse to undergo a traditional hospital-based sleep study to diagnose whether they have OSA.

"We know that Continuous Positive Air Pressure (CPAP) therapy makes a difference to OSA but we didn't know how feasible it was to screen the Severely Mentally Ill for the condition and treat it," said University of Sydney Professor, Ron Grunstein, from the Woolcock Institute of Medical Research.

"The challenge was, how do you make the diagnosis in a setting where the patient is often resistant to coming into a hospital, follow-up is difficult and sometimes they are not keen on the treatment?"

In a program funded by Sydney Health Partners, a team of researchers and clinicians led by Professor Grunstein trialled a home-based diagnostic test, which uses a relatively simple and non-invasive device known as an oximeter. The device, which attaches to the patient's wrist and finger, measures oxygen saturation in the blood during sleep.

Patients found to have a high oxygen desaturation index require a CPAP machine to treat the condition.

"It's been a challenging project because patients with SMI are not an easy population to work with," says project manager Paola Espinel-Diaz. "If they are cognitively well-enough they are good at following the instructions for the oximeter. But it takes longer to engage those who require CPAP therapy and they need more education about how to sleep with a CPAP machine, and closer follow-up support than people without SMI."

Espinel-Diaz says researchers were pleasantly surprised by the high level of adherence amongst patients in the trial to date.

"Of the patients who consented to take part in the trial, 90 per cent have completed oximetry. And amongst those who commenced CPAP therapy, the proportion who persisted with the treatment was actually similar to the broader population."

"I think that's because people understand this therapy will benefit their overall health. And when they experience a result from the treatment they feel fantastic and have more energy."

The sleep apnoea project is part of a longer-standing initiative at Sydney Local Health District called the Collaborative Centre for Cardiometabolic Health in Psychosis (ccCHiP), which is an interdisciplinary collaboration in clinical research involving psychiatry, cardiology, endocrinology, dentistry, sleep medicine and allied health clinicians.

The ccCHiP Director and SHP Mental Health Stream lead, Professor Tim Lambert, says the centre uses a multidisciplinary integrated health approach to improve the life expectancy of the Severely Mentally Ill, who typically die up to 30 years earlier than the population average.

"With most SMI patients we are dealing with multiple comorbidities and usually all of them are chronic. The challenge is not just screening and diagnosis – it's finding ways to help ensure this vulnerable group of people are enabled to undertake the things we've prescribed or agreed with them to do," said Professor Lambert.

"But we've found that if we talk about – and demonstrate through interactive visualisations – their cardiovascular health in terms of the difference between their biological age and the apparent age of their heart, they appear to immediately understand it. For those who have completed six weeks or more of CPAP we can show them that they've reduced their 'heart age' or cardiovascular risks. To see a significant change in such a short time is very promising."



PROFESSOR TIM LAMBERT

Patients Sleep Easy with Weight Loss

For most patients with Obstructive Sleep Apnoea (OSA), Continuous Positive Airway Pressure (CPAP) therapy is one of the most successful clinically proven treatment options.

Despite an almost 100 per cent success rate when used properly, CPAP therapy remains a therapy, not a cure, and doesn't address the underlying cause of the disease.

OSA is a sleep disorder that causes breathing to stop and start during sleep and, left untreated, is a risk factor for a number of diseases, including cardiovascular disease, diabetes and some cancers.

"We know that obesity is a risk factor for OSA, and that significant weight loss can see up to a third of patients be 'cured' of their OSA," said Dr Elizabeth Cayanan, an exercise physiologist and nutritionist.

She is currently investigating how an intensive weight loss program can be implemented in hospital for obese patients with chronic sleep apnoea. The weight loss program, previously developed through her PhD, puts patients on a very low energy diet (VLED) for three months, followed by a clinician-led maintenance program of three months and then six months of self-maintenance. Throughout, patients are educated about how to maintain a healthy diet and lifestyle after the program ends.

The original pilot trial was a success: on average, each patient lost 13.5kg, with very minimal weight regain during the maintenance period.

"We saw that our patients could sustain their weight loss, and the evidence seemed to suggest that they had improvements in their general cardio-metabolic health and sleep," she said.

Now, Dr Cayanan has received Sydney Health Partners Rapid Applied Research Translation funding to test whether the tentative improvements in sleep apnoea can be confirmed with a larger group of patients, in a hospital setting.

SLEEEP(Sleep, Lifestyle, Eating, Energy, Exercise Program) has been implemented at the Royal Prince Alfred Hospital's Sleep Disorders Clinic. "We wanted to see whether we could replicate the program in a hospital setting, offering our weight loss program to patients the same way we offer CPAP," she said.

Preliminary results show the program is working : a total of 391kg has been lost by 32 patients in less than 12 months, with only a small number of patients dropping out of the study – a bonus for an extreme diet.

A total of 391kg has been lost by 32 patients in less than 12 months

"It's been well-received by both patients and referring clinicians. The department has not seen successful weight loss to this degree in the past in their unit," Dr Cayanan said.

Aside from helping patients lose weight – and all of the associated health improvements that come with it – that the program has helped develop a more collaborative approach to treating patients with sleep apnoea.

"It's really fostered a lot of communication with other departments of the hospital, and proactively brought the focus to a patient's weight, which wasn't the case before," said Dr Cayanan.

"Clinicians were used to seeing a person with sleep apnoea and focused on treating that, without tackling their weight as an issue due to the limited resources available."

MRFF PRIORITY

- Clinical pathways and care transition
- Improving the health of vulnerable groups

PROJECT

Weight loss for sleep disordered breathing: translating the Sleep, Lifestyle, Energy, Eating, Exercise Program into practice

RART GRANT

$198,000

CHIEF INVESTIGATOR

Dr Elizabeth Cayanan

LEAD PARTNER

Sydney Local Health District



"Weight loss programs also weren't readily available to all those patients because of hospital waiting lists, so the availability of SLEEEP has been enormously beneficial to this department."

DR ELIZABETH CAYANAN

Improving Medication Alerts for Prescribing Clinicians

While it's impossible to imagine the conduct of modern medicine without the use of multiple medications, errors in medication are a major source of preventable patient morbidity and health system costs.

The Australian Commission on Quality and Safety in Healthcare estimates that medication errors which cause negative drug interactions result in at least 190,000 hospital admissions, and cost the health system $660 million each year. Such errors can also prolong hospital admissions, result in new comorbidities during admission, or increase the risk of readmission because of adverse interactions between drugs.

A project funded by Sydney Health Partners is aiming to reduce errors by improving the consistency and quality of the medication alerts for possible drug interactions provided to prescribing clinicians when working in electronic medical records (eMR).

Chief investigator, Dr Angus Ritchie, says a lot of the automatically generated medication alerts seen by physicians are of low quality because they are triggered by drug interaction risks which are clinically insignificant.

"Even when we turn the system settings down so that only the highest priority alerts get through to the prescribers, there are still a lot of low value alerts being issued by the systems," Dr Ritchie said. "We want the prescriber to get fewer alerts of higher quality but it is incredibly difficult to achieve that at the moment."

The project aims to incorporate additional information about the patient to support better targeting of alerts and make decision support more specific and more effective.

"The decision support tools in the eMR systems we use at the moment are not designed to incorporate specific patient information. And because you get no additional information about that patient to help you make a decision, the alerts are unhelpful."

As the Chief Medical Information Officer at Sydney Local Health District, Dr Ritchie is also concerned about the inconsistencies in the medication alerts provided by different systems.

"If you use more than one electronic medical record system in the course of your work, you'll find they each give you different drug interaction information."

Dr Ritchie and his colleagues began getting to grips with the thorny problem by first examining the different drug interaction alerts for the prolongation of QT intervals. A measure of electrical conductivity of the heart, QT intervals can be prolonged by some drug interactions to such a degree that there is a risk of severe or even fatal cardiac arrhythmias. Risks related to QT intervals are responsible for about half of all the drug interaction alerts seen in Australian hospitals.

The SHP project is comparing alert information shown for the same drug in different systems and cross referencing those with reported incidents of medication error.

By doing so the research team is able to distinguish "good catches" and "missed catches" from alerts which were unnecessary.

"It's mainly about having the subject matter experts decide whether that particular alert for that particular reason is clinically meaningful," said Dr Ritchie. "First we need to understand that interaction, then make it clinically relevant and thirdly translate it back into clinical practice. If we can whittle the drug alerts down to just the ones that are both statistically relevant and clinically relevant, we can then reincorporate those back into a decision support system."

And it's support that is sorely needed, particularly by young clinicians in our hospitals.

"The drugs that cause QT prolongation are generally prescribed in post-operative care, or are psychotropic drugs used in the treatment of mental illnesses. And generally it's the junior doctors who have the lowest levels of understanding and experience who do most of the prescribing. So we are trying to improve things for them."

MRFF PRIORITY
Improving clinical pathways and care by building collaboration across the care continuum

PROJECT
Stopping unintentional medication errors through an electronic medication reconciliation initiative

RART GRANT
$150,000

CHIEF INVESTIGATOR
Dr Angus Ritchie

LEAD PARTNER
Sydney Local Health District

Making an Impact #5

Polypharmacy Intervention More Widely Adopted



Errors in medication were at the heart of another research project which went on to greater success after receiving crucial pilot funding from Sydney Health Partners.

The project developed and evaluated consumer information leaflets for older hospital patients and their carers to support the deprescribing of unnecessary antipsychotics, benzodiazepines and proton pump inhibitors on hospital discharge.

Following completion of a pilot study at Balmain Hospital, the leaflets have become amongst the most popular downloadable resources for clinicians on the NSW Therapeutics Advisory Group website. They are also now part of a package of medication review interventions which will be trialled in Sydney hospitals as part of an NHMRC-funded project to improve quality use of medicines for patients with frailty in hospitals.

Professor Sarah Hilmer and her team from Northern Sydney Local Health District (NSLHD) refined the content of the leaflets via an iterative co-design process involving consumers, carers and hospital health professionals at NSLHD and Sydney Local Health District.

The information encourages a reduction in the use of unnecessary prescription drugs by older Australians. Known as inappropriate polypharmacy, the problem is associated with an increase in falls and injuries amongst older people.

"Over time, many older Australians accumulate prescriptions to the point where they are using some medications that are no longer necessary for them," said Professor Hilmer, who is the Head of the Department of Clinical Pharmacology at Royal North Shore Hospital and Conjoint Professor of Geriatric Pharmacology at the University of Sydney's Northern Clinical School.

"When the cumulative burden of those prescribed drugs begins to impair function it's time to look and see which ones can be discontinued. But sometimes decisions made in hospital to withdraw unnecessary drugs are not clearly understood by patients and the intended changes are not implemented well after discharge. That's where our deprescribing brochures have proven useful."

Professor Hilmer and fellow SHP researchers Professors David Hunter and Manuela Ferreira are also developing a version of the consumer leaflets to support deprescribing of opioids taken for chronic musculoskeletal pain.

SHP Showcases Rapid Applied Research Translation





PROFESSOR TIM SHAW



PROFESSOR MADELEINE KING



More than 120 health and medical researchers, clinicians and academics took part in Sydney Health Partners' inaugural *Translational Research Showcase* at the University of Sydney.

The Showcase featured presentations on the results of the 14 projects supported by SHP through the first round of the Medical Research Future Fund's Rapid Applied Research Translation (RART) scheme.

"These projects represent a different kind of research," said SHP Executive Director Garry Jennings, "one where the outcome is not just a publication, citations or the next grant. It is research that results in people doing things differently in their daily work, at every level of the health system."

SHP Senior Advisor, Professor Don Nutbeam, said that despite the diversity of the projects, the researchers, clinicians and administrators who attended shared common interests.

"Actually what we're talking about are those common problems of how to translate a great idea into something that can be delivered practically, and at scale, in a complex healthcare system."





PROFESSOR GARRY JENNINGS



PROFESSOR CLARA CHOW





DR SARAH MAGUIRE



Rapid Applied Research Translation Scheme Grows

The Medical Research Future Fund (MRFF) provides a long-term sustainable source of funding for endeavours that aim to improve health outcomes, quality of life and health system sustainability across Australia.

Following the success of the first round of the Rapid Applied Research Translation (RART) scheme in 2018 (see story on page 54), the Federal Health Minister, Greg Hunt, announced a further MRFF commitment to Sydney Health Partners of $6.1 million, for research over the period 2019-2021.

SHP awarded a further 22 grants in 2019 through two competitive rounds. RART Round 2 was announced in January 2019 and awarded $1.65 million to 11 projects, while another 11 projects received $1.2 million under RART Round 3, announced in September 2019.

It is a requirement of the RART scheme that money is granted to research projects which show strong prospects of delivering tangible benefits to patient care within a 12-to-18-month period. However, in the wake of the COVID-19 pandemic, most of the current projects were delayed.

Sydney Health Partners requested approval for timeline extensions for all RART-funded projects to allow for COVID-related impacts. This resulted in a six-month extension for Round 2, and a 12-month extension for Round 3.

All current projects are now expected to be completed by March 2022.

Current RART projects:

Round 3 Projects

Effectiveness of a pressure injury risk and prevention plan tool: A cluster randomised control trial

Dr Michelle Barakat-Johnson
Sydney Local Health District

K White, I Komusanac, F Coyer, J Stephenson and M Connelly

Implementing insulin pumps for adolescents and young adults with Type 2 diabetes

Professor Maria Craig
Sydney Children's Hospital Network (Westmead)

S Lain, A Maguire, W Cheung, K Heels, B Peek, M Wilson and S Cox-Mulvenney

Testing an app-based treatment support tool for patients with insomnia in general practices

Associate Professor Christopher Gordon
Sydney Local Health District

D Bartlett, R Grunstein, K Wong, N Glozier, N Zwar, N Stocks and C Stanton

Improving ear health among Indigenous children

Associate Professor Hasantha Gunasekera
Sydney Children's Hospital Network (Westmead)

Empowering health professionals to optimise high-value evidence-based, musculoskeletal care

Professor David Hunter and Professor Manuela Ferreira
Northern Sydney Local Health District

C Wang, C Sherrington, P Ferreira, J Bowden and S Kamper

Better detection of infection and antibiotic resistance among vulnerable populations

Professor Jon Iredell
Western Sydney Local Health District

V Sintchenko, T Gottlieb, G McKew, B Hudson, R Chan, N B Zakour, S Partridge and J McAnulty

Testing a falls prevention tool for older people with mental illness

Dr Meryl Lovarini
Northern Sydney Local Health District

L Mackenzie, M Meehan, N Hancock and J Scanlan

Improving clinic attendance by adolescents with type 1 diabetes

Dr Timothy Middleton
Sydney Local Health District

C Chow and J Wong

Evaluating an online risk assessment tool for influenza in aged care facilities

Dr Emma Quinn
Sydney Local Health District

L Gupta, K Hsiao, Z Najjar, T Johnstone, A Ingleton, D Donnelly, R Booy and N Lum

Using diverse data sources to address medication alerts, infections and polypharmacy

Dr Angus Ritchie
Sydney Local Health District

S Poon, J Penm, R Burke, S Boughton and L Trevena

Preventing type 2 diabetes among women with glucose intolerance during pregnancy

Professor N Wah Cheung
Western Sydney Local Health District

C Chow, B J Smith, D Simmons, B Peek, S Eastwood

Medical Research Future Fund

Round 2 Projects

Weight loss for sleep disordered breathing: translating the Sleep, Lifestyle, Energy, Eating, Exercise Program into practice

Dr Elizabeth Cayanan
Sydney Local Health District

B Yee, K Wong, C Phillips, R Grunstein, N Marshall

Making sense of splice variants in rare diseases for precision and preventative medicine

Associate Professor Sandra Cooper
Sydney Children's Hospital Network (Westmead)

KJones, R Jamieson, B Bennetts, M Tchan, C Sue, C Semsarian, L Ewans, R Trent, D Mowat, J Primer, M Kennerson, G Nicholson, M Davis, S Lunke

Molecular profiling of bowel polyps as a tool to define colonoscopic surveillance intervals

Associate Professor Alexander Engel
Northern Sydney Local Health District

M Molloy, M Solomon, A Gill, I Norton, J Yang

REACH OUT: Maximising cures for HCV in marginalised communities – microelimination

Professor Jacob George
Western Sydney Local Health District

G McCaughan

Oximetry screening to detect sleep-disordered breathing in severe mental illness

Professor Ron Grunstein
Sydney Local Health District

T Lambert, B Yee, A D'Rozario, N Marshall, G Gauthier, D McEvoy

Westmead Precinct sepsis pathway digital research platform

Associate Professor Naren Gunja
Western Sydney Local Health District

C McCullagh, A Shetty, A Ritchie, A Saavedra, J Iredell, B Tang, P Kennedy, M Green

Self-management of musculoskeletal conditions: an RCT comparing clinic-based physiotherapy with home-based exercise programs

Professor Lisa Harvey
Northern Sydney Local Health District

J Glinsky, A Hayes, B Lucas, D Taylor, I Starkley, M Ferreira, M Jennings

Better participation in exercise for people aged 50+ and people with physical disabilities through health professional education

Professor Cathie Sherrington
Sydney Local Health District

B Richards, L Baur, A Bauman, L Harvey, P Phongsavan, J Allison, A Tiedemann, B Smith, L Hassett, K West, C Rissel, J Cole, J Walkley, G Dwyer

Scaling up a school-based fluoride varnish program for Aboriginal children in NSW

Professor Woosung Sohn
Sydney Local Health District

H Spallek, B Rambaldini, N Prabhu, R Widmer, J Skinner, K Gwynne

Development of a web-based platform for accurate prediction of melanoma prognosis using Australian data

Dr Alexander Varey
Western Sydney Local Health District

S Lo, R Scolyer, G Mann, J Thompson, G Long, J Stretch, A Cust

SUCCESS: Supporting culturally diverse adults with Chronic Kidney Disease to engage in shared decision-making (Phase IIb)

Associate Professor Angela Webster
Western Sydney Local Health District

D Muscat, K Sud, H Shepherd, K McCaffery, E O'Lone, J Saunders, A Robbins

Chairman's Message



By any measure, this has been an extraordinary time to be part of a health and medical research organisation.

As the COVID-19 pandemic profoundly affects all sectors of the global economy, our lives and livelihoods have come to depend upon an army of brave clinicians and the brilliant medical researchers who work with them.

When I accepted the role of inaugural chair of Sydney Health Partners, I was excited by the opportunity to help improve health outcomes through fostering collaborations between the health services and researchers. I could not have imagined, however, the degree to which SHP's model of open communication, cooperation and agility would become vitally relevant.

In my many discussions about COVID-19 with business and community leaders, the two matters raised most often have been the need for much greater levels of collaboration and faster decision-making. In the face of the coronavirus we have all had to redefine our expectations about what is possible and how long that might take.

Faced with a historic challenge, doors have opened up and many organisations have been willing to do things in very different ways.

These changes have not been about cutting corners on quality. They have been about breaking down silos and structures which are impediments to progress, and which we have tolerated for a long time.

Sydney Health Partners and the other Advanced Health Research and Translation Centres were established to challenge silos. COVID-19 has highlighted the need for the translation centres and added considerable urgency to their mission.

Even before the advent of the pandemic, SHP was pivoting in response to the needs of its Partners. A key achievement of the year was the development of our 2019-2021 strategy which saw the five major Partners each take leadership of a platform for translational research activity. The decision to spread the load was not simply an allocation or delegation, it was an affirmation that the organisation needed to be judged by the collective efforts of its members.

It can be very difficult for organisations which have a co-ordinating role to make a dispassionate judgement about how they are performing. It was for that reason that the Governing Council instigated an independent review of Sydney Health Partners.

Led by President and Principal of King's College London, Professor Ed Byrne AC, the review considered the key objectives of the Partnership as an AHRTC, assessed our effectiveness and the contributions of our members.

The Governing Council was excited by the affirmation and general direction we received from Professor Byrne. His report was strongly supportive of SHP and made recommendations as to how our Partners can work even more closely together, enhancements which will result in even greater engagement amongst our senior leadership, including at Board Chair and Vice Chancellor level.

We have also made a few changes to our governance structures, replacing the Governing Council with a Board and committing to holding an annual general meeting of Sydney Health Partners members.

This is my last year as the Chairman of SHP, and as I reflect on my time I am struck by the evolution of purpose and activity that the Partnership has undergone. When we won NHMRC accreditation in 2015, we started with no staff and only a small amount of money.

I did not expect that the Federal Government and subsequently the state governments would identify the potential for SHP and the other AHRTCs to coordinate programs of research. Neither did I anticipate the degree to which the AHRTCs and their regional equivalents would be willing to work together at a national level for the common good, leading to the formation of the Australian Health Research Alliance.

Despite these promising developments, the core mission of fostering research translation has remained at the heart of SHP. That it has is due in large part to the leadership skills of outgoing Executive Director, Professor Garry Jennings.

In the face of multiple and sometimes competing demands, Garry has retained a constant and clear vision. He leaves us with a considerable legacy, and I wish him the very best in retirement.

My place as Chair will be taken by former NSW Chief Scientist, Professor Mary O'Kane AC. To have such a distinguished person willing to take up the task is a credit to Sydney Health Partners. I wish Mary and all the SHP team well.

My parting observation is about the potential power of the idea that is Sydney Health Partners. Very early on it became apparent to me that the existence of the Partnership enabled people to start conversations or propose ideas, where they didn't feel they could before. It is the considerable trust and good will that SHP has created which may be its most important achievement to date.

Paul McClintock AO

Executive Director's Report



It has been observed that 2020 will go down in the annals of history as the year with an asterisk next to it.

So much of normal life has been wildly distorted by the coronavirus pandemic that any recording of results or statistics – finance, sport, health outcomes, you name it – will need a footnote to explain the outlier that is this year.

For many clinicians and medical researchers, the words next to asterisk might read "extraordinarily busy". Never has their work been more fundamentally material to our society's welfare and prosperity. Faced with a once-in-a-century crisis, our doctors and scientists have responded with boundless determination, innovation and energy.

The lead story of this report is a compelling account of the breadth and depth of the research – both basic and clinical – undertaken in response to COVID-19.

As a clinician I have found the way people galvanised around the issue and self-organised into networks extraordinary. In my own field of cardiology, virtual groups have been formed with great success at local, state, national and international levels to address issues that particularly affect their practice – be it personal protective equipment requirements or new treatment algorithms.

COVID-19 has fundamentally changed healthcare, in some cases probably permanently and hopefully for the better. Decision-making and priority setting have been dramatically speeded up. Everywhere we have seen a rapid reprioritisation and restructuring of healthcare activities, allowing things that were previously unthinkable to not only be thought about, but to be done.

Take telehealth, for example, which after years of halting progress has gone from "one day" to today. And as a result of the pandemic, public health is having a much greater influence on healthcare delivery than in the past. For the first time in living memory, squeaky wheels have been largely ignored and political considerations mostly put to one side, in favour of decisions based on evidence, epidemiology and modelling.

The COVID-19 crisis has also vividly highlighted why our healthcare system needs structures and organisations that bridge gaps or break down silos. It has underscored the need for greater mobility of money, people and data if we are to meet the complex healthcare challenges of the 21st century. It has demonstrated, in other words, the need for organisations like ours.

Sydney Health Partners is a safe space for important discussions between health services and academia and provides governments with a single portal into both worlds. I'd like to think that will be one of the things that lives on long after the pandemic – the recognition that sometimes you need to talk to both ends of the research-healthcare continuum at once. And that organisations like ours make it relatively easy. Since commencing as the Executive Director of SHP in 2017, I have been repeatedly struck by the brilliance of the people who give their time and energy to the Partnership.

From grassroots managers and clinicians through to the most senior researchers, all making their way in their own domains; the breadth and depth of the expertise assembled by our collaborations has been inspiring.

I have also been thrilled by the genuine commitment to the ideals of Sydney Health Partners we've received from the leadership of our institutions. The commitment has been vital because, despite all the discussions and all the words that are written, collaboration doesn't just happen. There remain all sorts of perverse incentives to not collaborate – unless, of course, something extraordinary like a global pandemic happens to bring us together.

An independent review of SHP by Professor Ed Byrne AC was helpful in clarifying the nature of the Partnership and not just the role of the secretariat within it. Professor Byrne observed that as a small team, we can only facilitate, encourage, cajole and support. We are utterly dependent on the efforts of our Partners, and at the end of the day, Sydney Health Partners will be whatever they want it to be.

While validating the steps we've taken to date, the Byrne Review also set us a broader challenge for the future. The danger is that in our efforts to facilitate research translation and implementation, we might fail to grasp the bigger opportunity presented by the Partnership.

With a world-ranking university, world class health services, and dynamic and productive research institutes, our partnership offers great opportunities in developing new protocols, therapies and products from public health to basic research and put them to the test in the clinic and in the community. If we seize those opportunities, I believe SHP can measure up to the world's great academic health science centres.

I am approaching the end of my time with Sydney Health Partners but leave satisfied with its progress. The partnership has found its niche and established its brand in the health and medical research ecosystem.

My thanks to all those who have made this such a rewarding and enjoyable experience.

Professor Garry Jennings AO

Byrne review Gives SHP Thumbs Up

Sydney Health Partners marked three years since its commencement of operations by commissioning an independent review of the key objectives of the partnership as an AHRTC, its effectiveness and the contribution of its members.

Conducted by Professor Ed Byrne AC, President and Principal of King's College London, the review resulted in a report which was strongly supportive of Sydney Health Partners, while making recommendations for improvement.

Professor Byrne commended the Partnership for its strong base in, and strong leadership from, the Local Health Districts, and their open relationship with the University of Sydney.

He expressed a high degree of confidence that SHP was fulfilling its brief and wrote that it was "a testimony to SHP's success that it has come so far so quickly."

Sydney Health Partners' Executive Director, Professor Garry Jennings, said the review was a clarion call for the Partnership.

"The review confirmed SHP had built a solid foundation upon which to address its ambitions and the successes to date encourage our Partners to work together even more closely and productively," he said.

"The review also confirmed that SHP can be a safe place for conversation about all sorts of issues confronting healthcare



and their potential solutions - not just from a research perspective but also, for example, how clinical services are organised and how education might take place."

Professor Leeder Retires



Sydney Health Partners was saddened to lose the contributions of University of Sydney Emeritus Professor Stephen Leeder AO, who announced his retirement in 2020 after a remarkable 50-year career in public health, community medicine and academia.

Professor Leeder was one of the driving forces behind the application to the Commonwealth to establish Sydney Health Partners and has remained, throughout, an advocate for its original vision. Stephen's contributions to Sydney Health Partners include serving on the Governing Council and chairing its research committee.

Professor Leeder was the Dean of the Medical Faculty at the University of Sydney between 1996 and 2002, served two double terms as president of the Public Health Association, one triennium as chair of the Health Advisory Committee of NHMRC and two years as editor-in-chief of the Medical Journal of Australia.

Professor Leeder's contribution to the development of Western Sydney Local Health District (WSLHD) is significant, having been part of the team that planned Westmead Hospital in the 1970s, heading its department of community medicine from 1985, chairing the WSLHD Board from 2011 until 2016 and serving as director of the WSLHD Research and Education Network for over a decade.

Although officially retired Professor Leeder continues as Editor-in-Chief of the International Journal of Epidemiology, a position he has held since 2017, quipping that "old epidemiologists never retire, their samples just get smaller."

Partners Take the Lead with New Strategy

Sydney Health Partners intensified its commitment to translating research into better health outcomes by adopting a new strategy for 2019-2022.

Under the strategy, the Partnership's five founding members each took leadership of a strategic platform of health and medical research translation, with the aim of speeding the application of evidence into clinical practice.

Sydney Health Partners Executive Director, Professor Garry Jennings, said the new strategy was developed in consultation with SHP members and recognised that building a better, more sustainable, health system could not be done in isolation.

"There is a clear and long-term trend towards larger and broader collaborations of researchers to address the great health and medical research challenges of our time," he said.

"By adopting the new strategy, the members of Sydney Health Partners have reaffirmed that when translating research, the product of their knowledge, skills and resources is greater than the simple sum of the parts.

"SHP is purpose-built to facilitate research collaborations but we are also uniquely positioned to engage everyone in the health services – including management, nursing, imaging, pathology and allied health staff – in addressing the problems that concern them, and which are solvable by research."

Under the 2019-2022 Strategy:

- Northern Sydney Local Health District leads efforts to build medical research capacity and remove barriers to the timely conduct of research
- Sydney Local Health District leads efforts to transform how research improves patient outcomes to meet the needs of our communities
- Sydney Children's Hospitals Network (at Westmead) leads efforts to utilise digital health and informatics research to optimise models of healthcare and care delivery
- University of Sydney leads efforts to enhance translational and implementation research expertise within health services
- Western Sydney Local Health District leads efforts to promote research collaboration and inclusivity, and by doing so increase research scale and international competitiveness

In leading their strategic platforms, each of the five founding Partners works closely with one or two independent medical research institutes in Sydney Health Partners, as well as individual members of the clinical streams and cross-cutting themes that span the Partnership.

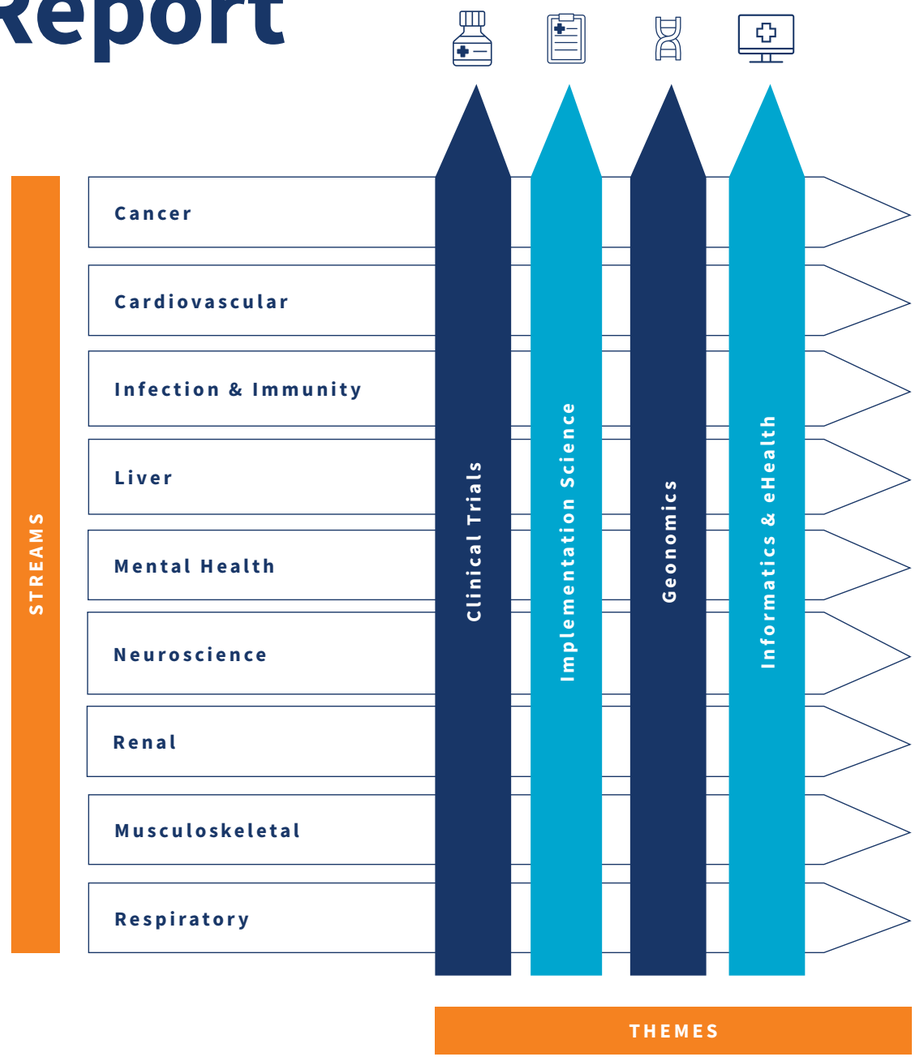
Professor Jennings welcomed the strategy as evidence of the strong commitment of the founding Partners.

"Since our formation in 2015, SHP has benefited greatly from the leadership of the Chief Executives and the Boards of our Partners and I welcome their continued support through commitment to the new strategy," he said.

"By working together, the Partnership has the resources and jurisdiction required to apply research to achieve health service improvements which might previously have been regarded as too difficult."



Streams and Themes Report



Sydney Health Partners continues to facilitate collaboration around clinical streams of research, and cross-cutting themes, relevant to all streams, which focus on removing barriers to research and its translation into healthcare.

Professor Ben Marais was appointed as the new leader of the Infection and Immunity Stream, succeeding stream founder Professor Tania Sorrell. A workshop resulted in a five-year plan for the stream, based around core areas of pathogen genomics, sepsis, vaccination and infection control/behaviour.

The novel coronavirus pandemic made much of this activity acutely relevant. In the face of COVID-19, priority was given to the development of a network, led by Professors Tony Cunningham (The Westmead Institute) and Nick Wood

(Sydney Children's Hospitals Network), connecting groups to conduct clinical trials and vaccine studies across settings and target populations.

The Renal Stream also handed the reins over to a new generation of leaders – founding Professors Carol Pollock, Jeremy Chapman and Vlado Perkovic welcoming Associate Professor Germaine Wong and renal physicians Dr Emma O'Lone and Dr Erin Vaughan, as new co-leads.

The Renal Stream turned its focus towards early career researchers and PhD students – hosting an abstract competition, NSW Has (Scientific) Talent, and awarding conference travel prizes from Amgen and SHP.

"We've been so pleased to be able to create a virtual space where young renal researchers can still come together, even during a pandemic when many clinical and research spaces are closed," said Dr Vaughan.

The Musculoskeletal Stream created a similar space to foster young researchers, hosting a Grant Review and Mentoring Workshop in 2019 that Sydney Health Partners co-sponsored alongside the University of Sydney's Faculty of Medicine and Health.

The aim of the event was to provide young and early career researchers feedback and support on grant applications and to develop confidence, competence and engagement between mentors and mentees.

SHP co-sponsored the Musculoskeletal Stream's SydMSK Annual Scientific Meeting in 2019. Attended by more than 200 people, the event featured keynote presentations by Associate Professor Dave Walton from Western University in Canada, Professor Deborah Schofield from Macquarie University, Professor Ian Harris (UNSW) and Professor Sally Pearson (UNSW).

In a year where telehealth is more important than ever, the Informatics and eHealth theme, spearheaded by the Digital Health and Informatics Network (DHIN) at the University of Sydney, held its flagship event, eHealth@ Sydney Conference 2020 in February. Over 350 clinicians, digital health researchers and health system administrators attended - double that of the previous year's event. Professor Robyn Ward, the Faculty of Medicine and Health's Executive Dean, announced the appointment of Associate Professor Adam Dunn as the Head of a new Discipline of Biomedical Informatics and Digital Health.

The Discipline will build on the existing capabilities of the University and Sydney Health Partners by facilitating multi disciplinary collaboration, as well as with state and local health organisations and leading international groups in biomedical informatics.

SHP co-sponsored the Cardiovascular Initiative's (CVI), inaugural Precision Medicine Symposium in November 2019 in conjunction with the Australian Cardiovascular Alliance (ACvA) and the Sydney Health Partners Cardiovascular Stream. The symposium and associated



workshop provided CVI members with the opportunity to build connections within the ACvA and showcase their research to a national and international audience.

The Neuroscience Stream is focused around Sydney Neuroimmunology, a team of internationally-renowned clinicians and researchers at the forefront of research into neurological diseases associated with immune dysfunction, who have been working to translate novel diagnostic tests from laboratory to clinic.

They have recently completed validation studies of a novel antibody test for use in the diagnosis of central nervous system inflammatory diseases such as optic neuritis, neuromyelitis optical spectrum disorder (NMOSD), multiple sclerosis and acute disseminated encephalomyelitis. As of July 2020, the MOG antibody test has been listed on the TGA's list of in-house in-vitro diagnostic medical devices (IVDs) and the team have reached the final stage before NATA accreditation and nationwide implementation.

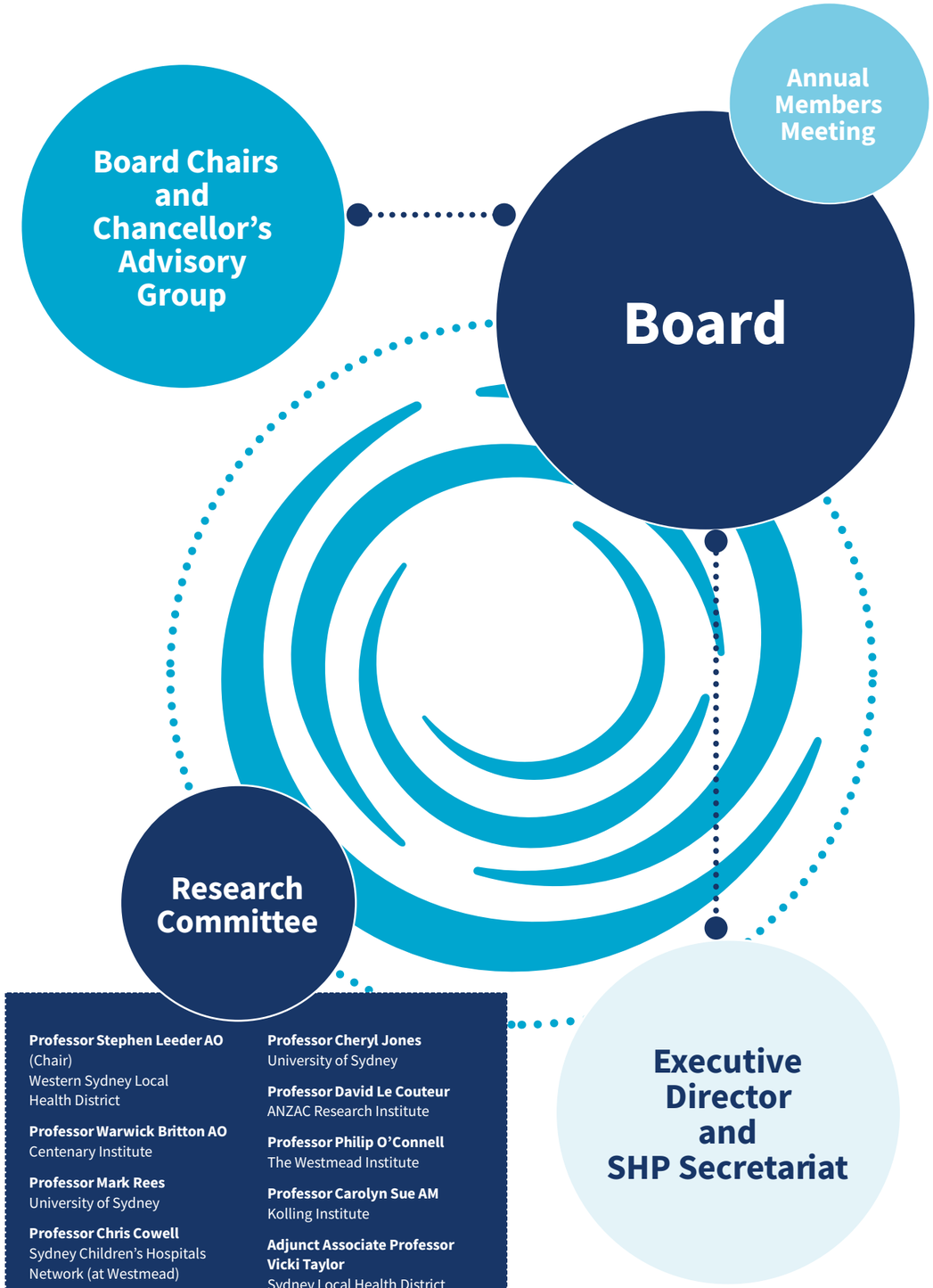
Leading researcher Associate Professor Fabienne Brilot-Turville, Brain and Mind Centre and Faculty of Medicine and Health, University of Sydney and Kids Research, Sydney Children's Hospital Network said, "This represents a significant milestone which, once accredited, will enable this diagnostic service to become available to clinicians nationwide via NSW Health Pathology."

SHP provided seed funding to the initiative to understand and map existing diagnostic services provided across the network to assist and support in the development of the single referral pathway. Once in place, this will provide sophisticated, easy-access and innovative diagnostic screening tests for a range of immune and antibody-mediated neurological disorders nationally.

Co-led by Professors Carol Armour and Jennifer Alison, Respiratory Stream groups have been convening to discuss how they can work together as clinicians to design research.

"It's been great to see respiratory clinicians who didn't know each other before, or didn't really know what their colleagues did, now working together to help each other with their research," said Professor Alison. "This kind of collaboration just wouldn't be happening without Sydney Health Partners."

Governance



Board Members



Mr Paul McClintock AO
Chair of NSW Ports



Dr Teresa Anderson AM
Chief Executive,
Sydney Local Health District



Professor Carol Armour
Executive Director,
The Woolcock Institute of Medical Research



Professor Phil O'Connell
Executive Director,
The Westmead Institute



Professor Garry Jennings AO
Executive Director,
SHP



Mohit Kumar
(Consumer Representative)
Sergeant Police Prosecutor,
NSW Police



Elizabeth Koff
Secretary,
NSW Health



Graeme Loy
Chief Executive,
Western Sydney Local Health District



Deborah Willcox
Chief Executive,
Northern Sydney Local Health District



Professor Stephen Leeder AO
Western Sydney Local Health District



Adjunct Associate Professor Cheryl McCullagh
Acting Chief Executive,
Sydney Children's Hospitals Network



Professor Roger Reddel
Director,
Children's Medical Research Institute



Professor Robyn Ward AM
Executive Dean and Pro Vice-Chancellor, Medicine and Health



Professor Carolyn Sue AM
Executive Director,
Kolling Institute

New Chair



In August 2020, Sydney Health Partners announced **Professor Mary O'Kane AC** as its new Chair, replacing the retiring Paul McClintock AO.

Professor O'Kane has an exceptional breadth and depth of experience in innovation, research and public policy. As a computer engineer, she undertook pioneering work in artificial intelligence and was the Vice Chancellor of the University of Adelaide from 1996-2001. Between 2008-2018 Professor O'Kane served as NSW's first Chief Scientist and Engineer, during which she was instrumental in establishing the NSW Medical Devices Fund.

NSLHD Report

DEBORAH WILLCOX
CHIEF EXECUTIVE
NORTHERN SYDNEY LOCAL HEALTH DISTRICT





Research is at the core of achieving better health outcomes for our patients and our community across the Northern Sydney Local Health District (NSLHD).

This is a fundamental part of our district's approach to health care and is particularly relevant during the COVID-19 pandemic.

This year, we strengthened our commitment to research through the development of a five-year research strategy. The Research Strategy 2019-2024 builds on our existing research strengths and provides a framework to guide our researchers and prioritise our outcomes.

This is demonstrated through the wealth of research activity across NSLHD targeting health challenges for our community like heart disease, cancer and musculoskeletal disorders. Our district has hundreds of researchers working to help diagnose, treat and prevent disease, and improve the care our community receives. As the COVID-19 pandemic emerged many of our researchers redirected their focus to COVID-19 related research, driving national and international trials.

Our research strategy ensures that quality research continues to underpin and improve patient care, by supporting the translation of scientific advances from the laboratory to the bedside. This aligns with the goals of Sydney Health Partners, ensuring our collective efforts are working together to translate research benefits to our patients and the wider community.

Four of our research projects received funding from the Australian Government Medical Research Future Fund through the SHP Rapid Applied Research Translation grants program. The outcomes from some of these projects will benefit our most disadvantaged populations, including people living with mental illness in the community and those in varied socio-economic settings.

The Sydney Health Partners Platform 3 project led by NSLHD, entitled Building Capacity and Removing Barriers to Support Research, has had early success in identifying and progressing projects designed to facilitate research across the partner organisations. One of these is the Research Passport initiative, which makes it easier for health and medical researchers to access more than one hospital or health district for research purposes.

The Platform 3 project is also comparing the various processes across the major SHP organisations for establishing research projects, including research ethics and governance approvals and access to electronic medical records and facilities.

NSLHD is proud to be involved in the development of the new Sydney Health Partners Data Sharing Accord, which standardises the information required from researchers when applying for access to de-identified patient data.

It has been an extraordinary year and the achievements with SHP highlight how working across institutional boundaries can benefit research, and ultimately our community.

SCHN Report

ADJUNCT ASSOCIATE PROFESSOR CHERYL MCCULLAGH
ACTING CHIEF EXECUTIVE
SYDNEY CHILDREN'S HOSPITALS NETWORK



Sydney Children's Hospitals Network (SCHN) is proud to be a member of Sydney Health Partners.

The vision of SHP to transform the way research improves patient care is strongly aligned with SCHN's focus on research and our commitment to better understanding childhood diseases and discovering innovative treatments to help children and young people live their healthiest lives.

The collaborative projects that have been facilitated through the Partnership has enabled our researchers to further their capabilities in a number of areas, including genomic research.

One of the highlights is the genetic research led by Professor Sandra Cooper, which has identified a new genetic testing mechanism that means researchers can now test for genetic errors in the non-coding part of a gene, mistakes that were previously undetectable.

Approximately 50 per cent of children admitted to paediatric hospitals have an underlying inherited condition. These inherited disorders, though individually rare, are collectively the most common cause of severe disability in childhood. Defining this new mechanism will give clinicians the ability to diagnose families with different genetic conditions including neurological, cardiac, metabolic and hereditary cancer and offer precision medicine to directly treat their condition.

Additionally, SCHN is involved in the Acute Care Genomics program, a national rapid genomic diagnosis program for critically ill children. This groundbreaking program is helping to transform the diagnosis and treatment of children in intensive care, fast tracking result turnaround time from three months to three days. Our hope is that in the future, rapid genomic testing will be available to all babies and children in Australia who are critically unwell, where a genetic diagnosis is suspected.

Other highlights over the past year include SCHN's research focus on improving the health outcomes of Aboriginal children. Associate Professor Hasantha Gunasekera, Clinical Academic and Staff Specialist General Paediatrician at The Children's Hospital at Westmead, is one of the leading investigators into health research in Aboriginal children. He was recently awarded a new grant for his Aboriginal Community Controlled Ear Health Support Systems (ACCESS) project to develop, embed and evaluate best practice models of care in Aboriginal communities.



About a quarter of Aboriginal children living in urban areas have ear disease, which often causes hearing and speech problems and can impact on their ability to learn at school. A/Prof Gunasekera's extensive work in ear health in Aboriginal children also includes WATCH, INFLATE and the HEALS project which funds specialist services such as audiology, speech therapy, and ear, nose and throat specialist services for Aboriginal children across five Aboriginal Community Controlled Health Organisations in NSW. Through this project, over 300 children have been assessed and provided therapy or surgery as needed, which showed early intervention, can lead to significant improvements in these children.

The speed and scale of the global spread of COVID-19 this year has driven government bodies, researchers and clinicians to rapidly develop and launch clinical trials in the race to develop a vaccine. The National Centre for Immunisation Research and Surveillance (NCIRS) has begun an enhanced investigation aiming to understand the transmission of SARS-CoV-2 in schools in NSW. Another COVID-19 trial currently underway is the BRACE trial which will test if the Bacille Calmette-Guérin (BCG) vaccine can protect healthcare workers exposed to SARS-CoV-2 from developing severe symptoms.

It has truly been an unprecedented year for research at SCHN, with more than $70 million committed to new research projects aimed at improving the lives of children suffering from conditions including rare genetic diseases, cancer, heart, kidney and infectious disease.

The announcement late last year that an advanced viral vector manufacturing facility will be built at the Westmead Health and Innovation Precinct is another win for research. The manufacturing facility will be a boost to translation of academic research, supporting our collective goal of translating research into better health outcomes for the community.

SLHD Report



DR TERESA ANDERSON AM
CHIEF EXECUTIVE
SYDNEY LOCAL HEALTH DISTRICT

Healthcare is changing, and so are the challenges our health services face in overcoming disease, reducing health disparities and meeting the needs and expectations of our communities.

By providing high quality research capabilities and state-of-the-art research infrastructure, Sydney Local Health District (SLHD) is cultivating world-class research to address present and future healthcare needs.

We are committed to driving a culture that identifies research and its implementation as “everybody’s business”. This ethos has led researchers across the District to publish over 1,470 articles annually, conduct over 570 clinical trials and receive approximately $260 million in national and state-level grants.

Key achievements for our organisation over the past year include joining as a core participant of the world’s largest Digital Health Cooperative Research Collective to advance the use of digital health technologies; being the first Local Health District (LHD) nationally to be granted full membership of the Australian Clinical Trials Alliance and also the first to partner with Franklin Women and their Mentoring Program to promote leadership of women in health and medical research.

Collaboration remains a core principle to a strong and sustainable research agenda for the District. We are honoured to be a part of Sydney Health Partners, where our researchers are empowered to develop extensive research collaborations and further their capabilities by harnessing the strengths of our Partner Local Health Districts, the University of Sydney and Medical Research Institutes.

As a result of this close collaboration, SLHD has been able to contribute to a range of pioneering research activities over the past year, especially to support the NSW pandemic response to COVID-19.

These include the creation of reusable and durable face shields to protect frontline workers and investigating the link between COVID-19 and blood clotting in the lungs that leads to premature cardiovascular death in COVID-19 positive patients.



In early 2020, SLHD also launched RPA Virtual, the first virtual hospital in NSW to better connect our patients to the highest quality care at their convenience. In a few short months, RPA Virtual has managed the remote care of over 4,000 patients and continues to play a critical role in the COVID-19 response, supporting those in self-isolation and hotel quarantine. We have received an overwhelmingly positive response from patients, staff and the broader community and as a result, we are continuing to expand the use of digital technology to improve health services and patient outcomes.

The publication of the ‘Engaging Consumers in Health Research’ research article in the peer-reviewed journal, Australian Health Review is also a key achievement in research for the District.

This significant piece of work was entirely produced by members of the Patient and Family Centred Care Research Working Group and highlights the importance of strong governance, as well as individual and organisational commitment to enable effective and meaningful consumer involvement in research. Further initiatives to strengthen the involvement of consumers, carers and the community in health and medical research will also build on this evidence.

Our many achievements demonstrate our commitment to undertaking, growing and translating world-leading health and medical research for excellence in health and healthcare for all. We can, and we do, achieve so much more when researchers and clinicians are brought together, working as a team towards improving the health and wellbeing of the community.

University of Sydney Report



PROFESSOR ROBYN WARD AM
EXECUTIVE DEAN
FACULTY OF MEDICINE AND HEALTH



Healthcare both in Australia and overseas is undergoing significant change, not least of which is being experienced by healthcare workers and researchers as a result of a global pandemic.

The Faculty of Medicine and Health (FMH) is committed to leading this change, by understanding and solving the world’s biggest healthcare challenges.

Working with Sydney Health Partners, the FMH research community is focussed on breaking down the barriers to universal health and wellbeing and is at the forefront of advances in medicine and health research.

With a view toward 2025, FMH this year amalgamated all its faculties and schools to better drive innovation in education and research from the perspective of an integrated healthcare model.

We’re investing in improving healthcare and health outcomes through innovative and translatable research in medicine and health. Our sights are set firmly on areas of research that will have the greatest impact on the health and wellbeing of societies around the world.

We have also made critical investments in people and resources to better support our researchers and Partners. These changes set a solid foundation for research support and better position us to consider further strategic investments over the next five years.

Our new Susan Wakil Health Building, which opens in early 2021, features world-class multidisciplinary research labs, and will provide our research community with leading edge technologies. Built with a collaborative ethos in mind, the building will enable greater collaboration of research and thought leadership across the faculty and with our research partners.

With a view towards further strengthening the partnership, FMH and SHP have been working together on a number of key initiatives including improving information on Local Heath District (LHD) ethics processes for University researchers, highlighting the work of Sydney Health Partners through a newly established community of practice and identifying opportunities for further collaboration.

Joint participation of University of Sydney and LHD collaborators in SHP-funded initiatives has been extensive. Together, FMH and Sydney Health Partners are ambitious to help shape health outcomes that make a difference to our communities, now and for the future.

WSLHD Report



GRAEME LOY
CHIEF EXECUTIVE
WESTERN SYDNEY LOCAL HEALTH DISTRICT



Western Sydney Local Health District is proud to be associated with Sydney Health Partners in our role as a hotbed of cutting edge research featuring some of the brightest minds in the country.

Westmead Health Precinct continues to grow as one of Australia's largest health, research, education, training and economic hubs, delivering world-class innovation and services in the process. Last year we also launched our five-year Research Strategic Plan for Blacktown and Mount Druitt hospitals, ensuring research development is a key priority across our District.

Some research was understandably impacted by COVID-19 this year as projects were put on hold or altered to meet new infection control requirements. Nevertheless there have been plenty of highlights to celebrate over the financial year.

Professor N Wah Cheung and world-leading gastroenterologist Professor Jacob George are continuing to advance the field of study for pregnant women with diabetes and people with liver disease. Social trends indicate these types of illnesses will contribute hugely to morbidity and mortality for current and future generations.

Westmead Hospital cardiologist Professor Saurabh Kumar continues to break new ground with his research into the diagnosis and treatment of heart rhythm disorders. These are the most common heart-related hospital admissions and any work in this space has the potential to improve countless lives and deliver significant savings to the health system.

Professor Richard Lindley and rising star Dr Caleb Ferguson are building research capacity at Blacktown Hospital with a frailty register. The project is a collaboration between the District, the University of Sydney and Western Sydney University, which will not only improve our understanding of the trajectory of care for older patients but also significantly aid in building research skills with the hospital's medical and nursing workforce.

In the world of COVID-19, Westmead was one of ten hospitals to contribute to an Australian-wide research project about the safety of proceeding with elective surgery during the pandemic. Cardiac anaesthetist Dr Stefan Dieleman and his team worked extremely quickly to arrange for hundreds of patients to be tested over two weeks, providing invaluable data as we seek to return to normality as much as possible.

These projects are just a sample of the incredible research taking place across our District at any given time. Thank you Sydney Health Partners for working with us to improve the health of people in Western Sydney and around the world.

Sydney Health Partners Secretariat



Professor Garry Jennings AO
Executive Director



Aisling Forrest
Chief Operating Officer



Professor Don Nutbeam
Senior Advisor



Maria McDougal
Executive Assistant



Associate Professor Angela Todd
Research Director



Andria Ratchford
Program Manager



Dr Nicole Rankin
Director, SHP Implementation Science Program



Mark Mathot
Media and Communications Manager



Tess Aungles
Project Manager



Helen Hughes
Media and Communications Officer



Linda Komarek
Project Manager

The Year in Pictures

SHP IMPLEMENTATION SCIENCE MASTERCLASS ORGANISERS:

BACK ROW (L-R) DR PAULA BRAY, PROF. RACHAEL MORTON, MERRAN FINDLAY

FRONT ROW (L-R) PROF. SIMON FRENCH, DR NICOLE RANKIN, PROF. ANDREW BAILLIE



CVI/AVCA BIG DATA CHALLENGES & SOLUTIONS WORKSHOP



IMPLEMENTATION SCIENCE SYMPOSIUM



SHP DISPLAY AT SYDNEY LOCAL HEALTH DISTRICT INNOVATION & RESEARCH SYMPOSIUM



SYDMSK GRANT REVIEW AND MENTORING WORKSHOP



CVI/SHP BIOENGINEERING WORKSHOP



SYDMSK ANNUAL MEETING



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