Metro North Hospital and Health Service *Putting people first*

# SNAPSHOT OF RESEARCH 2016

Together we deliver exceptional health outcomes through globally recognised discovery and translation

Queensland Government

## ACKNOWLEDGEMENTS

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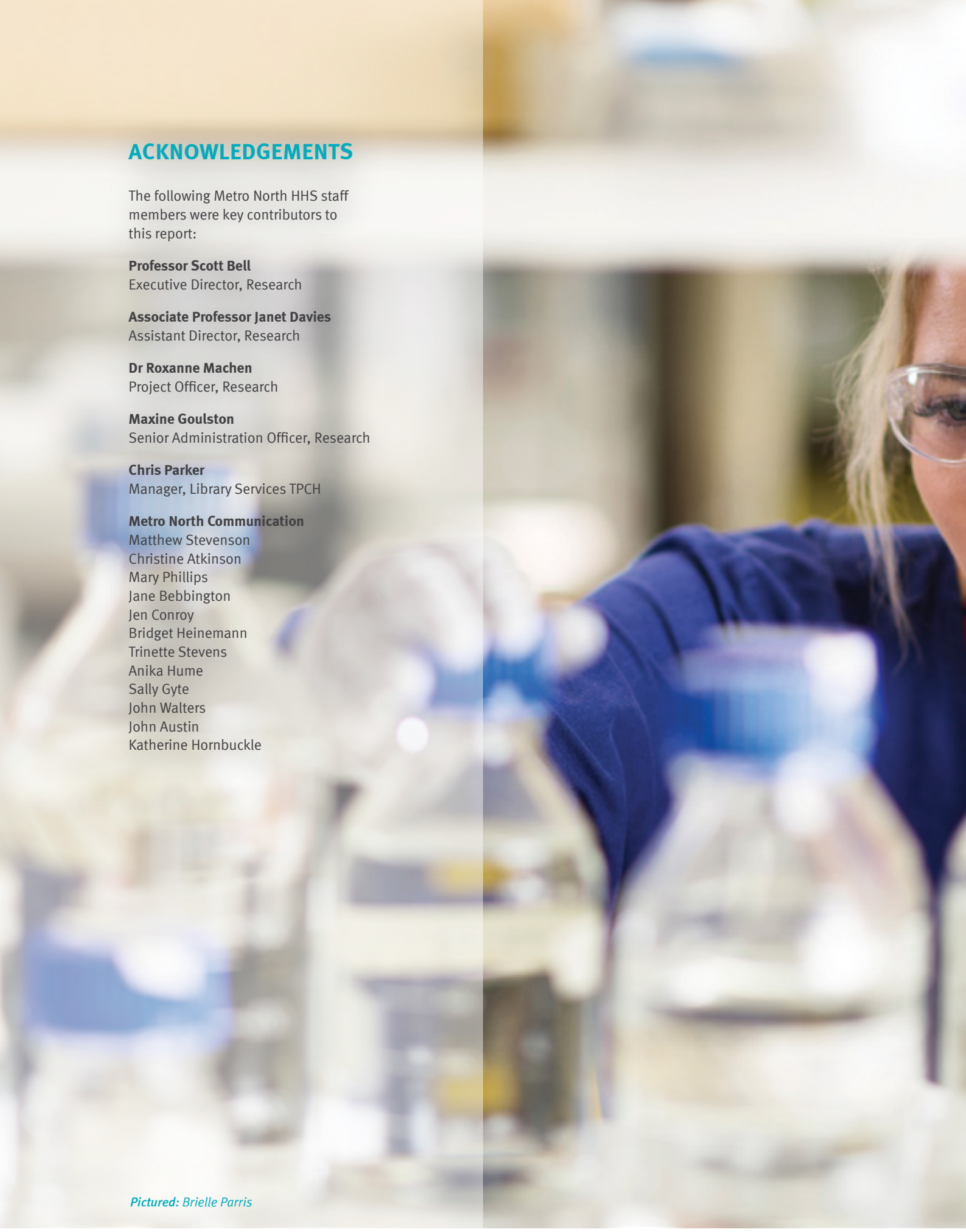

***Pictured:*** *Brielle Parris*

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# METRO NORTH BOARD CHAIR AND CHIEF EXECUTIVE

Research is an essential part of healthcare. Discovering new ways to treat, diagnose, prevent, and manage illness is crucial to providing our patients with the best possible outcomes. It's an area where Metro North excels both at a national level and on the global stage.

Across our hospital and health service, there are hundreds of staff involved in research, whether it's in the laboratory, gathering data at the bedside, administering clinical trials, or referring patients.

There are a broad range of people involved in research across our health service as well, from surgeons and scientists, to economists and epidemiologists, dentists and dietitians, to midwives and medical physicists. Many of our researchers are conducting investigations on top of their usual work caring for patients. It's an admirable commitment to making our patient's lives easier. Through our Research Strategy, we aim to foster and support new and existing research into therapeutics, diagnostics and health services improvements.

This Snapshot of Research is just that – a sample of only a handful of the hundreds of research projects currently happening across Metro North. It would not be possible to gather all the valuable work researchers are doing into a single volume, but we hope that this snapshot will demonstrate the breadth and diversity of our studies.

**Dr Robert Stable AM**
Chair, Metro North Board

**Ken Whelan**
Chief Executive

**APPROX. 1,300 RESEARCH JOURNAL ARTICLES PUBLISHED**

**60 NEW CLINICAL TRIALS APPROVED**

**FIVE NHMRC CENTRES OF RESEARCH EXCELLENCE**

# METRO NORTH EXECUTIVE DIRECTOR, RESEARCH

The establishment of the Office of Research in 2016 to provide strategic direction for research across our Health Service demonstrates our strong commitment to research. We have developed the *Metro North Research Strategy 2017-2022* and several initiatives including the Research Excellence Awards which recognise excellence and represent tangible acknowledgement for researchers delivering novel findings which impact patient care.

The Metro North Snapshot of Research aims to provide you an overview of the diversity of research programs across the health service. The snapshot doesn't replace or replicate facility or clinical stream research reports or publications but instead will provide an annual opportunity to celebrate and acknowledge our growing research capacity.

The potential impact of Metro North research is enormous, from improved health outcomes for our patients to the advancement of academic, clinical and policy knowledge which drives effective health services. We will continue to recognise and congratulate our researchers, who support us all in delivering these advanced health outcomes for our patients and globally recognised research impact. Our goal for the coming years is to grow ever more challenging decisions as to the selection of research celebrated in the annual Metro North Snapshot of Research, and see even greater collaboration within Metro North and across our academic and industry partnerships.

**Professor Scott Bell**
Executive Director, Research

**$7M**
QLD HEALTH RESEARCH FELLOWSHIPS RECEIVED

**11**
COCHRANE SYSTEMATIC REVIEWS

**MORE THAN $8M**
IN HOSPITAL FOUNDATION GRANTS AWARDED

# TAKING A UNIQUE APPROACH TO BLOOD CANCERS

## A drive to find effective treatments for acute leukaemia is one of the primary factors that saw Associate Professor Steven Lane awarded a prestigious inaugural CSL Centenary Fellowship.

The five-year fellowship, one of only two awarded nationally, will provide research salary and project support for Dr Lane to expand his leukaemia model to examine how different drugs work on different genes. His aim is to develop personalised treatment for patients with resistant types of leukaemia.

“The majority of acute leukaemia can’t be cured,” Dr Lane says. “We need to find ways to prevent leukaemia relapsing, or coming back after chemotherapy treatment.”

His twelve person team looks at all types of blood cancers, focusing on the three main types of myeloid leukaemia – acute myeloid leukaemia, myeloproliferative neoplasm, and myelodysplastic syndrome. They’re interested in the link between leukaemia, blood cells and stem cells, particularly whether there are indicators of likelihood of relapse after chemotherapy.

As a haematologist at Royal Brisbane and Women’s Hospital, Dr Lane says being a clinician helps with his research.

“As a clinician, I’m able to put research into context and hopefully I’ll be able to see which research findings are likely to be applicable and transferrable to patients,” he says.

“If you’re removed from the clinic, it’s difficult to understand how to draw the line from basic scientific discoveries to helping patients.”

The research team is using ‘CRISPR’ gene editing technology to convert normal cells into leukaemia cells, allowing in vivo modelling and analysis of laboratory-grown leukaemia. In other work, Dr Lane’s lab is examining new drugs to treat leukaemia cells. This work will inform clinical trials to study gene expression and genetics and the response to drugs.

“We are trying to understand how cells respond to and escape from chemotherapy,” he says. “We can take leukaemia cells and apply CRISPR genome wide screens.

“We are already good at analytical genomics. That means we can predict who will and won’t respond and be cured, but not how the genetic changes cause these unfavourable responses.”

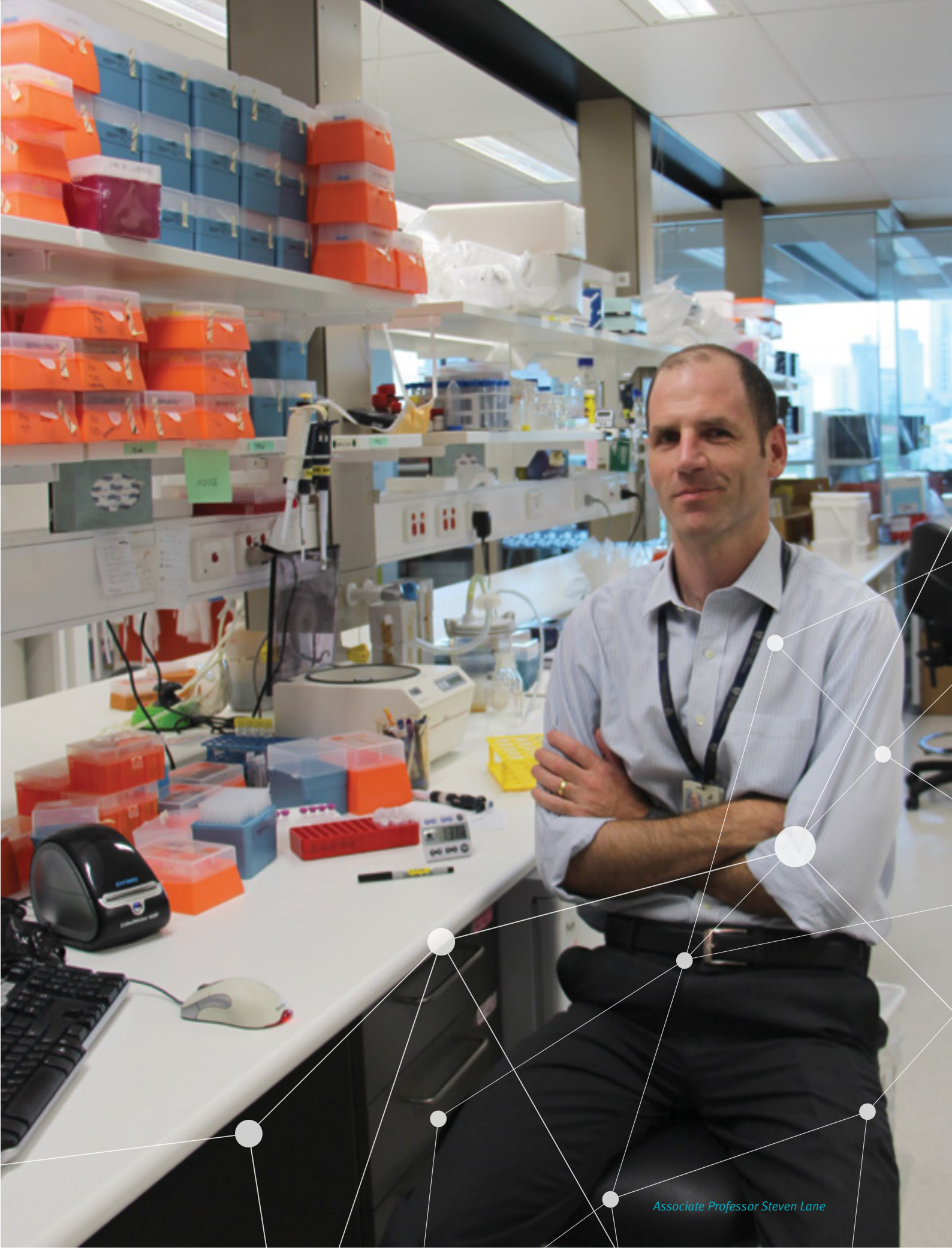
Leukaemias are highly aggressive cancers with short survival and more treatment options are needed to improve the outcome for patients. The aim is to decipher why some genes will lead to bad patient outcomes and find new treatment pathways.

Dr Lane says leukaemia and blood cancers are “model cancers” for research. Treatments for other cancers have evolved from blood cancer research, due to ease of access of samples and world leading research in this field. The studies to date have also indicated that some blood cancers may be more like other types of cancers, which gives rise to new treatment options as well.

“We are moving to a molecular classification of cancers that is based on the underlying genetics of the cancer, rather that what these cells look like under a microscope,” he says.

With awards like the CSL Centenary Fellowship providing new hope and support in the fight against cancer, the future is bright.

> "AS A CLINICIAN, I’M ABLE TO PUT RESEARCH INTO CONTEXT AND HOPEFULLY I’LL BE ABLE TO SEE WHICH RESEARCH FINDINGS ARE LIKELY TO BE APPLICABLE AND TRANSFERRABLE TO PATIENTS”



*Associate Professor Steven Lane*

# REDUCING THE IMPACT OF HOSPITAL STAYS

## Older people are at greater harm from a combination of serious illness and the hospital environment, leading to geriatric syndromes such as delirium, functional decline, falls, incontinence and pressure injuries.

Developed by Adjunct Professor Alison Mudge, Ms Prue McRae and multidisciplinary colleagues at Royal Brisbane and Women's Hospital, the Eat Walk Engage program is a systematic approach to address these challenges and reduce decline in older patients in medical and surgical wards.

Adj Prof Mudge says watching older patients and relatives struggling with their increasing frailty and the indignities of the hospital system inspired her work.

"The interviews we undertake with older patients on each new ward help me to step outside my professional role, and really highlight how important the small things - a kind word, a hot cup of tea, a seat in the sun - are to the recovery process," she says.

"Older people should be confident that hospitals are places where they get good evidence-based care, do not suffer unnecessary harm, and are treated with respect and kindness.

"Eat Walk Engage supports our healthcare teams to get the evidence into practice, reduce serious complications, and get older patients back to their usual function sooner."

Eat Walk Engage is being tested at scale in four hospitals in the Collaborative for Hospitalised Elders: Reducing the Impact of Stays in Hospital (CHERISH), a two-year project funded by a $1.5 million Queensland Accelerate Partnership Grant, with contributions from Queensland University of Technology, the Australian Centre for Health Services Innovation, Metro North and Sunshine Coast Hospital and Health Services, and the Queensland Government.

The project has employed four facilitators, four data collectors, and four allied health assistants in Metro North and Sunshine Coast Hospital and Health Services, as well as a project manager and data manager.

To be completed this year, the study is collecting data on over 1000 older patients admitted to wards at Caboolture, The Prince Charles, Royal Brisbane and Women's and Nambour Hospitals, and will compare outcomes on four wards implementing Eat Walk Engage and four control wards.

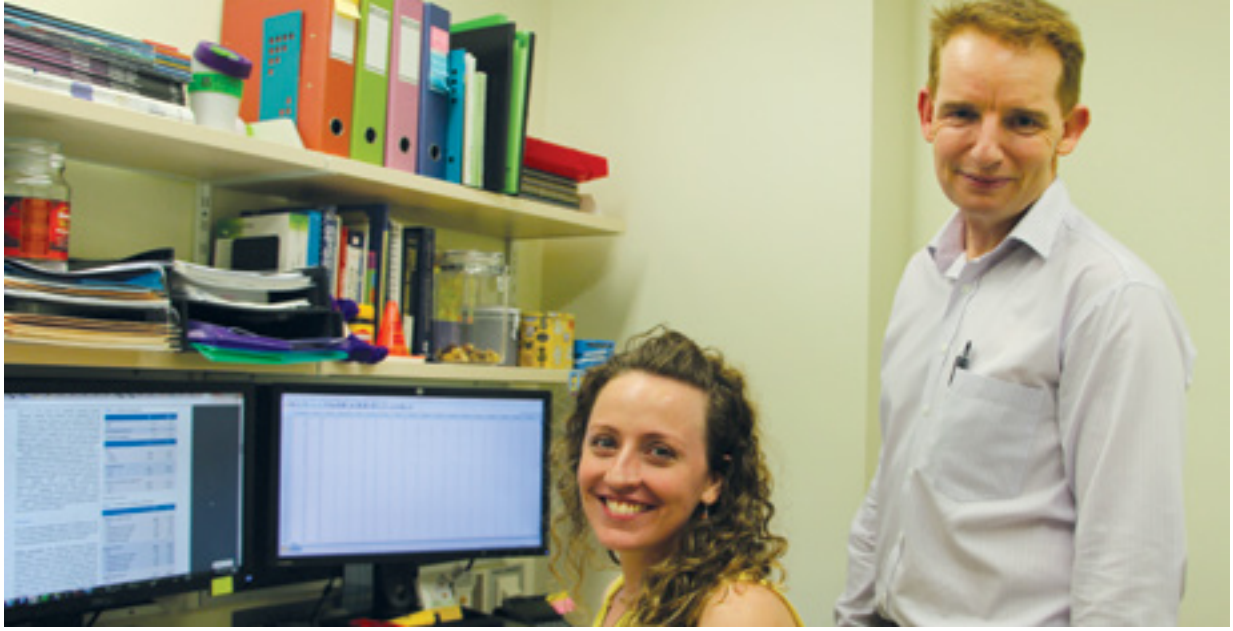
Adj Prof Mudge says the issue is fast becoming more pressing as the average Australian life expectancy increases. Fortunately, the research team is already seeing results.

"We know that there's an increasing demand driven by the aging population," she says.

"We have seen very promising changes on the wards that we have been working with as part of the CHERISH project, and seeing real improvements in the way that staff think about and care for their older patients."

*The CHERISH team*

> "OLDER PEOPLE SHOULD BE CONFIDENT THAT HOSPITALS ARE PLACES WHERE THEY GET GOOD EVIDENCE-BASED CARE, DO NOT SUFFER UNNECESSARY HARM, AND ARE TREATED WITH RESPECT AND KINDNESS."



*Research by PhD student Hannah Thomas and Associate Professor James Scott are looking at the mental health outcomes of bullying among youth.*

# THE BEHAVIOUR OF BULLYING

## Bullying is a prevalent problem among youth worldwide. In Australia it affects at least 1 in 10 students in a school term.

PhD student Hannah Thomas, a researcher at the Queensland Centre for Mental Health Research and the University of Queensland Centre for Clinical Research, and child and adolescent psychiatrist Associate Professor James Scott are undertaking research that aims to better understand the development and outcomes associated with bullying behaviour in young people.

“Bullying is a problem that can continue to affect young people in both the short and long term. Reducing bullying behaviour in youth would improve mental health,” Hannah says.

Bullying involves behaviour that is intended to harm, occurs repeatedly, and involves a power imbalance between the aggressor and the victim. It can include verbal attacks and physical behaviour, as well as relational aggression such spreading as rumours or social exclusion. Cyberbullying can happen remotely, anonymously, and continuously at school and home, and has the potential to have a larger audience.

“There are many similarities between ‘traditional’ bullying and cyberbullying, but there are also important differences,” Hannah says. “Traditional forms of bullying are about twice as common as cyberbullying. The types of behaviour tend to co-occur. It is important that we don’t shift focus completely to cyberbullying; we need to address bullying in all its forms.”

Hannah says that around half the number of young people who are bullied seek help; therefore an equally large number do not. The researchers believe we need to encourage young people to report experiences of bullying, and for adults to take effective action.

By incorporating epidemiological studies using large mental health surveys and birth cohorts, as well as school-based self-report surveys, the research contributes to the longitudinal evidence showing that involvement in bullying puts young people at increased risk of mental health and substance use problems in early adulthood.

“Our research highlights the important role heath professionals play in identifying and treating young people who experience bullying,” Hannah says.

“Our research has also shown that while all forms of bullying are associated with poor mental health, young people who experience social exclusion from their peers have a greater risk of experiencing poor mental health.

“In Australia, we need to improve schools’ access to evidence-based interventions for bullying so effective decisions can be made on the allocation of resources to address the issue.

The research team has produced a number of publications that have been published in scientific journals, including *Australian and New Zealand Journal of Psychiatry*, *Aggressive Behavior*, *Journal of Adolescence*, and *World Journal of Psychiatry*.

Research findings will be shared with the broader community through panel discussions, community forums and public lectures on bullying.

The next step is to identify effective ways to implement intervention and prevention strategies to address bullying and cyberbullying as this may present a cost-effective way to prevent mental illness among young people.

# NEW TREATMENT FOR HEART FAILURE

## An innovative device being trialled at The Prince Charles Hospital (TPCH) may provide a treatment option for heart failure for the first time in Queensland.

The InterAtrial Shunt Device (IASD) is a permanent implant, which is under evaluation for a common type of heart failure known as heart failure with preserved ejection fraction or diastolic heart failure, a condition where the heart becomes stiff and normal filling is impaired. Around 15,000 new cases of heart failure with preserved ejection fraction are diagnosed in Australia each year.

TPCH is one of three hospitals in Australia trialling the IASD which takes around an hour to implant via catheter from the leg. The device is inserted into the person's inter-atrial septum, the fibrous wall between the left and right top chambers of the heart, where it redistributes blood to reduce pressure on the lungs from the stiff left side of the heart.

Cardiologists Professor Darren Walters and Dr Scott McKenzie say the development provides an option for patients with this type of heart failure.

"Traditionally, patients with the condition are typically offered medication therapy, which offers only a small benefit on symptom control, a high risk of complications and no long term solution," Dr McKenzie says.

"The reality is that around 30 to 50 per cent of patients diagnosed with the condition pass away within three years of diagnosis."

AROUND 15,000 NEW CASES OF HEART FAILURE WITH PRESERVED EJECTION FRACTION ARE DIAGNOSED IN AUSTRALIA EACH YEAR.

The first trial of the IASD at TPCH and 20 other cardiology departments globally demonstrated that the device increased exercise duration and successfully reduced the blood pressure in the lungs of recipients six months after device implant.

"The treatment is minimally invasive which means less physical trauma to the patient, a short hospital stay - usually only overnight - and quick recovery," Dr McKenzie says.

TPCH will participate in the next phase study of the device during 2017, along with over 30 sites aiming to recruit 700 patients worldwide. This next phase of the study will recruit sufficient numbers of participants to be able to determine whether the device improves survival and quality of life.

Heart failure is a contributor to over 100,000 hospital admissions every year in Australia. Around 450,000 Australians experience the condition and a range of symptoms including poor quality of life, breathlessness, fatigue, and swelling of the abdomen and ankles. The current treatment for the condition consists of carefully managed medicines, which have limited effectiveness and often leave patients with persistent symptoms and no permanent solution.

"If this trial is successful it will hopefully lead to the approval of the device as an accepted form of treatment for selected heart failure patients," Dr McKenzie says.

# CANCER TRIAL EVOLVES BEYOND HOSPITAL TREATMENT

## An Australian first cancer trial has begun at Royal Brisbane and Women's Hospital (RBWH) providing patients with lymphoma better support post treatment than ever before.

Metro North Hospital and Health Service Professor of Nursing Raymond Chan says this exciting pilot will see GPs and RBWH nurses work collaboratively with patients after their hospital care to ensure better patient outcomes.

"Lymphoma cancer is a rarer form of cancer with just over 6000 Australians impacted by the disease every year. Here at RBWH, we treat around 120 lymphoma patients annually and while the survival rate is very high, we've found there isn't any follow up support for these patients once they are cured of their cancer," Professor Chan says.

"Through no fault of their own, many GPs aren't confident caring for these patients after they receive treatment. This can be due to many reasons including the infrequency of this illness but also the lack of training around post treatment support."

Professor Chan says often patients will have ongoing symptoms from both the cancer and subsequent chemotherapy such as fatigue, depression or enhancement of other underlying comorbidities.

"Many patients struggle to return to work and enjoy the life they once had prior to their cancer diagnosis. We want to help these patients beyond their treatment at RBWH to ensure they are given the right support when they need it rather than them suffering in silence," Professor Chan says.

"The Evolve trial will change this with experienced nurses working closely with a patient's GP to ensure symptoms don't go unnoticed while also supporting their treating doctor to provide ongoing care for these patients in the community."

The trial will include 60 patients who have recently finished their treatment for lymphoma with a third of patients to receive three follow up teleconferences with both their GP and an experienced RBWH cancer care nurse.

Half of the remaining participants will receive an information booklet on recognising and managing post treatment symptoms while the other patients will continue their care plan under their doctor which is standard practice.

"Our aim is to see if working closely with the individual patient and their GP through this nurse-led pilot will have a positive change on patient outcomes compared to what's currently occurring which we know is very little," Professor Chan says.

"Using the telehealth model of care, we'll be able to reach particularly vulnerable patients such as those living in rural and remote areas and refer them to other services such as counselling or specialists for their symptoms."

Professor Chan says Metro North has received funding for the initial pilot with the view to expand Evolve into a larger trial which would include 280 lymphoma patients being treated at RBWH.

"Ultimately, we hope to roll out this initiative to all cancer patients providing greater support to those suffering from the devastating impact this illness has both on the patient and their family," Professor Chan says.

"We also want to empower more GPs to feel confident caring for cancer patients while reducing the impact on our busy Emergency Departments when patients come back to hospital when they could be treated in their community by their doctor.

"This is a win-win for all involved and we are excited to report back on the results by the end of the year. Oncology nurses play a vital role in the patient journey and this is another step in the right direction for both nurse-led care and better patient outcomes."

The Evolve trial is supported by the Leukaemia Foundation and is working in partnership with researchers from QIMR Berghofer and the University of Queensland.

*Speech Pathologist Anna-Liisa Sutt*

# CHANGING LIVES FOR CRITICALLY ILL PATIENTS

## Speech pathologist Anna-Liisa Sutt is challenging beliefs and changing practice through her research helping tracheostomised mechanically ventilated patients speak sooner.

Anna-Liisa received initial funding from The Prince Charles Hospital Foundation to start her project and in 2016 received an NHMRC Postgraduate Scholarship. The research looks at the effects of speaking valves on lung mechanics when used with tracheostomised patients requiring mechanical ventilation. She says speaking valves have not been traditionally used with these patients due to concerns about the possibility of lung collapse and extended ventilator weaning.

"This means tracheostomised ICU patients are left voiceless for a long time and are unable to verbally communicate with staff, family and friends. Other means of communication such as pen-paper, mouthing and pointing are less precise and cause a lot of frustration for patients and their communication partners," Anna-Liisa says.

"There has been no physiological data published relating to the use of speaking valves with ventilated ICU patients, so the medical world is sceptical of their use in critically ill patients."

Anna-Liisa's research with the Critical Care Research Group (CCRG) has shown that speaking valves may actually be beneficial to the lungs when a patient is ventilated.

"It turns out the speaking valve helps to recruit the alveoli, rather than collapse them. We also found out that we often think we have understood the voiceless patient, where in fact, we haven't," she says.

"We found a significant discrepancy between patients' and nursing staff ratings on patients' success with health-related communication before they were using a speaking valve. Listening to the voiceless patient is certainly something we could be doing better."

The research has been shared with speech pathologists and critical care colleagues in Australia and internationally where clinicians were keen to hear about Anna-Liisa's findings.

"We now see 75 per cent of tracheostomised patients in our ICU able to talk and 70 per cent of these patients are still ventilated when they return to verbal communication," she says.

"It has taken the efforts of the whole multidisciplinary team in ICU to change how we were doing things and everyone in ICU is excited to see more patients able to communicate. It makes looking after them a lot easier too if the patients can have a say in their care.

"Patients often report that being able to talk makes them feel like part of the human race again."

> "PATIENTS OFTEN REPORT THAT BEING ABLE TO TALK MAKES THEM FEEL LIKE PART OF THE HUMAN RACE AGAIN."

*Dr Marloes Dekker Nitert, Dr Helen Barrett, Professor Callaway, Project Manager Katie Foxcroft, Dr Susie de Jersey and Dr Victoria Eley*

# OBESITY AND GESTATIONAL DIABETES IN PREGNANCY

In the decade since completing her PhD, Professor Leonie Callaway has gathered a team of clinician scientists who share her passion for the wellbeing of women, particularly addressing obesity and gestational diabetes in pregnancy.

The team includes Dr Marloes Dekker Nitert, Dr Susan de Jersey, Dr Helen Barrett, Dr Victoria Eley, Associate Professor Karin Lust, Dr Catherine Kilgour, research higher degree students Dr Helen Robinson, Dr Fiona Britten, Ms Luisa Gomez and Dr Naomi Achong, Clinical Trial Coordinator Katie Foxcroft, and endocrinologist/obstetric physician Professor David McIntyre.

Their research covers a range of different investigations into pregnancy and medical disorders in Queensland. Professor Calloway, a Pre-eminent Staff Specialist in General and Obstetric Medicine at Royal Brisbane and Women's Hospital, has published over 110 peer-reviewed journal articles on pregnancy related research, and her work has been cited more than 2000 times.

The group has attracted $8 million of research support with Prof Calloway as chief investigator, including six NHMRC project grants, an ARC Industry Partnership and more than 30 other grants.

"If projects are carefully chosen, and answer clinical questions, we have shown that high quality research is possible, while maintaining clinical skills, attending to our caring responsibilities, contributing to our communities, and doing the things that are important to being well functioning human beings," Prof Calloway says.

"Our team have demonstrated that PhDs can be finished on time, with the welcome interruption of parental leave, while maintaining work life balance."

A recent publication by Dr Dekker Nitert focused on connections between gut microbiome and metabolic hormones in early pregnancy in overweight and obese women, while Dr de Jersey had a publication recently published regarding the relationships between psychosocial factors and excess gestational weight gain differs in healthy and overweight pregnancy women.

Dr Barrett has published on home monitoring of fasting and post-meal triglycerides in late pregnancy, and Dr Eley had a qualitative study published on anaesthetists' experiences with the "early labour epidural" recommendation for obese pregnant women.

In addition to research interests, Prof Callaway said a common theme unites the researchers.

"What binds us all together is a set of attitudes about curiosity," she says. "What makes it work is respect and collaboration."

# FOCUS ON PUBLIC HEALTH

As a leader in their field, the Metro North Public Health Unit (MNPHU) is committed to contributing to evidence-based practice, exploring new technology and ideas, and seeking to understand and reduce risks through better and more efficient ways of working.

The unit actively seeks partners and opportunities for further involvement in relevant research and through publication. The diversity of their clinical work has resulted in a broad range of research interests, all with a focus on improving public health outcomes. These projects have contributed to more than 20 publications in 2016. One such collaboration was as part of a National Health and Medical Research Council funded project into understanding the risk of mosquito-borne chikungunya infection transmission in Australia.

A project with the University of Queensland (UQ) aims to better understand how Cryptosporidium spreads in the community, and develop tools to improve the management of health risks in public aquatic facilities. Preventing this significant gastrointestinal illness remains a public health challenge with a lack of understanding of the epidemiology of cryptosporidiosis, poor adherence and understanding of regulations governing staff and patron behaviour, and low levels of public knowledge and awareness such as how long they should exclude themselves from a public swimming pool after experiencing diarrhoea. This project has a unique multidisciplinary approach to a persistent environmental health issue by blending molecular, epidemiological, biomedical and sociological methodologies to develop evidence-based solutions.

The team has also collaborated with UQ and Queensland Positive People to trial rapid testing for Chlamydia and Gonorrhoea within an urban setting using a community based, peer-led model of service delivery. This seeks to provide a more comprehensive sexual health service, complementing current point of care testing for HIV and Syphilis.

Through the Queensland Alliance for Environmental Health Sciences, Metro North Public Health Unit and UQ are working on an innovative treatment for opportunistic pathogens in plumbing, such as Legionella. This project aims to lessen the risk of infectious disease from drinking water distribution systems, particularly in places where the problem is exacerbated, such as healthcare facilities. The solution would enable improved management strategies and potential cost benefits over existing treatments employed for control of these pathogens. The three-year study will use various approaches and techniques to study pipe biofilms and reveal significant findings relating to Legionella ecology which will allow testing of various antimicrobial treatments to control Legionella levels in plumbing.

*Dr Cassie Jansen is researching mosquito-borne diseases and emerging viruses.*

Other projects include a partnership with 14 Queensland local governments in and Queensland Health Forensic and Scientific Services aiming to collect and analyse mosquito collections for alphavirus activity, and a partnership with the Department of Health on varicella vaccine effectiveness.

# NURSING AND MIDWIFERY RESEARCH CENTRE

Exciting people about research is a key part of Professor Joan Webster's job. As Nursing Director of Nursing and Midwifery Research since 1991, Joan has overseen dozens of research studies and trained many nurses in evidence based practice.

"We offer a 12-week course that teaches people how to conduct a systematic review, how to develop a question of their choice, how to read the literature and tell good studies from bad, and importantly how to identify evidence gaps," Joan says.

The research centre's biggest program of research is around intravenous access. Up to 40 per cent of catheters fail before treatment is complete. With almost every inpatient needing an IV line, understanding what makes them fail has the potential to improve patient outcomes and experience in hospital.

The Nursing and Midwifery Research Centre has conducted three trials of catheter dwell times, the largest of which examined 5000 catheters and found there was no difference in the failure rate of catheters that were left in place until there was a clinical indication to remove them versus those which were replaced routinely every three days.

"We received funding from the NHMRC for the SAVE trial which compared four types of dressings to secure catheters, including superglue, and there was still no difference in failure rate," Joan says.

"We also have a study underway looking at the effect on vein walls of flushing catheters after administering drugs."

One of Joan's Cochrane reviews was the stimulus for a current study, which is investigating the effectiveness of negative pressure wound therapy (NPWT) for women who have had Caesarean section births.

"We have four hospitals randomly allocating prophylactic NPWT or a standard dressing to the wound following surgery. It's the largest trial in the world looking at NPWT," Joan says.

Joan hopes that results of the trial will provide the best evidence about whether NPWT reduces the risk of infection. The trial also includes an economic analysis, to assess the implications of using a significantly more expensive dressing.

While Joan has the only permanent research position in the Centre there are about 16 nurses from across RBWH working on various projects. There are also two joint professorial positions with QUT and RBWH, Fiona Coyer and Theresa Green, who focus on intensive care and neurology research respectively.

"Most of our work comes from clinical areas where nurses and midwives identify issues and raise questions for research," Joan says.

"Research is important to clinical practice. It's my job to get people excited about research."

> "MOST OF OUR WORK COMES FROM CLINICAL AREAS WHERE NURSES AND MIDWIVES IDENTIFY ISSUES AND RAISE QUESTIONS FOR RESEARCH."

*Professor Joan Webster*

*Dr Alka Kothari*

# OBSTETRIC RESEARCH EARNS WORLD RESPECT

## Asking fundamental questions from everyday clinical practice and concern for the mental health impact on patients drives Redcliffe Hospital Obstetrician and Gynaecologist Dr Alka Kothari's successful approach to research.

Observing the psychological impact on fathers of the still birth of their baby or termination due to chromosomal or structural abnormalities led Dr Kothari to ask how these "Forgotten Fathers" could be better supported alongside their partners.

That simple question led to a productive research partnership with Dr George Bruxner of Caboolture Hospital in which the findings from interviews with 24 fathers were presented to the Royal College of Obstetricians and Gynaecologists World Congress held in South Africa in 2017. This research identified that while mental health and other support is available to mothers, the lack of care and engagement with the fathers lead to a wide range of coping mechanisms, including destructive anger and substance abuse. These often resulted in social isolation, guilt, shame, and depression with relationship and family breakdown.

At the World Congress, Dr Kothari also presented on a Systematic Review of Post Hysterectomy Ectopic pregnancies. Dr Kothari concluded that there was a need to raise awareness that pregnancy was still possible after a hysterectomy, and for clinicians to be cognisant of this rare but potentially life threatening condition.

In addition to the two oral presentations, 20 other abstracts, including multiple systematic reviews, co-authored by Dr Kothari and junior doctors and medical students were also accepted. This set a new record for the maximum number of abstracts accepted at the conference, and most of these were published in the prestigious *British Journal of Obstetrics and Gynaecology*.


*Brighton-based Senior Physiotherapist Ann Rahmann works with a pair of infrared goggles designed to help diagnose dizziness in patients.*

# CONSTANT JUGGLE SPELLS OPPORTUNITY FOR PHYSIO

Brighton Health Campus senior rehabilitation physiotherapist Dr Ann Rahmann makes a habit of wearing multiple hats at once, juggling numerous research collaborations while running between the rehab gym and her lecturing position at the Australian Catholic University at Banyo.

But a common thread links all projects Ann sets her mind to – they are all undertaken for the good of her patients.

"I've always had a passion for research that is going to make a difference to my patients – research in a clinical setting not a laboratory," she says.

"I love looking at research that will help me manage my patients better and get answers to critical questions that are important from a patient perspective."

Ann has recently been identified as one of 25 early career researchers in the Faculty of Health Sciences across ACU nationally who will undertake a mentored research development program in 2017.

Since its inception, Ann has been a regular at the Brighton Health Campus rehabilitation unit, which is where she now guides projects for her two current ACU Honours students. Ann is also supervising a Masters research project being undertaken at Logan Hospital and is an associate supervisor for three PhD students.

One Honours student is assessing the effectiveness of a dynamic upper limb splint in people who have had a stroke to see whether using one helps people to complete more exercise and improve the ability to use their upper limb. The second student is examining whether extra walking training in the rehab gym or in a hydrotherapy pool helps people with a stroke to walk faster before they return home.

Ann has also gained a research fellowship from Queensland Health's Health Innovation, Investment and Research Office (HIIRO) to investigate whether identifying and managing any issues with a patient's inner ear balance system, the vestibular system, while they're in hospital results in fewer falls in their first months at home after discharge.

"Working both clinically at Brighton and at ACU has given me the opportunity to explore a range of projects, as well as access to Masters and Honours students who are looking for clinical research projects and want to find answers to clinical questions like I do," she says.

Ann labels this year "an exciting time" for research within Community, Indigenous and Subacute Services (CISS) as she relishes her role in helping bring about solutions where they're needed.

"Having all community services linked with subacute services within CISS presents an ideal opportunity to look further than simply what happens in bedded services, and then to carry what we find over into community services where far less research exists," she says.

"Linking so many services under the CISS banner ultimately gives us a unique opportunity to seek and find answers across all our services."

# TACKLING POST-INTENSIVE CARE SYNDROME

While Australia has the highest intensive care unit survival rate in the world, patients' long-term quality of life and productivity can be reduced by debilitating complications, often impairing their ability to fulfil ordinary daily tasks due to ongoing chronic pain, loss of muscle mass, insomnia, memory loss and/or psychological stress.

Associate Professor Jennifer Paratz is working to address post-intensive care syndrome (PICS), a collection of symptoms which can still have devastating effects on ICU survivors more than a decade after they win the fight for their lives.

To combat the effects of PICS, Assoc Prof Paratz aims to improve survivors' quality of life, reduce their mortality rate and effectively predict which patients are likely to experience long-term complications.

Assoc Prof Paratz is currently a Principal Research Fellow in the Burns, Trauma and Critical Care Research Centre at Royal Brisbane and Women's Hospital. She is a fellow of the Australian College of Physiotherapy specialising in cardiorespiratory physiotherapy. Her PhD investigated the intracranial dynamics in head injured adults and pre-term neonates.

A feature of the PICS project is the inclusion of a largely telemedicine managed site at Bundaberg.

"Our team, consisting of physiotherapists, intensivists, psychologists, nurses and health economists, is currently conducting a multicentre, randomised controlled trial to investigate whether follow-up clinics providing screening and individualised management will reduce mortality rates, reduce economic burden on the healthcare system, prevent readmission to hospital and improve their health related quality of life," Assoc Prof Paratz says.

"This research will also have implications for controlling the impact of this growing, major public health concern, allowing for more effective allocation of resources in post-ICU care."

The project has attracted interest in collaborating from European and American researchers and has secured significant funding from Royal Brisbane and Women's Hospital Foundation, as well as a fellowship from the Queensland Government.

# ELIMINATING MALARIA

## Queensland researchers are leading the world in trialling new malaria treatments and live imaging of people with malaria.

RBWH Infectious Diseases specialist Professor James McCarthy heads the team using a human challenge model to test new drugs on live malaria parasites inside the bodies of human volunteers. The work is supported by the Medicines for Malaria Venture, with funding from the Bill and Melinda Gates Foundation, as well as from the NHMRC.

Professor McCarthy's team first collected malaria parasites from patients in the RBWH infectious diseases ward. These parasites are stored in freezers until they are injected into human volunteers at Q-Pharm. These volunteers are then monitored until their parasite load is just high enough to test the new drugs, but before they develop malaria symptoms.

"We use a very sensitive type of DNA test to detect the malaria about a week before the patient gets sick," Professor McCarthy says. "Once the blood has reached the target parasitaemia, we try the new drugs. If they don't work, we treat with a drug we know works."

Malaria is a risk for half the world's population. More than 200 million people are infected and around 400,000 die each year. Professor McCarthy is the world expert in this research field. Already the team has tested nine new drugs this way, with another two planned in 2017. Five of the drugs he has tested on the Herston Campus are now in advanced stages of clinical trial, and on a path to market.

"Our human challenge method is protecting kids in Africa from experimental drugs not working," Professor McCarthy says. "This way of testing is much better than all alternatives, as the other ways are very slow and much more expensive. We're speeding up access to safe treatments."

Once the volunteers have reached the target parasite level in their blood, they're admitted to Q-Pharm, a specialised clinical trial company within QIMR Berghofer, while they're treated. As Brisbane does not have malaria mosquitos, the volunteers cannot transmit malaria to others. Nevertheless, the volunteers remain inpatients at Q-Pharm for three days until they are definitely clear of malaria.

One critical outcome of research, Professor McCarthy believes, should be training the next generation of doctors to do clinical research. His registrar John Woodford, working at the Herston Imaging Research Facility (HIRF), is engaged in a world-leading study using PET-MRI scanning before and after infection with malaria to track where the parasite travels in the body and study its effects on vital organs in real time.

"We're doing the first ever in vivo imaging of human malaria," Professor McCarthy says. "It's only possible because we have HIRF on site."

The research includes transmission studies as well, testing whether the drug prevents the infected patients from passing malaria to mosquitos, using malaria mosquitos held in a secure facility at QIMR Berghofer. Professor McCarthy is also working with partners in Melbourne to develop a vaccine, using a genetically modified malaria parasite to protect against the disease.

"As the number of infected people declines, and as resistance increases, we need new tools to get rid of malaria," he says. "The global goal is to eliminate malaria by 2030, so we need more drugs, diagnostics and vaccines."

The team is supported by a $10 million grant from the Gates Foundation through the international Medicines for Malaria Venture.

Professor McCarthy also leads a team of nine researchers from across Australia looking at parasitic diseases including malaria, worms, and streptococcus A. The group has recently received a $19 million NHMRC Program Grant to support research over the next five years.

> "THE GLOBAL GOAL IS TO ELIMINATE MALARIA BY 2030, SO WE NEED MORE DRUGS, DIAGNOSTICS AND VACCINES."

*Matthew Meyers, who received ground-breaking cell therapy for lymphoma after a lung transplant, with Dr Dan Chambers*

# HOPE FOR PATIENTS WITH CHRONIC LUNG DISEASE

## Queensland clinicians are conducting world's largest ever trial of cell therapy for lung disease.

The Queensland Lung Transplant Service research team, headed by Associate Professor Dan Chambers, have completed multiple world-first trials to evaluate the feasibility and safety of intravenous stem cell and T-cell therapy in lung fibrosis, pulmonary hypertension, lung transplant rejection, drug-refractory viral infection and related malignancies.

Based at The Prince Charles Hospital (TPCH), the team has received $1.9 million from the National Health and Medical Research Council (NHMRC) for their ASSIST-CLAD study which aims to induce tolerance in patients experiencing chronic lung allograft dysfunction. The study is a collaboration with all four lung Australian lung transplant hospitals and The University of Queensland.

Associate Professor Chambers says chronic lung conditions are debilitating ultimately fatal, with the patient's health gradually deteriorating.

"For patients with these diseases, many will require a lung transplant in the long term. Chronic rejection is the major impediment to a patient's survival following lung transplantation, resulting in an irreversible scarring process involving the small airways," he says.

The new research aims to not only make long term survival possible to lung transplant recipients, but improve their quality of life.

"For the last 30 years, the prevention of chronic rejection has focused on altering or increasing immunosuppressive regimes for patients, to help reduce lung function decline," Assoc Prof Chambers says.

"This approach is generally poorly tolerated due to heightened levels of immune suppression leading to secondary infection. Our research recognises the need for alternative therapy options not reliant on enhanced immunosuppression.

"By investigating the role of stem cell therapy for targeted lung conditions, our goal is to identify new ways to assist in the long term management of patients with these currently incurable conditions."

Associate Professor Chambers will establish Australia's first, and the world's largest, Centre for Lung Regeneration, where stem cell science can be translated into the clinic. The Centre is supported by Metro North Hospital and Health Service and The University of Queensland.

# LIFE BEYOND CANCER

## As a psychiatrist providing treatment for patients with cancer and their families, Professor Jane Turner is developing a program of research focused on interventions in areas of clinical need and translational research.

Working in the relatively new discipline of Psycho-Oncology, her key focus is on promotion of wellness after the completion of cancer treatment, the emotional impact of cancer on families and the development and evaluation of sustainable models of improved health care service delivery.

“Clinically, my big interest and research is on families and how parents with advanced cancer talk with their children,” Professor Turner says.

“People who have advanced cancer or are dying don’t need to see a psychiatrist necessarily; they need to see someone who can give them information about how they can talk with their children.”

Professor Turner is currently Chief Investigator in a randomised control trial (RCT) of a nurse-delivered survivorship intervention for patients who have completed treatment for head and neck cancer.

“This is the first RCT of its kind in Australia, and will provide critical data about innovative models of survivorship care that could be implemented internationally,” she says.

“It draws on the principles of chronic disease self-management and promotion of self-efficacy to encourage patients to engage in sustained behaviour change and self-care regarding cancer-related concerns.”

As Chair of the International Psycho-Oncology Society (IPOS) Guidelines Committee, Prof Turner is also focused on developing Clinical Practice Guidelines and implementing these to guide health professionals in the provision of high quality clinical care.

“A lot of people don’t think of that as research, but clinical practice guidelines are really how to translate the evidence into practice,” she says. “It’s all about the translation as far as I’m concerned - how we can improve patient outcomes and enhancing the quality of the health professional–patient relationship.”

*Professor Jane Turner*

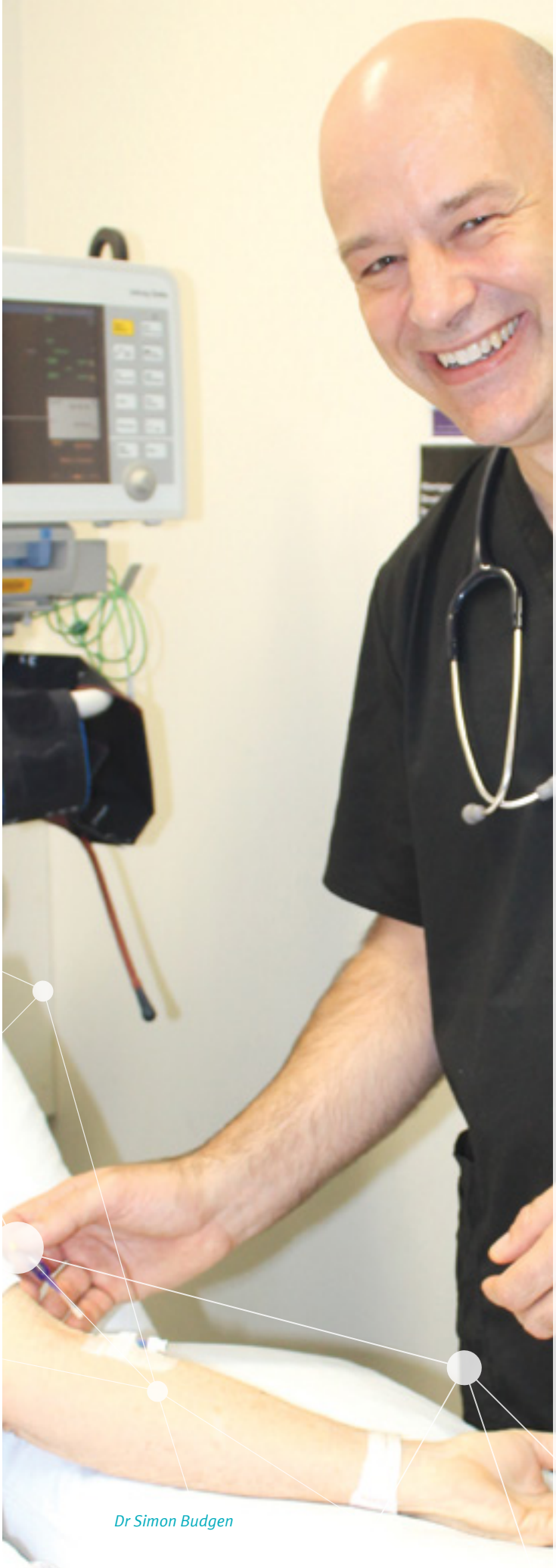
Prof Turner’s interest in the field provided the impetus for a pilot study in which an educational intervention was developed to enhance the capacity of oncology nurses to provide supportive care for parents with advanced cancer. She will present a workshop on the model of care at the IPOS meeting in Berlin in August 2017.

One factor affecting quality of life post cancer is an inability to move on afterwards. Professor Turner’s recently completed a study into fear of cancer recurrence, which affects almost half of cancer survivors. The research demonstrated the benefit of a structured manual based intervention.

“Around 40 per cent of people who have had cancer really can’t let it go and it dominates and really affects their quality of life,” she says.

“There have been a number of descriptive studies and some interventions worldwide to look at this, but in this big multi-site Australian study, a number of Metro North staff contributed to the training manual, and training therapists, as well as delivering the intervention and that’s quite exciting.”

The research will be presented at the American Society of Clinical Oncology annual meeting in 2017 and has been accepted into the Society’s press program, a distinction given to less than one per cent of meeting abstracts.



*Dr Simon Budgen*

# MEDICAL GLUE THE CLUE TO IV LINES

## Caboolture Hospital researchers are trialling a new way to make one of the most common medical procedures in the world – placing drips or intravenous (IV) lines – safer, less painful and potentially more cost effective.

The researchers found that using medical skin glue to hold hospital drips in place significantly reduces the failure rate of IV lines.

Caboolture Hospital Senior Medical Officer Simon Bugden says the failure rate for IV lines in the first 48 hours was 29-40 per cent in Australia and as high as 90 per cent internationally. The research team at Caboolture Hospital found that by using medical skin glue, they could reduce the failure rate to below 17 per cent.

"The glue made IV lines harder to be accidentally knocked out and was also shown to kill the bacteria that most commonly cause infections," Dr Budgen says.

"The other major benefit was patient comfort, with patients in the trial reporting that the glue felt more comfortable and they were less worried about the lines falling out."

Health staff place more than 10 million IV lines in Australia each year. Reducing the need to replace IV lines will save staff time and free up valuable healthcare resources. The research was supported by a $50,000 grant from the Emergency Medicine Foundation. The trial was conducted over several months at Caboolture Hospital. The skin gluing method is currently undergoing a cost-benefit analysis by health economists at Griffith University, before considering rolling out the new procedure on a wide scale.

Emergency Medicine Foundation Chair Associate Professor Sally McCarthy says that despite failure rates of IVs, there has been no improvement to the current procedure for decades.

"This method has the potential to simply and cost-effectively be introduced in hospitals worldwide," Assoc Prof McCarthy says.

"The Emergency Medicine Foundation is committed to ensuring Australia continues to stay at the forefront of emergency medicine care, by funding research in this field."

Dr Bugden's research was recently published in the *Annals of Emergency Medicine*.

# JACK BELL – EMERGING RESEARCHER

When dietitian Jack Bell first commenced his PhD in 2011, he didn't expect his research would change practice around the world.

Jack's PhD at The Prince Charles Hospital (TPCH) addressed the issue of malnutrition in hip fracture patients, a condition that affects one in two hip fracture patients, and one in three of all patients admitted to hospital. The initial driver for his research was that common nutrition care techniques promoted by research were not particularly effective in the real world setting. He also observed that malnutrition seemed to be an important, but often overlooked, predictor of patient outcomes.

Specifically, his research looked at how a patient's nutritional care could be more effectively delivered through a multidisciplinary team approach rather than relying on intensive individualised care delivered by a dietitian. Jack says that the traditional role of a hospital dietitian focused on highly individualised assessment, medical nutrition therapy and monitoring for patients with malnutrition.

"My research showed that to drive change to practice in health care, it needs to involve all members of the team – not just one person," Jack says.

"The dietitian's role is to ensure all the team, and the systems in the background, work together to provide 24/7 nutrition care."

As a direct result of his PhD, Jack was engaged as an international expert to support the implementation of the 'More 2 Eat' Project. This three-year project coordinated through the Canadian Malnutrition Task Force and partnering with the Canadian Frailty Network, Canadian Nutrition Society, and Canadian Malnutrition Task Force, aims to implement a pathway for malnutrition screening and intervention into a range of diverse Canadian Hospitals.

Preliminary findings of the More 2 Eat project show improved patient outcomes through greater engagement of the inter-disciplinary team in delivering a patient's nutritional care.

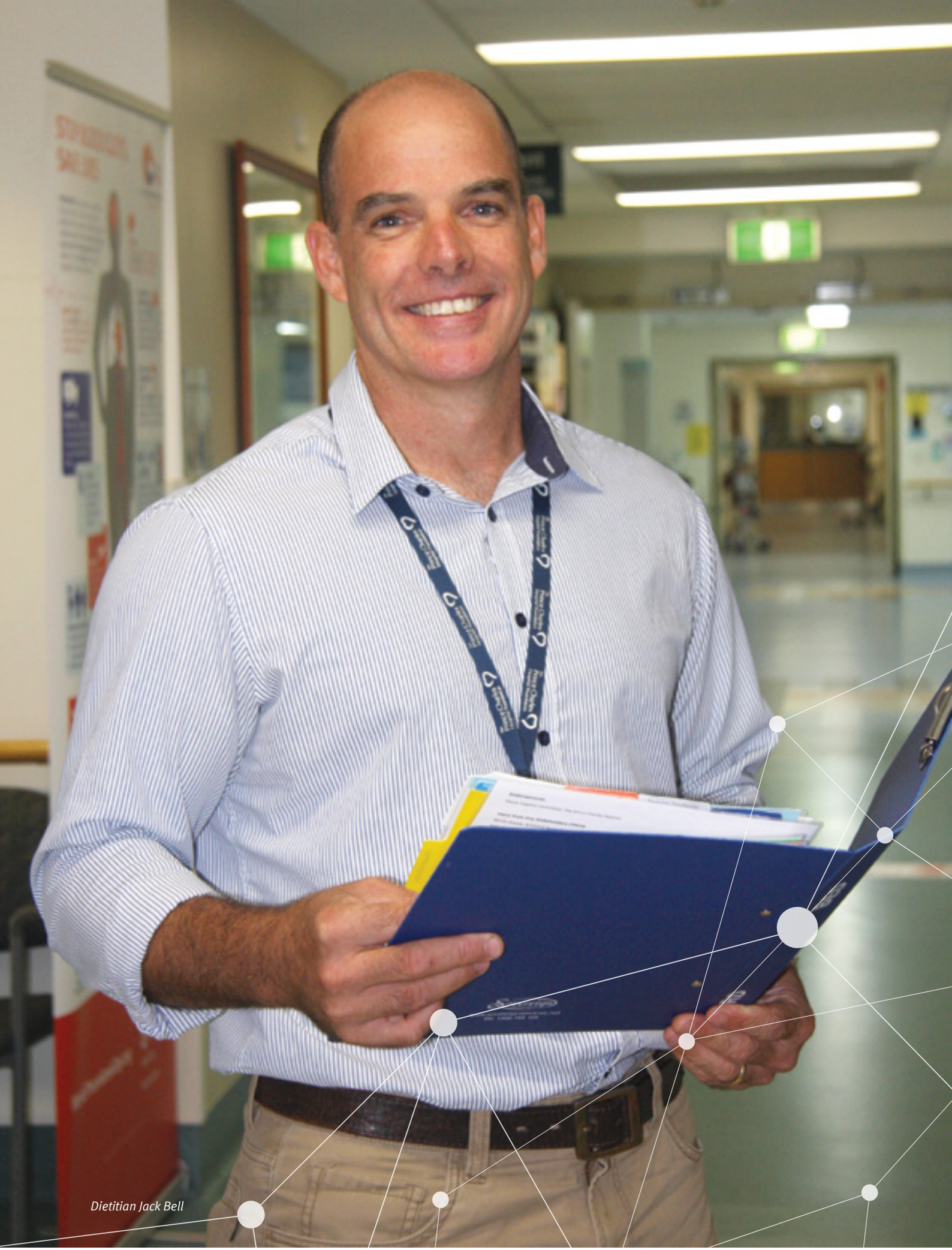
"Findings from this study are very exciting, because we haven't just improved inpatient nutrition care we have also identified the knowledge, attitudes and perceptions of hospital staff that have led to these improvements," Jack says.

Jack will now lead a research study across six Queensland sites applying the Canadian research findings. Funded through the Allied Health Professional Office of Queensland and the Australian Centre for Health Services Innovation, and partnered with The University of Queensland and Griffith University, the study is investigating how hospitals can deliver a systematised, interdisciplinary approach to nutritional care for patients across Queensland hospitals.

"My early research created a pathway for us to now investigate new ways of thinking about how to best deliver appropriate nutritional care to our patients; so that we can deliver the best nutrition care, at the right time, and in the right place," Jack says.

"It is exciting that there is potential to make real positive change around nutritional care in patients, not only here in Queensland, but across the globe."

Jack is currently a senior dietitian at The Prince Charles Hospital and has recently been appointed to a conjoint Principal Research Fellow position for Allied Health in the Metro North Hospital and Health Service, and the University of Queensland.



*Dietitian Jack Bell*

# CHRISTINE SAXBY – EMERGING RESEARCHER

## For Dr Christine Saxby, completing a PhD was an exciting and rewarding journey in research.

A social worker by profession, Dr Saxby is an allied health educator with Community, Indigenous and Subacute Services (CISS). She was mentored by several researchers throughout her PhD into clinical supervision practice in the allied health workforce, including Metro North Principal Research Fellow Associate Professor Petrea Cornwell, Director of Allied Health CISS Jo Walters, and then-Assistant Director of Allied Health, Primary and Community Health Services Russelle Sidey. Each mentor experience provided Dr Saxby with encouragement, research skills and further fuelling her interest in research.

"Completing a PhD has given me a unique learning experience and additional knowledge and skills that I have been able to apply in my role as CISS Allied Health Educator," Dr Saxby says.

"Engagement in research has been professionally and personally satisfying and enhanced my sense of purpose and job satisfaction."

Since completing her PhD in 2016, Dr Saxby has been invited to write a book review of a supervision text for an international education journal. Dr Saxby is also in discussions with a university to explore the possibility of a formal association that could provide opportunities for collaborative research endeavours to contribute to improved patient outcomes.

"To date, I haven't received any significant grants or fellowships but I see increased opportunity for researchers working in collaboration with other stakeholders, such as the tertiary education sector, in applying for external research funding," Dr Saxby says.

With her research now embedded into routine supervision practices within CISS, Dr Saxby is now focusing her attention to other ways she can contribute to research in Metro North.

"As a member of the Collaboration for Allied Health Research, Learning and Innovation Committee (CAHRLI), it is great to have the opportunity to contribute to work that assists others interested in taking the research journey," she says.

# TAKING A BITE OUT OF RESEARCH

## Metro North Oral Health Services is encouraging a greater focus on research with the appointment of Dr Michael Foley to the position of Director of Research and Advocacy.

*Dr Michael Foley and Oral Health Executive Director Andrew McAuliffe*

Dr Foley is a member of the Australian Dental Association Oral Health Committee and immediate former director of the Brisbane Dental Hospital. His appointment coincides with the Oral Health Alliance between MNOHS and the University of Queensland at the Oral Health Centre at Herston - the largest oral health research and teaching facility in the Southern Hemisphere.

"Research is an integral part of the work to improve the oral health of all Queenslanders," Dr Foley says.

"The Oral Health Alliance provides an opportunity for greater research collaboration and for us to increase and influence research activities."

Dr Foley says the colocation of the research facility and the dental clinics at the Oral Health Centre provides a unique opportunity for clinical research and for translation research.

"Patients will have greater opportunity to be involved in research programs and clinicians and students will have greater exposure to the research process and to the implementation of research outcomes," he says.

The upcoming National Survey of Adult Oral Health will be an initial area of focus. A sample of around 250 Metro North residents will be examined with the data contributing to an updated picture of the oral health of Australians.

The development of the oral health research agenda will also link closely with other Metro North initiatives such as the Herston Biofabrication Institute.

> "RESEARCH IS AN INTEGRAL PART OF THE WORK TO IMPROVE THE ORAL HEALTH OF ALL QUEENSLANDERS"

# INNOVATION IN ANAESTHESIA

For an anaesthetist, knowing the most appropriate and effective medical device can feel like negotiating a mine field. The specialty's volume of medical information doubles every 18 months, with related journals producing 1000 new pages each day.

For Royal Brisbane and Women's Hospital (RBWH) Staff Specialist Professor Andre Van Zundert, the overwhelming growth of the profession highlighted a need for more efficient ways to teach, analyse and access information for anaesthetists.

The professor leads the charge at the Centre of Excellence and Innovation in Anaesthesia (CEIA), a joint venture between RBWH and The University of Queensland established to achieve better education, research, communication, collaboration, governance and funding around the specialty.

"Similar to the aviation industry where pilots are trained for months to fly one particular type of a plane, anaesthetists administer anaesthesia every day in theatre to a list of patients who are all different," Prof van Zundert says. "Yet there's sadly very limited exposure for anaesthetists in a simulator or skills lab."

"With more than 130 airway devices on the market, it is impossible for any anaesthetist to try them all out. But in a skills lab we can collect them and collectively discuss pros and cons.

"Anaesthetists need to be trained better on practical issues, on a regular basis and on all sorts of devices, equipment, monitoring, drugs and emergency situations to prevent or master complications in a much better way."

Thanks to the RBWH and UQ partnership, CEIA will aim to do just that by ensuring the best industry knowledge is translated in practice and guides decision making that's in the best interests of the patient. CEIA includes a simulation skills lab for anaesthetists to complete training on four skills stations including airway management, regional anaesthesia, vascular access and minimising drug error.

Recreating a patient experience in a clinical setting through simulation gives anaesthetists an opportunity to examine the strengths, weaknesses and areas for improvement in current processes as well as their own skill sets.

CEIA Nurse Manager Lizanne Dalgleish says the simulation-based education is a rapidly developing method of supplementing and enhancing clinical education.

"The significance of simulation based skills development is the ability for health professionals to gain knowledge and technical expertise in an environment that removes stress, increases clinician confidence and protects patients from unnecessary risks," she says.

CEIA will also play a key role in the assessment of medical equipment and technology using the skills stations to test medical devices as part of the Systematic Analysis of Basic Equipment in Anaesthesia (SABEA) project, which aims to evaluate 12 groups of anaesthesia equipment in the first year. The assessment will provide simple, standardised information to medical professionals—aiding decision making for optimal care, driving purchasing value and setting minimum standards for equipment.

Additionally, a Wiki-Anaesthesia website will complement existing medical literature, with the cooperation and assistance of anaesthesia societies and journals. The site will be a process of collaborative research and exchange to optimise patient care through simplification, standardisation and optimisation of anaesthesia information.

The CEIA is unique in Australia and a front runner in the anaesthesia world—the vital training will have significant flow-on benefits to the state's capital and surrounding regional areas.

> SIMULATION GIVES ANAESTHETISTS AN OPPORTUNITY TO EXAMINE THE STRENGTHS, WEAKNESSES AND AREAS FOR IMPROVEMENT IN CURRENT PROCESSES.

# NEW APP TO HELP DECIPHER MEDICAL MYSTERY

## A team from The Prince Charles Hospital (TPCH) has developed an app that could assist in the diagnosis of a devastating medical condition that is considered one of the great medical mysteries of our time.

Delirium is an acute onset cognitive condition that alters a person's ability to communicate and behave as they normally would. Every year in Australia, around 130,000 people are admitted into a hospital Intensive Care Unit, and up to 80 per cent of these patients face the possibility of developing delirium.

Critical Care Research Group (CCRG) Nurse Researcher Paul Jarrett says the effect of delirium is terrifying for patients and their families. Patients experience a profound mental change which may cause them to become drowsy or unresponsive, or become aggressive and abusive.

"The patients can remain extremely confused and upset for long periods which makes treating their problems all the more difficult. For clinicians, the exact cause of delirium is still unknown, making it difficult to accurately understand and diagnose," Paul says.

"The inability to accurately diagnose delirium also has a financial impact, as the number of cases in the ICU is significantly under reported. As hospitals are funded based on reported activity, this means they are missing out on important funding for a condition that's already impacting patient care and outcomes."

TPCH's CCRG team will use the app to aid in the accurate of diagnosis of patients with delirium in the hospital's Intensive Care Unit. The iPad app works by asking a few simple yes/no questions from the patient by using pictures and numbers, allowing non-communicative patients to participate in the diagnosis process.

*Nurse Researcher from TPCH's Critical Care Research Group, Paul Jarrett*

"For the healthcare professional the app removes the dilemma of identifying delirium early and is a lot easier to perform than the traditional paper based techniques. This allows clinicians to treat delirium head on for better outcomes," Paul says.

"For the patient and their families, the quicker and more accurate diagnosis allows them to recover faster and get home sooner."

At TPCH, the app is showing incredible promise with the rates of delirium detection similar and better than conventional paper based tools. The researchers believe it has the potential to become a standard diagnostic tool across Australia's 230 ICUs. The app has also been developed in language free and culturally appropriate forms for different parts of the world.

The development of the App has been supported by The Prince Charles Hospital Foundation.

# DRUG FREE TECHNOLOGY TO BRING SAFER DIAGNOSIS FOR HEART PATIENTS

In an Australian first, The Prince Charles Hospital (TPCH) is trialling a drug free diagnosis system to assess whether obstructions in a patient's coronary arteries could be fatal.

The new Instantaneous Wave Free Ratio or iFR technique is used on patients with coronary artery disease to determine whether lesions or obstructions in their heart's arteries are causing blockages to blood flow. Because iFR is drug-free, it is better tolerated by the patient compared with other methods used to diagnose cardiac problems.

TPCH Cardiology Director Professor Darren Walters says that a person with severe coronary artery disease may have several narrowing areas in their arteries, which block blood flow to the heart.

"If left untreated, this condition can result in a heart attack and potentially be fatal. iFR may help us determine whether narrowings in a patient's coronary artery are actually causing significant blockages to blood flow," Professor Walters says.

Not all patients with narrowed arteries will experience problems with blood flow to their heart, so accurate diagnosis is vital. The iFR method uses a pressure wire and a novel software algorithm that targets a specific point in a person's cardiac cycle called the wave free period. The pressure wire is inserted via catheter in the wrist or groin.

"By determining the wave free period in a person's cardiac cycle, the iFR can tell us whether the narrowings are causing blockages to the heart's blood flow. Knowing if a patient's coronary narrowings are causing blockages to blood flow, will determine what form of treatment is best," Professor Walters says.

Some patients may be treated with drug therapy whereas others may require a coronary balloon and stent to physically open the artery. The trial aimed to validate iFR as equally accurate to other diagnosis methods without the need for drug therapy.

"If we can do this, this may lead to iFR becoming a standard clinical practice in treating patients with coronary artery disease. It will give us an effective diagnostic tool for diagnosing and treating coronary artery disease and mean safer and more comfortable treatment for our patients," Professor Walters says.

"The simple test can tells us which blockages really need stenting and which are best managed with medication alone. The technique is faster, safer and less expensive than other strategies to date. This is a significant advance in how we manage a common heart condition."

The results of the trial, which recruited almost 2500 patients worldwide, found iFR to be excellent for determining management of moderate coronary narrowings. They were presented at the American College of Cardiology meeting in 2017 and published in the *New England Journal of Medicine*.

> "IT WILL GIVE US AN EFFECTIVE DIAGNOSTIC TOOL FOR DIAGNOSING AND TREATING CORONARY ARTERY DISEASE AND MEAN SAFER AND MORE COMFORTABLE TREATMENT FOR OUR PATIENTS"

# HIRF HELPS RESEARCHERS SEE DISEASE

Research is embedded in medical imaging at Royal Brisbane and Women's Hospital through the Herston Imaging Research Facility (HIRF). The cutting-edge facility is one of only a few such clinical imaging research centres in Australia.

Director Paul Thomas says the facility is an extension of the hospital, with nuclear medicine and radiation technicians all hospital staff who rotate through HIRF. The facility is an alliance between Metro North Hospital and Health Service, the University of Queensland, QIMR Berghofer, and Queensland University of Technology all equal partners.

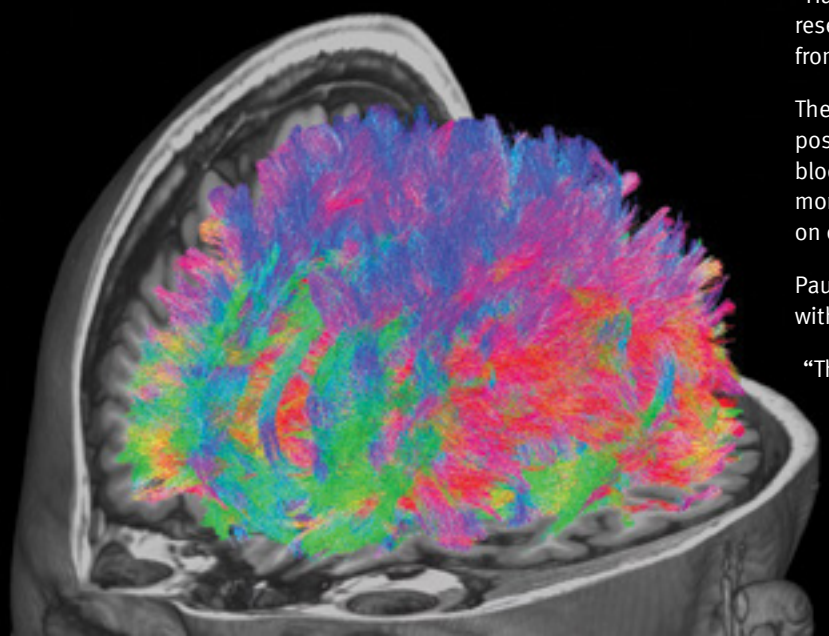
HIRF has three scanners for research. The advanced technology in the Magnetom Prisma 3T magnetic resonance imaging (MRI) machine was developed specifically for the Human Connectome Project to map and understand the brain. HIRF has one of the few Prisma MRIs in Australia.

"This advanced MR technology allows higher quality MR scans and shorter scan times," Paul says.

HIRF also has two scanners for positron emission tomography (PET) imaging. One of these is a combined PET and MR scanner, one of only a few in Australia.

"The PET-MR combination is a technological tour de force. It allows PET and MR scans to be performed at the same time, opening up new opportunities for research," Paul says.

*MR diffusion tractography showing the white matter tracts within the brain. These images are used to work out the connections between different parts of the brain and can be used clinically to guide neurosurgery. They are frequently used in brain imaging research at HIRF.*



Dedicated to research, the high tech HIRF facility provides researchers access to equipment that in a hospital setting would be tied up with acute patients. Paul says although activity is still building, the relatively new facility has made a significant difference for Queensland researchers, with 40 projects already underway or completed.

Researchers come from each of the HIRF partners, external institutions and commercial entities. One research project made possible by access to HIRF's technology is a longitudinal study of 450 people to identify MR, PET and other markers of Alzheimer's disease that could help clinicians identify the disease as early as 10-20 years before conventional diagnosis.

Other researchers are looking at imaging different cancers to determine treatment options or as part of the treatment. Using radioactive tracers made with the assistance of the RBWH's particle accelerator, researchers are attaching treatment isotopes to PET tracers. The technique, known as theranostics, delivers precise doses of radiation directly to the tumour, reducing the treatment related side effects for patients.

Because the clinical PET and MR scanners at RBWH are heavily utilised for clinical requirements, having dedicated research scanners at HIRF makes life much easier for researchers and participants by making booking these often long and complex scans easier and creates a nicer experience for participants outside of the busy clinical environment.

"Having the PET-CT and PET-MR next to each other means researchers can easily compare different types of images from each of these scanners," Paul says.

The facility is also making research into intractable cancers possible, allowing researchers to measure the size and blood supply of cancers such as glioma, which has a high mortality rate. These measurements aren't always possible on other types of scanners, but can be captured using PET.

Paul Thomas says the researchers are keen to collaborate with colleagues at the future Herston Biofabrication Institute.

"There's the potential for interactions with neurosurgeons and the Biofabrication Institute through surgical planning and 3D printing tumours," he says.

# JUNIOR DOCTOR RESEARCH FELLOWSHIP

The risks associated with cardiac surgical procedures are the focus of Dr Jonathon Fanning's Junior Doctor Research Fellowship from the Queensland Government.

Based at The Prince Charles Hospital, Queensland's quaternary cardiothoracic centre, Dr Fanning's research looks at reducing various neurological and cognitive complications in patients undergoing surgery.

Specifically, he is interested in reducing the risk of stroke, dementia and delirium in patients undergoing procedures such as Transcatheter Aortic Valve Implantation, in which the aortic valve is replaced via a catheter from the groin.

"The research has helped us understand the reasons for stroke and other complications in particular patients who undergo surgery. With this knowledge, we can better inform patients of the risks and are now striving to reduce this risk using novel protective strategies," Dr Fanning says.

"This funding will enable the expansion of the current research into new areas aimed at further minimising the risk of stroke and other cognitive issues following surgery to improve patient outcomes."

Dr Fanning is grateful for the support of both Metro North Hospital and Health Service and The Prince Charles Hospital.

"THE RESEARCH HAS HELPED US UNDERSTAND THE REASONS FOR STROKE AND OTHER COMPLICATIONS IN PARTICULAR PATIENTS WHO UNDERGO SURGERY."

*Adjunct Professor Alanna Geary presents Dr Fanning with an award for research*

# SUBSTANCE USE AND PSYCHOSIS

New research is providing increased evidence for natural recovery from cannabis use by people with psychosis. Of the five per cent of Queenslanders who experience psychosis, up to 80 per cent use cannabis.

Clinical psychologist Shane Rebgetz works with young people with severe mental health difficulties and substance use and psychosis. Shane, who researched substance use and psychosis for his PhD, says people with psychosis who use cannabis have much worse outcomes, but treatments typically have only limited effects that are poorly sustained.

"My program of research explored how people with psychosis cease using cannabis without substantial assistance to see if this shed light on how treatments could be improved," Shane says.

"The studies suggested that greater focus on employment, separate accommodation, and social and emotional support for cessation would result in stronger outcomes than at present. Similar reasons were found for strategies to maintain a reduction in use while relapse was associated with substance using peers, and problems with relationships and negative emotions."

Through his clinical work with people with psychosis and substance use Shane noticed that a cohort of these people were able to cease using substances of their own accord. At the same time, he was struggling to assist other clients to reduce their substance use.

"As a result I was interested in seeing what I could learn from those who stopped using substances with the hope that these leanings would support the reduction of substance use in the cohort that were struggling with cessation of use," he says.

Shane's thesis consisted of seven published papers that included a systematic review of the literature, two meta-analysis identifying the extent of reduction in control groups, cross-sectional studies of two existing data sets seeking baseline predictors of a reduction in substance use, and were two mixed-methods studies focusing largely on qualitative analysis of reasons for cessation of substance use in people with psychosis.

*Clinical psychologist Shane Rebgetz*

In the last study, 22 participants were recruited from local mental health services. The findings will help improve interventions for substance use in people with psychosis.

"The research will assist mental health practitioners to improve their current treatment approaches. It also increases hope in that people can naturally recovery from substance use," Shane says.

Further research will be undertaken to evaluate the integration of the results from the body of research into clinical interventions.


*TPCH's Exercise MRI Research team: Wendy Strugnell (Director MRI Services), Dr Aaron Lin (Cardiologist), Helen Seale (Physiotherapist), and Andrew Trotter (Radiographer). Absent: Prof Norman Morris (Physiotherapist).*

# EXERCISE MRI

## A multidisciplinary team of radiographers, cardiologists, physiotherapists and radiologists is combining ultra-fast Magnetic Resonance Imaging (MRI) technology with an MRI bicycle ergometer to better understand how a patient's heart operates under exercise conditions.

As one of only a few facilities in the world undertaking this type of research, The Prince Charles Hospital (TPCH) has been collaborating with Siemens Healthcare to acquire detailed images of the heart at high speed with the patient exercising inside the MRI scanner.

Led by Wendy Strugnell, Director of MRI Services at TPCH, the team has been developing and refining the advanced imaging technique for the past three years, the results of which have shown great promise.

"Conventionally, clinical cardiac MRI assessment is performed with the patient at rest," Wendy says.

"However, in many heart and lung diseases, symptoms may only be brought on by physical activities. Performing functional assessment on an exercising patient can enable clinicians to uncover abnormalities not apparent at rest and therefore facilitate early treatment and improve the patient's quality of life."

The research has shown that right heart abnormalities not evident on resting heart scans in patients with pulmonary arterial hypertension can be unmasked during exercise. The team is now preparing to expand their research into other cardiac conditions including congenital heart diseases, heart failure, and patients undergoing heart valve surgery. They believe that exercise MRI will allow better informed decisions on the timing of surgical and other therapeutic interventions through early detection of cardiac impairment.

"We believe that exercise MRI will play a major role in the management of patients with different cardiac disorders in the future, with potentially a significant reduction in the overall cost related to healthcare provision to our patients," Wendy says.

The research has been internationally recognised with three international awards at scientific meetings and funding from The Prince Charles Hospital Foundation, Actelion Pharmaceuticals and the Office of Health and Medical Research.

# CABOOLTURE RESEARCH TRIAL TO SHAPE FUTURE OF HEALTH CARE FOR KIDS

## Researchers at Caboolture Hospital will undertake a vital research trial aimed at shaping the future of health care for Caboolture children.

*Dr Hsien-Jin Teoh, Dr Thuy Frakking and Dr John Waugh from Caboolture have welcomed a trial which will help shape the future of health care for kids in Caboolture.*

Caboolture Hospital Research Development Unit Research Coordinator Dr Thuy Frakking says this was a very exciting win for local families, community and paediatric services in the region.

"As part of the clinical trial, we will be exploring alternate care pathways led by an Allied Health Liaison Officer, for children newly diagnosed with chronic health and developmental conditions," Dr Frakking says.

"Families who have children who suffer from chronic health conditions such as Autistic Spectrum Disorder and Attention Deficit Hyperactivity Disorder find it harder to connect with specialist services especially in areas like Caboolture.

"We hope through this trial we can prove that connecting families to alternate pathways will lead to better health outcomes and improved prospects for their children."

As part of the Children's Clinic Care (ICCC) for vulnerable children with chronic health conditions, a randomised controlled trial will be undertaken with children across Caboolture and the surrounding regions.

"The research trial will be a multi-site collaboration between the Gold Coast University Hospital and Caboolture Hospital across paediatrics and allied health streams," Dr Frakking says.

"The ICCC study will be one of the first to provide data on child and family quality of life, coupled with health economics outcome measures for children with a chronic health condition."

The trial follows on from recent work undertaken as part of a partnership between Caboolture Hospital, the Caboolture GP Super Clinic and local organisations and schools – the Caboolture Health Care Alliance.

"Last year we supported 26 families as part of a pilot, which saw regular and ongoing care provided to their children through local primary care providers or the GP Super Clinic," Dr Frakking says.

"These kids required ongoing care and support from community-based services as they either suffer an intellectual disability, or have behavioural problems or development delays."

Dr Frakking says results from the ICCC study will help shape the way we delivered health care to a growing population. Funding for the trial was awarded through Queensland Health's Health Practitioner Research Scheme.

# RESEARCH TO BRING DONOR HEARTS BACK TO LIFE

## Australian researchers are working to increase the number of hearts available for transplant by bringing donor hearts back to life.

The research which brings together a team of researchers, surgeons, engineers and nurses from three of Australia's major transplant centres including The Prince Charles Hospital, the Alfred Hospital and St Vincent's Hospital involves the trial of new technology that could potentially make more donor hearts available and also reboot hearts previously not considered viable for transplant.

Director of Critical Care Research Group (CCRG), Professor John Fraser says donor hearts are currently stored and transported on ice, but do not receive a constant oxygen supply.

"Donor hearts can survive for up to six hours, depending on the age and quality of the heart," Professor Fraser says.

"The donor heart becomes increasingly more damaged the longer it goes without oxygen, as occurs during transport. As such, long travel distances are not ideal and can have damaging effects in the transplant recipient. But with our research, this is all about to change."

The CCRG has been donated an experimental machine from Vivoline in Sweden that supplies the donor heart with oxygen during storage and transport, while keeping it cold and reducing the amount of work it needs to perform – all of which contributes to reducing donor heart injury.

> "IN A COUNTRY AS LARGE AS AUSTRALIA, TIME IS OF THE ESSENCE. USING THESE INNOVATIVE TECHNIQUES HEARTS CAN BE RETRIEVED FROM VAST DISTANCES."

"In a country as large as Australia, time is of the essence. Using these innovative techniques hearts can be retrieved from vast distances," Professor Fraser says.

"This allows not only more patients to benefit from the generosity of donor's families and receive transplants, but for those transplanted hearts to perform better allowing our patients to achieve better health outcomes."

The team believe the technique has the potential to increase the number of donor hearts available in Australia for transplant by up to 40 per cent.

"This is significant and will hopefully lead to reduction in deaths in recipients waiting for heart transplants," Professor Fraser says.

Teams from The Prince Charles Hospital will collaborate with the Alfred Hospital in Melbourne and St Vincent's Hospital in Sydney to undertake the research. The research is supported by The Common Good initiative through The Prince Charles Hospital Foundation.

# IMPROVING ANTIBIOTIC USE FOR CRITICAL CARE

Born out of the Bali bombings in 2002, the University of Queensland (UQ) Burns, Trauma and Critical Research Centre conducts world-leading research to improve care and treatment outcomes for patients who are critically ill, injured or burned.

Professor Jeffrey Lipman is the Centre's executive director and Director of Intensive Care Services at Royal Brisbane and Women's Hospital (RBWH), where the centre is based. RBWH staff are major contributors to the research centre, instituting a large number of studies to improve the treatment and outcomes of patients with the thermal injuries, including post burn exercise and antibiotic efficacy.

Professor Lipman's pioneering research has found that patients in intensive care require higher doses of antibiotics to kill pathogens than other patients.

"I am very proud of the whole team. Not only are we one of the most productive ICUs in the world from a research point of view, we are clinically making a difference to how ICU patients are getting treated, particularly in relation to antibiotic prescribing," Prof Lipman says.

*Professor Jeff Lipman*

Building on and complementing such discoveries is the Centre of Research Excellence in Redefining Antimicrobial Use to Reduce Resistance (CRE REDUCE), led by RBWH Consultant Clinical Pharmacist Professor Jason Roberts. Prof Lipman is also a chief investigator with CRE REDUCE.

The centre is designed to provide support for teams of researchers to pursue collaborative research and develop capacity in clinical, population health and health services research. A significant piece of work was the BLING III study, comparing continuous dosing and daily dosing of beta lactam antibiotics. This worldwide 7000 patient study, in partnership with the George Institute in Sydney, is building on Prof Lipman's previous findings that a single large dose of aminoglyocides (a different class of antibiotics) is more effective than the manufacturer's recommended dosing. The challenge for critical care comes from the clinical trial process – if the drug is found to beneficial for non-critically ill humans, the recommended dose is based on those tests.

"That's not the same for ICU. The doses need to be totally different," says Prof Lipman.

Over the past decade, he has researched this 'off label' use of antibiotics for critical patients. He hopes this common ICU evidence-based practice may transfer to other wards and reduce the potential for antibiotic resistance.

Professor Jason Roberts says that's a critical purpose of the CRE REDUCE, which aims to develop global capacity in antimicrobial resistance research by fostering post-graduate and post-doctoral fellow research, teaching undergraduate students and training healthcare practitioners.

"The main goals of the centre, and the projects, are to better understand exposure-related antimicrobial resistance and formulation, clinical testing of newly established dosing regimens in order to optimise in vivo antimicrobial activity, and, ultimately, to improve patient outcomes," Prof Roberts said.

"Antimicrobial resistance is a major global challenge and likely to remain so for some time."

# NEW ROLE FUELS CISS RESEARCH DRIVE

A unique Clinical Evidence Development Officer position will lead the charge towards bolstering knowledge translation within Metro North's Community, Indigenous and Subacute Services (CISS), as the service turns its focus to improving incorporation of clinical evidence into everyday practice.

The position, commencing mid-2017, is designed to build staff capacity for knowledge translation (KT) and evidence-based practice (EBP) by providing leadership, mentoring and assistance to CISS staff for research implementation, education and the development of EBP and KT. The new role is a first within Metro North Hospital and Health Service, and one of the only such roles in public health services across the state.

CISS senior occupational therapist and project lead Dr Sally Eames, who has lead the development of the CEDO role, says CISS is primed to reap the benefits of investing in knowledge translation.

"The idea of the CEDO position is to apply specialised skills to provide high-level advice, develop EBP and KT training and resources, and support the application of formal KT frameworks and implementation of science research across CISS," she says.

"By using KT frameworks, ideally, we can help clinicians to make clinical practice changes that stick and are more sustainable, which is more cost effective in the long run, plus any resources that we invest towards updating clinical practice will also make that practice more efficient longer term."

Sally says improving KT support within CISS could also help fill gaps currently experienced regarding a lack of appropriate clinical research applicable in community settings.

"There's a lot of research relevant to acute hospital settings, but within CISS a lot of initiatives have been born purely because the evidence to support what we should be doing doesn't exist," she says.

"The CEDO role opens the opportunity for us to drive research that's not already happening that is relevant to the unique populations we have within CISS, and then immediately feed that back for translation into practice."

Sally says she sees the CEDO role having strong potential to influence the KT program across Metro North and beyond.

"We've built an evaluation research project into the role itself so that we can feed back the outcomes to other sites in Metro North, and publishing and sharing the findings from this project will also help other hospital and health services to learn from our experience."

> "WE CAN HELP CLINICIANS TO MAKE CLINICAL PRACTICE CHANGES THAT STICK AND ARE MORE SUSTAINABLE."

*Dr Sally Eames*

# ROLE DEVELOPMENT PROJECT A COUP FOR SALLY

## With a decade of clinical work and a PhD behind her, Dr Sally Eames has relished her position at the helm of developing the new Clinical Evidence Development Officer (CEDO) role within Community, Indigenous and Subacute Services (CISS).

She says working as an Evidence-Based Practice Coordinator at the Princess Alexandra Hospital opened her eyes to supporting knowledge translation and evidence-based practice, rather than simply research generation, fuelling her enthusiasm for her current position and her drive to get the new role right.

"This project is all about developing the role and figuring out what it could do, which is an opportunity I really haven't had anywhere else," she says.

"For me this has been a chance to use the skills I've gained as a clinician, as a researcher, and as a research-aware clinician and draw all of these together."

Sally has conducted consultation with service leaders to determine what they both need and want in the knowledge translation (KT) space, as well as reviewing literature to select some evidence-based KT strategies that the role could prioritise.

Recently, Sally opened the floor to all CISS staff to have their say in shaping the role by highlighting perceived barriers and enablers for evidence-based practice (EBP) and KT in their local area, with the survey results intended to further help identify and confirm priority areas for the CEDO role across CISS.

With very few specific KT support roles in Queensland health care, Sally says we ultimately don't yet know how the CEDO role will work – but she has some idea of what she'd like to see with time.

"Within CISS our research generation program is really getting started, so I see this role very much working alongside that program as it evolves, but I also like the notion of this role helping to capacity build between CISS sites to help and support them to build their teams to a point where they can essentially do KT themselves."


*Brighton rehabilitation Clinical Lead physiotherapist Paul Bew and Senior Occupational Therapist Melanie Carter test the inMotion robotic upper limb retraining system.*

# ROBOTIC ARM SPELLS NEW HOPE FOR PATIENTS

A robotic upper limb device never before used in a clinical setting in Australia is making waves at Brighton Health Campus by helping to improve outcomes for stroke patients.

The InMotion robotics project, in collaboration with Australian Catholic University, involves implementation and evaluation of an upper limb robotic device in the management of upper limb weakness following stroke. The principle focus of this work is to embed the use of robotics into clinical practice as part of a comprehensive training program for people following stroke.

"...PATIENTS WHO USE IT ARE ABLE TO COMPLETE 600–800 REPETITIONS OF EXERCISES IN ONE SESSION"

According to Brighton Clinical Lead physiotherapist Paul Bew, every 10 minutes someone in Australia has a stroke, and 80 per cent of those who do will experience some degree of arm weakness afterwards.

“Of these people, 50 per cent regain no useful function in that arm, and many stroke survivors have very little or no movement return,” he says.

“However it is now clear that a person’s brain and nervous system is able to change itself, and the driver for this change within the nervous system is repetition, intensive training and practice of functional tasks.

“As the cliché states, it’s a case of ‘use it or lose it’, and the reality is if a person’s arm is too weak for any movement, intensive training is often very difficult – if not impossible.

“This robotic device enables such intensive training.”

Ever since Brighton Health Campus won the competitive tender for the project and the device, funded through Queensland Health’s New Technology Funding and Evaluation Program, senior rehabilitation physiotherapist Dr Ann Rahmann says there’s been no looking back.

“We already have about five or six patients a day using it for about 45 minutes each, and they seem to really enjoy working with it,” she says.

“The beauty of the device is that a patient with a very weak upper limb can independently exercise using the InMotion system. This means the therapists don’t need to physically assist them to practice, which makes it clinically quite time efficient.

“More importantly, patients who use it are able to complete 600-800 repetitions of exercises in one session, which is an appropriate volume of practice to drive those changes in the brain and nervous system.”

The device is currently used solely by stroke patients, in accordance with evidence, however Ann says there is potential to expand use of the arm into other clinical areas to help treat other conditions where clinically appropriate.

# RESEARCHERS AWARDED AT APAC FORUM

For many people, chest pain can be a terrifying and debilitating experience. Doctors at the Royal Brisbane and Women's Hospital have developed an innovative diagnostic tool which rapidly treats patients with chest pain, has reduced the panic time, and provides fast life-saving treatment to those most in need.

The Accelerated Chest Pain Risk Evaluation (ACRE) Project, led by RBWH Emergency Physician Professor Louise Cullen and Cardiologist Professor Will Parsonage, took home the prestigious Ko Awatea International Excellence in Health Improvement Award at the APAC Forum in September 2016.

The project, which has influenced the national guidelines for both the National Heart Foundation and the Cardiac Society of Australia and New Zealand in 2016, was awarded for translating research into clinical practice, enabling diagnosis of heart attacks faster and providing quicker treatment to patients presenting with chest pain in Queensland Emergency Departments (EDs).

Whilst one in five patients with chest pain suffers a heart attack, the rest are diagnosed with indigestion or other less serious conditions.

The team has since introduced an accelerated diagnostic protocol (ADP) across Queensland's EDs, which provides guidelines to safely and quickly deliver care to patients who are not suffering a heart attack. The ADP has redesigned the evaluation and management of low-intermediate risk patients presenting with chest pain, and has been rolled out into EDs in 19 hospitals statewide, including The Prince Charles Hospital, Caboolture and Redcliffe.

Professor Cullen says she felt honoured to receive international recognition for the project, and she hopes the ADP will become standard practice within EDs Australia-wide.

"This has reduced the demands on our emergency and inpatient services. We have been able to reassure patients that they have not suffered a heart attack sooner," Professor Cullen says.

"We have seen a decrease in the total average emergency department length of stay by 34 minutes, which has improved each hospital's performance against National Emergency Access Targets."

Professor Cullen says the success of the project would not have been possible without the support of Metro North and Queensland Health. It has led to cost savings of more than $13.5 million, money which is being reinvested in other health services.

"Translating the research into clinical practice was thanks to the enthusiasm and support of Emergency and Cardiology Department staff in the 19 ACRE hospitals," she says.

*Project officer Tanya Milburn, Dr John Wakefield and Professor Louise Cullen at the APAC Forum Gala Dinner in Sydney.*


*Thoracic researchers Janet Shaw and Professor Ian Yang*

# LUNG RESEARCH RECEIVES BOOST

## Research with the potential to improve health outcomes for people living with chronic obstructive pulmonary disease has been boosted with a $666,000 grant from the National Health and Medical Research Council.

The grant will support a joint research project between The Prince Charles Hospital (TPCH) Department of Thoracic Medicine, the University of Queensland – UQ Thoracic Research Centre and the University of Newcastle that will investigate new methods for predicting the risk of future exacerbations in patients with chronic obstructive pulmonary disease (COPD).

COPD is a chronic lung disease which causes an estimated $929 million of direct healthcare costs annually in Australia. The grant will enable researchers to use new methods of DNA testing to identify all forms of bacteria in the lungs of patients with COPD.

TPCH Director of Thoracic Medicine Professor Ian Yang says the presence of certain micro-organisms in a patient's lung can be indicative of whether they may be at risk of future flare-ups and exacerbations.

"DNA sputum testing can provide clinicians with more detailed information about an individual's lung bacteria composition compared with conventional testing methods that culture or grow only a small number of the bacteria found in a patient's sputum," Professor Yang says.

"Having this additional information can potentially help clinicians to individualise and target treatment for COPD patients, with the overall goal of improving the management of their condition."

This multidisciplinary collaboration between a number of research centres will apply the latest technology to samples from patients, enhance knowledge in this field, and enable training opportunities for students and researchers.

# SUPPORTING RESEARCH

## THE PRINCE CHARLES HOSPITAL FOUNDATION

The Prince Charles Hospital Foundation aims to tackle chronic illness and improve patient care, through an ongoing and sustainable research funding model, and career pathways for brilliant young researchers who would otherwise find it difficult to secure funding for their innovative and life saving ideas.

TPCH Foundation pursues their passion of powering medical discoveries by working with a range of supporters, donors and the community to raise the much-needed funds to provide this support to researchers – with these funds then distributed in the form of a range of innovative funding grants such as the New Investigator program.

The development of the New Investigator program has allowed new researchers to apply for a $10,000 12-month grant to support their research. From its beginnings in 2013, the program has fostered a number of leading clinicians and medical researchers who have gone on to make breakthroughs in their fields, such as Dr Shaun Gregory who now manages the Innovative Cardiovascular Engineering Lab (ICETLAB) and award-winning researcher Anna-Liisa Sutt who has shared her work amongst the top minds in her field at the Johns Hopkins Hospital in the USA.

The TPCH Foundation is further dedicated to continue growing talented medical researchers like Shaun and Anna-Liisa through other initiatives such as PhD scholarships and Emerging Researcher grants, $25,000 grants awarded to those who successfully completed a New Investigator project.

In 2016, the Foundation celebrated its 30th anniversary and provided $3.6 million towards research. Of this, over $2 million went to competitive peer reviewed grants, including 11 New Investigators, four Emerging Researchers, 10 Experienced Research grants and 13 Equipment grants, across a range of investigative fields at The Prince Charles Hospital. This included research into critical patient care, novel lung disease therapies, organ transplant technology and dementia.

They also saw the growth of their initiative The Common Good, which was launched in 2015 to directly connect everyday people and donors with the research they're most passionate about, driven by the unique and tangible proposition that each hour of vital research at The Prince Charles Hospital costs just $44. TPCH Foundation supported more than 96,000 hours of research in 2016. The Foundation also have the support of their commercial on-campus café. With its success, TPCH Foundation self-funds their operating costs, allowing 100 per cent of donor funds to be directed to medical research.

Find out more about The Common Good as well as insights into the incredible research being conducted and discoveries made at www.thecommongood.org.au.

THE COMMON GOOD
THE PRINCE CHARLES HOSPITAL FOUNDATION

# ROYAL BRISBANE & WOMEN'S HOSPITAL FOUNDATION

## Royal Brisbane and Women's Hospital (RBWH) Foundation was first established in 1985 and is the charity partner of Royal Brisbane and Women's Hospital.

RBWH Foundation's key purpose is to raise money to assist the hospital in providing optimal healthcare and services to its patients. Money raised is used to fund initiatives that would generally not be funded by the government due to budgetary constraints. These initiatives include medical research, purchasing key pieces of equipment, additional training for staff, and establishing and supporting the operation of patient care facilities and programs. To raise these funds, RBWH Foundation relies on support from the business sector and general community.

In the 2015-16 financial year, RBWH Foundation raised more than $15 million through its various fundraising activities, donations, bequests and sponsorship. A total of $4.5 million was distributed to the hospital in 2015-16, with $2.7million of this being used to fund a range of medical research projects across the campus.

The Foundation's primary method of distributing for clinical research is through its annual Research Grant Awards program. In 2016, nine Research Initiative Grants were awarded by the Foundation through this program, along with three Sir Ian MacFarlane Awards for Nursing in Clinical Practice, and the Royal Alumni Research Encouragement Award. The purpose of Research Initiative Grants is to enable projects to get off the ground and establish a basis from which the researchers can apply for more substantial grants from larger external bodies.

The Foundation also provides funding to several research centres based at RBWH for ongoing projects, and pays rent for laboratories in QIMR Berghofer's Bancroft Centre to enable a number of key research groups to continue their work. Some of the research centres which receive ongoing funding include the Perinatal Research Centre, the Burns, Trauma and Critical Care Research Centre, and the Motor Neurone Disease Research Group.

# BOOSTING EMERGENCY MEDICINE

The Royal Brisbane and Women's Hospital Emergency Department is truly the frontline of healthcare, a critical component of the system as a first or only point of contact for many patients.

*Dr Rina Savage receives her EMF trainee grant*

The Emergency Department (ED) saw an incredible 76,000+ people come through its doors in 2016, making the $129,000 in research funding awarded to RBWH researchers by the Emergency Medicine Foundation (EMF) invaluable to improving patient care.

RBWH's Dr Gary Mitchell, Adjunct Professor Louise Cullen and Dr Rina Savage have each received an EMF grant to support their research, challenging them to look for innovations in how we provide emergency medicine services to the community.

With the number of patients arriving at the ED with pacemakers on the rise, it's becoming increasingly challenging for clinicians to identify whether these patients are having, or have had, a heart attack. There are no accurate electrocardiograph (ECG) criteria to diagnose heart attacks in patients with pacemakers. It's a topic of interest for Dr Mitchell, who has received a trainee grant to study the problem.

"In collaboration with US investigators, our research will test whether certain ECG abnormalities in patients with pacemakers may be used to identify patients with heart attacks," Dr Mitchell says.

This research has the potential to identify heart attacks in patients with pacemakers and improve emergency medical care in time-critical situations and ultimately, improve patient care.

Adjunct Professor Louise Cullen's project grant will support study into whether fluid retention worsens septic shock. The project is a collaboration with Professor John Fraser and his team at The Prince Charles Hospital to explore how effective fluids are to treat sepsis.

With infection a leading cause of ED presentations and some 20,000 deaths per day worldwide attributed to severe sepsis and infection, some researchers are challenging the long-held belief that fluids are the best treatment option for sepsis.

"Frequently, patients being treated for infections will have an immune response that causes them to develop low blood pressure, which can often lead to septic shock," Adj Prof Cullen says.

"Typically, the go-to treatment option is intravenous fluids; however, the rationale for this treatment option seems largely based in theory rather than evidence.

"Despite growing evidence to suggest fluids for sepsis is ineffective and may have a negative patient impact, it remains a popular treatment option."

As this treatment option continues to create conflict between historical practice and best evidence, Adj Prof Cullen has joined forces with Prof Fraser and the TPCH team, proving that when it comes to good research, it's all about collaboration rather than competition.

The team will test the effectiveness of fluid resuscitation using an animal model of septic shock and resuscitation. This will allow them to both understand the true effect of fluids as well as investigate the underlying physiological mechanisms of any harms from fluid therapy.

Dr Rina Savage, who also received a trainee grant, is leading a team of researchers investigating the prescribing patterns around opioid medications in the emergency department. The team will explore the growing public health concern that opioid medications are being increasingly and excessively prescribed to patients.

# ALLIED HEALTH RESEARCH GATHERING STEAM

Allied health research is surging forward with the support of CAHRLI, the Collaborative for Allied Health Research, Learning and Innovation. Formed in 2014, CAHRLI has supported rapid growth in research capacity, quality and translation across Metro North.

In addition to establishing a governance process for allied health research across the health service, CAHRLI has developed leave guidelines for health practitioners completing research higher degrees, and has created new opportunities for researchers to showcase their work. The annual CAHRLI symposium is a statewide research forum focused on allied health-led research, innovation and evidence-based practice.

To support allied health clinicians to get started in research or progress their projects, CAHRLI has collated a list of research experts and champions to provide guidance, holds monthly educational sessions and has workshops, and established a research learning network.

The collaborative provides Pre-PhD Scholarships to fill identified gaps and offers mentoring and support to write up research theses. CAHRLI is also developing key performance targets for operational time to be invested in research across the organisation.

# BRISBANE DIAMANTINA HEALTH PARTNERS

Formed in 2014, the Brisbane Diamantina Health Partners (BDHP) is an academic health science centre working to deliver quality healthcare to Queenslanders. The founding partners were Metro North Hospital and Health Service, Metro South Hospital and Health Service, Children's Health Queensland Hospital and Health Service, Mater Health Services, The University of Queensland, Queensland University of Technology, the Translational Research Institute and the QIMR Berghofer Medical Research Institute.

The first of its kind in Queensland, BDHP is an academic health science network, which is a partnership between universities, research institutions and healthcare providers that focuses on research, clinical care, and education. BDHP is made up of eight partners who are leading hospital and health services, universities and research institutes based in south-east Queensland.

In 2016, the Queensland Department of Health and Brisbane South PHN joined as full partners. In addition, the Southern Queensland Centre of Excellence in Aboriginal and Torres Strait Islander Primary Health Care and CSIRO Australian e-Health Research Centre are collaborators.

The BDHP mission is to integrate innovative research, training and clinical practice to deliver the highest quality healthcare to our community. That means better and faster treatments for some of our community's most devastating diseases and conditions. The aim is to build on Queensland's strong position as a global leader in biomedical research and deliver better outcomes to our patients.

Metro North holds a seat on the BDHP Board, and provides leadership roles in several of the Brisbane Diamantina Health Partners' nine clinical themes. These themes facilitate the translation of innovative research into clinical practice and lead to better healthcare for Queenslanders, and include:

- Ageing
- Brain and Mental Health
- Cancer (Professor Geoff Hill)
- Skin and Skin Cancer
- Chronic disease (Professor Ian Yang, Mr Chris Seiboth)
- Evidence and Innovation in Clinical Care
- Immunity, inflammation, infection (Professor Scott Bell)
- Maternal and Child Health
- Trauma, Critical Care and Recovery (Professor Jeff Lipman, Associate Professor Cliff Pollard)

BDHP has developed the Research Passport, a new and innovative umbrella research agreement for use by BHDP partners which streamlines the research process and provides one operating schedule for research projects. The Research Passport contains standardised terms, templates and processes for research conduct, and will expedite the establishment of projects between all partners and any third-party collaborators.

From 2011 to 2016, BDHP staff contributed to over 18,500 peer-reviewed papers and more than 150 Cochrane reviews. There are over 1,800 research higher degree students working in health sciences across BDHP partners, with more than 500 of these students working in Metro North and Metro South facilities supervised by clinicians.

BDHP partners currently host thirteen active National Health and Medical Research Council-funded Centres of Research Excellence whose emphasis is on driving research findings into policy and practice.

*Churchill Fellows – Michael Powers, Melissa Latter and Dr Robyn Grote with Queensland Governor His Excellency the Hon. Paul de Jersey AC and Metro North Board Member Associate Professor Cliff Pollard*

# CHURCHILL FELLOWSHIPS

## Three Metro North researchers, Dr Robyn Grote, Melissa Latter and Michael Power, have been recognised and awarded Churchill Fellowships to further their research endeavours.

Royal Brisbane and Women's Hospital motion analysis researcher Dr Robyn Grote's Fellowship will allow her to continue ground-breaking work on adult physical rehabilitation. She will travel the USA, UK and Europe to visit both civilian centres and military centres, where she will observe the evolving use of 4D virtual reality motion, cutting-edge technologies for reconstructive and regenerative rehabilitation, and the management of complex trauma.

RBWH Radiochemist Melissa Latter will use her Fellowship to visit St Thomas's Hospital in London/King's College and go to Germany. She will collaborate on radiochemistry projects to bring new PET imaging tracer capability to RBWH and Herston Imaging Research Facility.

Michael Power, Director of the Queensland Health Victim Support Service (Metro North Mental Health), will research innovations for improving the lives of victims of serious violence in cases diverted to the forensic mental health system. Michael will travel to England, Canada, United States and the Netherlands to gather information on restorative approaches in forensic mental health that can will inform work in Australia.

# WOMEN LEAD PATRICIA DUKE FELLOWSHIPS

## The RBWH Foundation Patricia Duke Fellowship provides $150,000 for postdoctoral researchers to build on their PhD studies. This year's research fellows are Nicole Gavin, Clare Burns and Nicole Andrews.

Dr Burns is an advanced speech pathologist at RBWH with specialty in cancer care and adult swallowing disorders, whose PhD studies focused on developing and evaluating new telehealth models of care to improve patient access to specialist services. Her research will support the expansion of a telehealth model to incorporate all aspects of speech pathology and joint nutrition and dietetics services for RBWH patients with head and neck cancer.

In 2014, a four-site telehealth service was developed by RBWH, linking with three regional cancer facilities—Nambour, Hervey Bay and Rockhampton hospitals. Through weekly appointments, share-care intervention is delivered online in real-time by the RBWH speech pathologist via a telehealth link with the patient and speech pathologist at their local facility.

This Australian-first service has already resulted in cost savings, service efficiencies and higher clinician and consumer satisfaction in comparison to standard care, and Dr Burns's fellowship is supporting the expansion of this telehealth model provide care to patients in their home and across additional sites in Queensland Health.

Dr Nicole Gavin is a nurse researcher with the RBWH Cancer Care Services and believes each time a nurse replaces an intravenous administration set (IVAS), currently each day, there is a risk of introducing bacteria and fungi. Dr Gavin's research surrounds patient's using intravenous nutrition in the haematology and bone marrow transplant nursing areas, and the potential for a change in intravenous administration set replacement procedures to address infection potential.

As part of the research, a randomised controlled trial on the Haematology Ward will be instigated, where patients receiving parenteral nutrition will be randomised to have their IVAS replaced daily, or scheduled with all the other IVAS replacement (every three days). The hypothesis is that patients will not have an increase in infection.

*Occupational Therapist Dr Nicole Andrews with her measuring equipment.*

Alongside this study, faecal and blood samples will be collected before, during and after transplant to look at all bacteria and fungi present, and central venous access devices will be collected when they are removed and see if the same bacteria and fungi are colonising. This is the first time analysing the microbiome has been used in this context.

RBWH Occupational Therapist Dr Andrews is hoping to develop new methods that will change the assessment of individuals with chronic pain, who often struggle to find the optimal level of activity needed to potentially stabilise pain levels and maximise patient productivity.

Dr Andrews's investigation into chronic pain aims to develop and evaluate assessment methods to better gauge how much activity is too much for individuals juggling the condition's 'double edge sword'.

One such method involves the development of a software package to integrate and analyse objective activity data, pain intensity rating and activity participation data, collected via a Fitbit-like device and mobile app over a week-long monitoring period.

"Clinicians will often produce the most valuable research findings," Dr Andrews says.

"This is because they are already immersed in a clinical area and know the most important problems that need to be solved. Research and clinical work are often the most effective when they coincide."

# BY THE NUMBERS

### Papers published

In 2016, Metro North researchers published over 1300 papers in academic journals and 11 Systematic Reviews in the influential Cochrane Database of Systematic Reviews. Metro North Research publications included collaborations with authors from North American (135), New Zealand (69), Europe and UK (more than 200), and Asia (62).

**Nature:** Sunil Lakhani, Pathology Queensland, RBWH

**NEJM:** John Atherton, Julie McGaughran, David Cartwright, Margo Pritchard, RBWH

**Lancet:** Lawrie Powell, John Yaxley, Geoffrey Coughlin, Nigel Dunglison, Robert Gardiner, Graeme Radford-Smith, RBWH; Scott McKenzie, TPCH; James Scott, Metro North Mental Health

**Science:** Scott Bell, Michelle Wood, Rachel Thomson, TPCH

**JAMA:** Michael Reade, RBWH

### Ethics and Governance

Our Human Research Ethics Committees at RBWH and TPCH reviewed and approved over 570 National Ethics Application Form (NEAF), Low-Negligible Risk (LNR), and request for exemption from ethical review for audit activity submissions in 2016. Over 420 Site-Specific Applications (SSAs) for new research and quality assurance projects were approved across Metro North with the support of our Research Governance Officers. In 2016, we commenced over 60 new clinical trials of therapeutic devices or drugs to advance health outcomes for our patients.

### Centres of Research Excellence

NHMRC Centre for REdefining antibiotic use to reDUce resistanCE and prolong the lives of antibiotics (CRE REDUCE) was awarded $2.1 million to formulate and test innovative antimicrobial dosing regimens, led by Professor Jason Roberts and Professor Jeffrey Lipman.

NHMRC Centre for Research Excellence in Advanced Cardio-respiratory Therapies improving OrgaN Support (ACTIONS), led by Professor John Fraser, was awarded $2.5 million in 2014 and is addressing key challenges associated with clinical implementation of mechanical circulatory support using a multi-disciplinary global collaborative approach for improved outcomes.

NHMRC Centre of Research Excellence in Nursing Interventions for Hospitalised Patients (CRE-NCREN) was awarded $2.5 million in 2010. The NCREN team, including Chief Investigator Professor Joan Webster, has influenced international guidelines and eleven IV access-related systematic reviews (seven Cochrane reviews).

NHMRC Chronic Kidney Disease Centre of Research Excellence (CRE-CKD) was awarded $2.4 million in 2015 to improve health outcomes for CKD patients. The team is led by Professor Wendy Hoy, with Dr Helen Healy and Professor Ann Bonner as Chief Investigators.

NHMRC Centre for Research Excellence in End of Life Care (CRE-ELC) was awarded $2.4 million in 2013. CRE-ELC is led by Professor Patsy Yates with Professor Ann Bonner as a Chief Investigator.

### Research Fellowships

Metro North researchers received over $7 million in Health Research Fellowships, Clinical Academic Fellowships and Junior Doctor Research Fellowship, awarded under the Health Innovation, Investment and Research Office Funding programs.

"RESEARCH WILL PROVIDE OUR PATIENTS WITH THE BEST ACCESS IN AUSTRALIA TO NOVEL DIAGNOSTICS, INNOVATIVE THERAPEUTICS AND ADVANCED HEALTH SERVICES."

# METRO NORTH HHS RESEARCH STRATEGY

## VISION

Changing the face of healthcare through compassion, commitment, innovation and connection.

## MISSION

Together we deliver exceptional health outcomes through globally recognised discovery and translation.

## ENABLERS

Our **enablers – patients, people, systems, infrastructure** and **partners –** will actively support our **themes** and **direction** to deliver excellence in discovery and translation.

## THEMES

Our **themes – diagnostics, therapeutics** and **health services** – embrace the entire research continuum, from basic discovery through clinical translation to public health and health services research, in the context of our patients' journey through our health service.

## DIRECTION

To **define** clinically relevant questions, **discover** and **translate** new knowledge into evidence for patient care and **implement** this knowledge into informed practice that will lead to research **impact.**

## TOGETHER WE DELIVER WITH OUR


**Patients, healthcare consumers and the community**

Lead excellence in patient centred research


**People engaged with research**

Engage our people with a research-active culture to develop attract and retain high calibre research expertise


**Research information, management and communication systems**

Establish integrated research information, management and communication systems

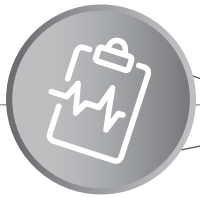

**Research infrastructure and resources**

Enhance sustainable research capacity through management of infrastructure and resources


**Collaborations and partnerships**

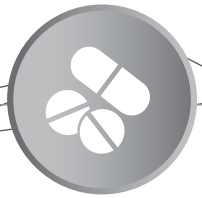
Support strategic collaborations and partnerships to drive globally recognised discovery and translation

## EXCEPTIONAL HEALTH OUTCOMES BY EMBRACING



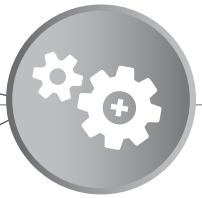
### DIAGNOSTICS

From discovery research that advances fundamental understanding of disease-related mechanisms which influence diagnosis, to translational research, which successfully tests the application, efficacy and translatability of diagnostic tests, services and devices.



### THERAPEUTICS

Through the integration of therapeutic research and clinical care, we will become leaders in the prevention and management of disease and the specific, highly complex health problems facing our patient population.



### HEALTH SERVICES

Through health services research we will embrace the design of sustainable, integrated and safe models of healthcare with the capacity to improve health outcomes, reduce disparities for disadvantaged and vulnerable groups, increase efficiency and provide value-based healthcare.

## THROUGH GLOBALLY RECOGNISED DISCOVERY AND TRANSLATION

| DEFINE | DISCOVER | TRANSLATE | IMPLEMENT | IMPACT |
|---|---|---|---|---|
| Continuous data integration and knowledge synthesis | Address fundamental knowledge gaps | Translate new knowledge and innovations | Bring new knowledge into practice | Positively impact long-term health outcomes |

# METRO NORTH RESEARCH EXCELLENCE AWARDS 2016

The inaugural Metro North Research Excellence Awards recognise and reward outstanding achievement in research across all clinical specialties and professions. The inaugural awards attracted 52 high calibre submissions across seven categories.

### Researcher of the Year
**Professor Michael Breakspear**

Research into non-invasive technologies to unravel the mysteries of the brain earned Professor Michael Breakspear the inaugural 2016 Metro North Researcher of the Year Award. Professor Breakspear is known internationally for his research in the application of brain network theory to understand psychiatric disorders. His ground-breaking research will help address some of our biggest mental health challenges such as depression, bipolar disorder and dementia.

The 2016 Research of the Year was decided from winners of the seven Research Excellence Award categories.

### Rising Star
**Dr Dylan Flaws**

Psychiatry Registrar Dylan Flaws is already an accomplished researcher whose publication list is growing. Among his many accomplishments is the creation of the Emergency Department Acute Chest-pain Score (EDACS) which is now used throughout New Zealand and many Australian hospitals. In 2016, he received a Queensland Health Junior Research Fellowship for two years to investigate his work further into delirium.

### Innovation and Creativity, Research Originality
**Associate Professor Daniel Chambers and the Queensland Lung Transplant Service Research Team - Stem cell therapy for chronic lung disease**

Associate Professor Daniel Chambers and his team have completed three first-in-man phase 1 studies to evaluate the role of intravenously administered stem cells in the area of fibrotic lung disease and pulmonary hypertension. More recently, the trial has included eight transplant recipients experiencing chronic rejection. The success of the research will see Professor Chambers lead the first ever randomised controlled trial of stem cell therapy in lung transplant recipients.

### Technology and Biotechnology
**Professor Michael Breakspear – Using neuroimaging to understand brain network disturbances in psychiatry**

Professor Breakspear's ground-breaking research uses the very latest functional and structural MRI technology, Brain Mapping, to unlock the neurobiology of mood and cognitive disorders.

His discoveries are enhancing our knowledge of the human brain in health and disease. Because this knowledge is derived from non-invasive neuroimaging, the findings are directly translatable into clinical practice. His clinical prediction algorithms have tremendous potential to improve health outcomes for people at risk of depression, bipolar disorder and dementia.

### Promoting Healthy Minds and Bodies
**Professor James Scott – Improving the mental health of Australian youth**

Professor Scott's research aims to prevent the onset of mental disorders, identify the underlying causes of schizophrenia and conduct clinical trials of low risk interventions for young people with early psychosis. His clinical trial investigating schizophrenia has potential to make meaningful improvements to the lives of those living with the condition. His work has been nationally and international recognised has the potential to improve the mental health of young people across the world.

### Chronic Disease and Community Care
**Dr Helen Healy and the CKD.QLD Collaborative – Improving management of Chronic Kidney Disease**

Dr Helen Healy and Professor Wendy Hoy chair the CKD.QLD, a collaborative of researchers and renal clinicians from across Queensland. In addition to her own research, Dr Healy leads the translation of research into clinical practice. Dr Healy and Professor Hoy have guided the development of a registry of Queenslanders with chronic kidney disease which is enabling clinicians to investigate which will be the 25 per cent who progress to severe disease. The Collaborative will help researchers identify which patients are likely to degenerate and develop appropriate interventions and treatments.

## Improving patient outcomes in an acute care setting

**Professor Alison Mudge – Improving health outcomes for older patients in the acute care setting**

Professor Alison Mudge's broad body of research includes the numerous complications common to elderly patients during hospital admissions which lead to extended stays. Her multidisciplinary team has translated research into clinical care, including the CHERISH project and the Eat Walk Engage program which encourages older patients to start being active during their hospital stay.

Professor Mudge's research has significantly contributed to knowledge and clinical application on an international scale resulting in her rapidly gaining a national and international reputation in this area. She is also a generous mentor, educator and supervisor, committed to increasing capacity in both research and clinical translation.

## Integrated Care – Health Service Research

**Professor Louise Cullen and the Emergency Cardiology Research Group – Improving Emergency Department assessment of chest pain**

Professor Louise Cullen's research group has developed a reliable way to identify the one in five patients with chest pains experiencing heart attack within two hours of presenting to an Emergency Department, instead of the usual 6 to 24 hours. This accelerated assessment strategy, known as the Brisbane Protocol, is a safe, cost-effective method which has significantly reduced the length of stay for ED patients with chest pain, and has allowed patients to move out of acute care more quickly.

It has the potential to change the way emergency patients are assessed not just in Australia but internationally.

www.health.qld.gov.au/metronorth