

Metro North Hospital and Health Service *Putting people first*

SNAPSHOT OF RESEARCH

2018

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

ACKNOWLEDGEMENTS

Connect with us

Email MNHHS-Research@health.qld.gov.au

Website <https://metronorth.health.qld.gov.au/research>

Phone: 07 3647 9631

The Metro North Snapshot of Research is produced by the Metro North Office of Research and Metro North Communications

Metro North Office of Research Contributors

Professor Scott Bell, Professor Janet Davies, Dr Tania Crough, Dr Trina Yeadon, Dr Roxanne Machen, Louise D'Allura, Sean O'Conneide, Jess Logan

Metro North Communications

Matthew Stevenson

Christine Atkinson

John Walters

Jane Bebbington

Rebecca Burn

Melissa Keating

Jen Conroy

Stephen Hapgood

Rhiannon Kallio

Travis Bell

Lisa Carter

Glenn McDougall

Amanda Burke

Mary Phillips

Library Services

Chris Parker

TPCH Library Services

Lars Eriksson

UQ RBWH Library Services

QUT Library Services

Artwork by Elaine Chambers-Hegarty





CONTENTS

Metro North Board Chair and Chief Executive	4
Metro North Executive Director, Research	5
Deciphering the link between sleep and dementia	6
Getting the numbers right	8
Dental bite – the hidden risk factors of tooth decay	11
Family therapy for adults with eating disorders	12
Identifying adverse medication events in the ed	13
Combatting endometriosis	14
A focus on trauma with Professor Michael Reade	15
Leading trauma research and care	16
ICCC study helps Caboolture families	18
Less invasive drug administrative on the horizon	19
Metro North research impact	20
International publication collaborations	22
Study brings safety and more understanding around breech births	24
App helps self pain management	26
Turning tide on deadliest cancer	27
Study of new catheter design	28
Anthony Bligh focused on implementation sciences	29
Foot disease – the silent inpatient burden	30
Improving strength in older adults during periods of restricted weight-bearing	31
Clinician research fellowships 2019	32
Queensland researchers identify a third type of twin	36
Stunning new skin cancer immunotherapy treatment of trial	38
Harnessing research opportunities in busy emergency department	39
Royal Brisbane and Women's Hospital Foundation	40
The Prince Charles Hospital Foundation	41
Early-career researchers first in line for collaborative research grants	42
Research improves care of ventilated patients	45
Robotic bronchoscopy clinical trial	46
Trial reduces medication errors	47
Improving nutrition in hip fracture patients	48
Our research enablers	49
Clinical trials in Metro North	50
Metro North clinical trials in focus	51
Building capability in research and innovation	52
Grants support emergency research	53
Driving life changing research for CF patients	54
Metro North Research Excellence Awards 2018	56
Metro North HHS Research Strategy	58



METRO NORTH BOARD CHAIR AND CHIEF EXECUTIVE

Health and medical research is a vital part of the healthcare environment. Through research from the bench to the bedside, healthcare challenges are addressed and solutions found. Researchers move the dial inch by inch, with small steps and giant leaps, improving outcomes along the way.

The culture of research at Metro North is rich, vibrant and thriving. Our diverse, world-class researchers span across all clinical fields from medical and nursing to allied health and public health. Through partnerships with world-leading institutions, universities and hospitals, research and clinical expertise is translated into better evidence-based care for patients.

Discovery, innovation and implementation in research is crucial to meet a growing demand for healthcare. This Snapshot of Research showcases how Metro North researchers are changing the landscape of the healthcare we deliver through disease prevention, diagnosis and health service improvements.

Through our Research Strategy, development programs like Collaborative Research Grants and Clinician Research Fellowships, and recognition of exceptional work at Research Excellence Awards, we are investing in research and fostering experienced and emerging research talent within Metro North.

Together we aspire to take on the challenges of the future and turn them into high quality research outcomes to improve the healthcare we deliver to Queenslanders.

Dr Robert Stable AM
Chair, Metro North Hospital and Health Board

Jackie Hanson
Acting Chief Executive

PUBLISHED
4,745
RESEARCH
JOURNAL
ARTICLES
OVER FIVE YEARS

\$26.1
MILLION
FROM THE
NHMRC
IN 2018

41
COCHRANE
SYSTEMATIC
REVIEWS
PUBLISHED
OVER FIVE YEARS

FIVE
CLINICIAN
RESEARCH
FELLOWSHIPS
AWARDED IN 2018

\$7M
IN CLINICAL
TRIAL REVENUE
IN 2018

NHMRC: NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL
MRFF: MEDICAL RESEARCH FUTURE FUND

METRO NORTH EXECUTIVE DIRECTOR, RESEARCH

Evidence highlights the importance of research to delivering innovative care and novel treatments to our patients across Metro North.

As we complete the second year of the implementation of Metro North Research Strategy, we have seen several important initiatives rolled out to support capacity building of research and research collaborations within and beyond our health service based on the Metro North Research Strategy 2017-2022. During 2018, Metro North launched the Clinician Research Fellowships, a unique program within Queensland to support clinician researchers to develop their research programs. The inaugural recipients were: Dr Clare Burns, Dr Andrew Mallet, Dr Siok Tey, Dr Alison Mudge and Dr Don McLeod.

We also launched the Collaborative Research Grants, capacity building grants to support our early career researchers working with established researchers to enable emerging collaborations with academic partners Queensland University of Technology, QIMR Berghofer and The University of Queensland.

Metro North Office of Research is proud to support the annual Research Excellence Awards, now in its fourth year. Recipients of the awards have demonstrated research excellence and cover the expanse of research activity within Metro North from basic science through to knowledge translation.

Finally, we have launched a Research Coordinator Program collaborating with clinical departments to help build research capacity within departments in an early stage of development in their research programs. These will be two-year awards to allow embedding of study coordinators within the clinic.

In this issue of the Snapshot of Research we have focused on profiling our research impact, and you will find some intriguing research metrics including numbers of citations and the extent of reach of our research findings. You'll also see some of the high-profile clinical research and clinical trials that have been published from 2014 onwards.

There are many benefits associated with the measurement of research impact, including the ability to (1) assess the quality of the research and benefits to society; (2) inform and influence healthcare policy and research funding; (3) demonstrate the value of research through being able to efficiently and effectively deliver healthcare to society.



We have highlighted classic metrics of research impact including number of publications and their citations, numbers of grants and monetary value and the numbers of awards and honours awarded. Further, we introduce emerging impact measures including media and most notably social media mentions! We hope you enjoy reading about the REACH of our Metro North researchers.

This year we acknowledge Professor Joan Webster, who has been the Nursing Director, Research at RBWH since 1991. She is a Professor in Nursing and Midwifery at Griffith University, Adjunct Associate Professor with UQ and QUT. Professor Webster has had over 70 publications from 2014–2019, including two in *The Lancet*. Nevertheless, it's her work with the Cochrane Collaboration which is most notable, undertaking systematic reviews of clinically relevant questions has demonstrated best practice of care and where further research is required to gather evidence. With >\$11 million in research funding, Joan's reputation and outputs have been outstanding. Her recent work in wound management and intravenous therapy has informed international guidelines and changed clinical practice. Joan's willingness to share knowledge and skill is evidenced by her commitment to providing opportunity to early researchers through the Evidence Based Practice Program and ongoing Mentoring Program. Because of Joan's leadership, mentorship, positive role modelling and education, many nursing and midwifery staff members have begun their own research pursuits.

Finally, there are many stories of research successes from within the health service and this Snapshot provides a focus on our consumers of research, the patients. We hope you enjoy this issue of the Snapshot of Research.

Professor Scott Bell
Executive Director, Research

DECIPHERING THE LINK BETWEEN SLEEP AND DEMENTIA



HEALTH AND SOCIAL IMPACT

A research team at The Prince Charles Hospital is investigating the link between a common sleep disorder and the single greatest cause of disability in adults over 65.

Obstructive sleep apnoea (OSA) is a highly prevalent chronic disorder that interrupts breathing during sleep. Researchers are proposing that the condition that affects over 1.5 million people in Australia may be a modifiable risk factor for dementia.

Advanced sleep scientist and researcher Dr Irene Szollosi said that sleep disruption can impact a person's memory and cognitive function and that OSA is a readily treatable cause of sleep disruption.

"Untreated elderly participants with OSA exhibit cognitive decline at twice the rate, and develop Alzheimer's disease at an earlier age, compared with the general population," Dr Szollosi said.

"There is encouraging evidence to suggest that identification and treatment of OSA, may produce positive functional outcomes and slow down the deterioration of cognitive loss.

"We have studies looking at the impact of OSA in cognitively healthy and also in cognitively impaired patients to help determine the potential interaction between sleep apnoea and the progression of dementia."

In collaboration with hospital geriatricians and with support from The Prince Charles Hospital Foundation, the team is working with the Queensland Brain Institute and CSIRO to use innovative brain imaging techniques in the assessment of neuropathological patterns in patients with newly diagnosed OSA.

"Because dementia has no cure, and there are limited treatment options, our goal is to reduce the burden of disease by targeting and treating a modifiable risk factor," Dr Szollosi said.

"If we can show that treating obstructive sleep apnoea can preserve memory and brain health, it is possible to develop rapid pathways for early diagnosis and treatment of OSA in patients with mild cognitive impairment or those with early signs of dementia.

"By doing this, we will achieve better outcomes for people with memory problems, stabilise their cognitive function, and allow them to live independently for longer."

Sleep scientists and clinicians are working with geriatricians at The Prince Charles Hospital to investigate the link between sleep apnoea and dementia. Dr Irene Szollosi, Advanced Sleep Scientist (front left), Dr Deanne Curtin, Director Sleep Disorders Centre (front right), Dr Eamonn Eeles, Geriatrician and Head of Internal Medicine Research (rear left), and Dr Kannan Natarajan, Geriatrician (rear right)





GETTING THE NUMBERS RIGHT



Biostatistician Anita Pelecanos feels fortunate to have found a career which combines statistics with biology and medicine.

As a member of the QIMR Berghofer statistics unit, Anita is one of 11 biostatisticians who provide a specialised statistical consultancy service to QIMR Berghofer, Mater Research, and clinicians and researchers at Metro North.

"I've always been good at mathematics and statistics, but also I have a keen interest in the way human physiology works. It is complicated but elegant, which I find fascinating," Anita said.

"Each day I have the opportunity to learn from my talented clients about new medical developments."

In her day to day work, Anita enjoys meeting with doctors, nurses, allied health workers, and medical researchers from RBWH about what statistical assistance they or their project teams need.

"I usually work on around 20 projects at one time across a broad range of areas including but not limited to anaesthesia, critical care, women's and newborn, gastroenterology, oncology and dietetics," Anita said.

"A typical day for me involves consultations with clients discussing their research project specifically formulating

their research question, planning the design and size of their study, advising on the analyses required, or interpreting results and discussing their presentation for publication."

The Statistics Unit supports researchers from the beginning to the end of a project, which may include calculating sample sizes, performing statistical analyses, helping write grant applications or research protocols, providing statistical training to groups, assisting in preparation of manuscripts and responding to reviewers' comments.

"The studies are very interesting - one study published recently was a randomised control trial to assess whether probiotics can help prevent gestational diabetes in high-risk overweight and obese women," Anita said.

"This study was with Professor Leonie Calloway, Senior Specialist in Obstetric and Internal Medicine at RBWH and we found that the probiotic examined appeared to have no preventative effect."

THE QIMR BERGHOFER STATISTICS UNIT

THEY HAVE BEEN INVESTIGATORS ON
19 GRANTS WORTH **\$4.5M** WITH
METRO NORTH AND **21 GRANTS**
WORTH **\$22.5M** WITH QIMR
BERGHOFER CLINICIANS

SINCE 2006
THE TEAM
HAVE
CO-AUTHORED **143**
PUBLICATIONS

THE QIMR BERGHOFFER STATISTICS UNIT

The Statistics Unit has provided statistical consultancy and collaboration to RBWH since 2006, expanding its services to all of Metro North in July 2015. The Statistics Unit also provides service to scientists and clinicians at QIMR Berghofer Medical Research Institute and Mater Medical Research Institute. The group includes 11 biostatisticians.

THEIR STATISTICAL CONSULTANCY TO SCIENTISTS AND CLINICIANS INCLUDES:

- one-to-one discussion and statistical work between client and biostatistician
- training courses, workshops and seminars on method and practice of statistics
- development of statistical resources for clients to help themselves
- collaborative work on projects with substantive statistical issues
- professional development for the biostatisticians.

Currently there are three trainee biostatisticians in the unit. Professional development for biostatisticians is pivotal to the unit's success and involves formal education, travel to build collaborations and mentoring.

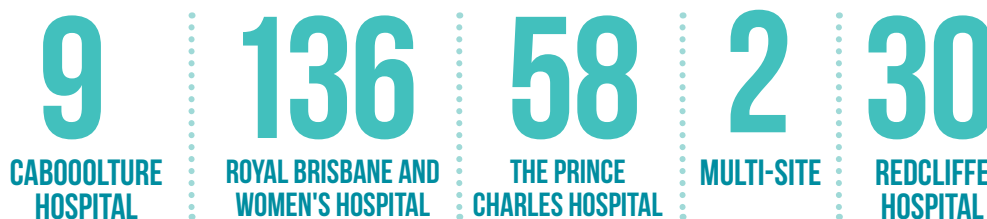
Three of the biostatisticians have adjunct appointments with local Brisbane universities and the team are expert reviewers for the human research ethics committees at Royal Brisbane and Women's Hospital, The Prince Charles Hospital and QIMR Berghofer.

NUMBER OF PUBLICATIONS WITH METRO NORTH STAFF



DURING 2018 THEY WORKED ON **235 PROJECTS** WITH **195 CLIENTS** AND PUBLISHED **35 PEER-REVIEWED PAPERS** WITH METRO NORTH CLINICIANS

NUMBER OF PROJECTS PER MNHHS FACILITY



QIMR Berghofer
Medical Research Institute



DENTAL BITE – THE HIDDEN RISK FACTORS OF TOOTH DECAY



HEALTH, SOCIAL AND ECONOMIC IMPACT

In recent decades dentists have focused on the direct causes of dental decay such as sugar and soft drink consumption and lack of oral hygiene as part of oral health care.

A recent review of the causes of dental disease, however, is using a different lens to look at the effects that low socio-economic status can play in increasing risk factors for tooth decay.

Metro North Oral Health Director of Research and Advocacy Dr Michael Foley outlined a broader view in the Australian Dental Journal that there was a strong link between low socio-economic status and tooth decay.

“It is important that we create a greater awareness of socio-economic causes of tooth decay to address some of the societal inequalities that contribute to dental health,” Dr Foley said.

“Dental decay generates significant health, financial and social costs to individuals and communities, but risk factors are not necessarily random across our community.

“People from lower socio-economic or disadvantaged backgrounds are clearly at an increased risk of suffering poor oral hygiene outcomes due to a range of casual pathways.”

Dr Foley said there were a range of socio-economic links that impacted dental health that decision makers needed to aware of.

“The variables included ethnic issues, education level, household income, oral health behaviours and residential locations of people,” he said.

“By focusing on socio-economic factors we can better understand and deliver services to provide greater outcomes for our patients, and improve social inequalities and access to care,” he said.



Dental technicians from the Metro North Oral Health Fluoride Varnish Program visiting state schools

FAMILY THERAPY FOR ADULTS WITH EATING DISORDERS



HEALTH AND SOCIAL IMPACT

Family-based therapy is an important element in treating adolescents with eating disorders, but there is not a lot of literature on the benefits for adults receiving treatment.

Senior Social Worker for the Queensland Eating Disorder Service (QuEDS) Rebecca Olling has been exploring the experience of adult participants having family or friends involved in their treatment while in the Day Program.

“Family-based therapy is the evidence-based treatment for adolescents with an eating disorder, and the literature often extends to the experience of having family involved in their treatment,” Ms Olling said.

“However, there is less literature focusing on how family involvement is experienced for adults while receiving eating disorder treatment.”

As part of her Masters in Mental Health (Family Therapy), Rebecca collected data to discover how participants experience family involvement in their current treatment, including what their hopes are for future family involvement.

“This is important research as the National Eating Disorder Agenda outlines the importance of inclusiveness of family in eating disorder treatment,” Ms Olling said.

“It is also important to gather information as to how family involvement is experienced by participants.”

Semi-structured interviews completed by a research assistant at QuEDS were used to gather the data exploring the participants’ experience.

“Although questions were pre-determined they were also open-ended, allowing exploration of what the participants were thinking, feeling and doing,” Rebecca said.

As this research is part of a larger study evaluating the QuEDS Day Program only data pertaining to family and family involvement was analysed for this study.

As there are limitations to the study, including only obtaining the views of patients and the small sample size, results are unlikely to be representative of the experience of family involvement for adults in an eating disorder Day Program or other treatment setting.

When the data is analysed from a family therapy lens, results indicate that although sometimes challenging when unplanned, family involvement in adult eating disorder treatment is considered desirable and helpful.

“This research has allowed our workforce to gather data on how our patients experience family involvement in their treatment,” Ms Olling said.

“We know from this research that participants find family involvement extremely helpful in their recovery.

“Although participants reported finding support around meal times desirable, we also found that when carers or loved ones attempted to intervene or communicate about things at meal times in an unplanned way, it caused stress for the participants.

“This study also found that planning for meals, whether it is at home or out socially was considered helpful in their recovery.”

Ms Olling said there is also evidence that engaging family in facilitated sessions with treatment staff, is considered positive and helpful over written information only from the participant’s point of view.

“The data from this study also found that participants had positive views on their loved ones connecting with other parents and carers when this opportunity was presented,” Ms Olling said.

“Overall, the study outlines the importance of including family members and other support people in the treatment of adults with eating disorders, regardless of their level of independence from their family of origin.”

THIS IS IMPORTANT RESEARCH AS THE NATIONAL EATING DISORDER AGENDA OUTLINES THE IMPORTANCE OF INCLUSIVENESS OF FAMILY IN EATING DISORDER TREATMENT

IDENTIFYING ADVERSE MEDICATION EVENTS IN THE ED



KNOWLEDGE AND ECONOMIC IMPACT

Around one in every nine acute elderly presentations to the Caboolture Hospital Emergency Department are related to a medication issue or a medication adverse event.



Dr Sean Clark

Caboolture Hospital Emergency Department's Dr Sean Clark said elderly patients with adverse medication events often presented to the hospital with non-specific symptoms such as dizziness, falls and drowsiness.

"In someone who may have complex medical problems, it can often be difficult to identify early that the underlying issue may be medication related in a busy ED environment," Dr Clark said.

"As a result, we are piloting a process to quickly identify patients at risk of medication related adverse events who present to our ED.

"We are also utilising existing community resources, including local pharmacists, to undertake a more detailed medication review which hopefully improves the wellbeing of elderly in the community."

The pilot project at Caboolture has successfully attracted the support of a Metro North Support, Explore, Excel, Deliver (SEED) innovation funding program grant.

Dr Clark said the project was also part of his studies under the Graduate Certificate in Health Service Innovation, a partnership between Metro North and AusHSI.

"The certificate will allow me to maximise the impact of the work I do in the Emergency Department and acute care setting," he said.

"I hope to better select, plan and execute change that is valued by the organisation and meaningful to the people I work with and the patients I look after."



COMBATting ENDOMETRIOSIS



KNOWLEDGE IMPACT

One in 10 Australian women is affected by endometriosis. In 2018, the Australian Government launched the first National Action Plan for Endometriosis, seeking to improve treatment, understanding and awareness of the disease.

A team of experts in the field of endometriosis from Royal Brisbane and Women's Hospital and The University of Queensland are leading a collaborative study across Metro North as part of a national response to this crippling condition.

Endometriosis is a common yet often under-recognised chronic disease affecting approximately 700,000 women in Australia, and occurs when cells similar to those that line the uterus grow in other parts of the pelvic region causing a range of symptoms including pain and infertility in some patients.

The diverse and multidisciplinary team from clinical, cellular and molecular biology and bioinformatician backgrounds comprises clinician scientist and gynaecologist Dr Akwasi Amoako, gynaecologists with expertise in endometriosis Dr David Baartz, Dr Akram Khalil, Dr Keisuke Tanaka and Dr Matthew Smith, molecular scientists Professor Grant Montgomery and Dr Brett McKinnon, and bioinformatician Dr Sally Mortlock.

"Endometriosis is an individualised disease, where symptoms don't always correlate with disease progression or severity," Dr Amoako said.

"There is a lot that we don't know about the disease and a lot we are seeking to understand in order to be able to provide better care and treatments for these women."

The Metro North endometriosis study will investigate the presence of local mutation in lesions of women with endometriosis in a bid to understand their contribution to the disease.

"We'd like to understand what leads to the establishment of endometriosis in some women and not others, why some women with the disease experience extreme pain and others none and why some will respond well to treatment and others do not," Dr Amoako said.

The trial is recruiting patients from across the health service who are required to undergo a laparoscopy investigation for pelvic pain and suspected endometriosis.

"During the procedure, biopsies will be taken from women both with and without endometriosis and these samples will then be analysed to identify the genetic make-up," Dr Amoako said.

"This will also allow an opportunity to compare symptom severity and other factors including reduced fertility with genetics."

Existing treatments for endometriosis range in effectiveness from patient to patient and the results, as part of the wider national response, are vital for this large patient group.

"Overall our aim is to identify which treatments a patient will respond best to, allowing us to better match patients with existing treatments," Dr Amoako said.

"From there we hope for the opportunity to identify new treatments and interventions."

The Metro North pilot study will recruit 60 women and may expand for other projects nationally and internationally.

A FOCUS ON TRAUMA WITH PROFESSOR MICHAEL READE



KNOWLEDGE AND HEALTH IMPACT

Preserving and extending the shelf-life of blood products and resuscitation fluids would be a significant factor in saving the lives of wounded soldiers operating in areas remote from large hospitals.

This field is one focus of Professor Michael Reade, a Senior Staff Specialist Intensivist at Royal Brisbane and Women's Hospital. He also has a unique position as the only Australian Defence Force full-time clinical academic focused on trauma.

Professor Reade's research focuses on fluid resuscitation and coagulopathy in military trauma and includes clinical trials of cryopreserved (frozen) blood products and tranexamic acid.

"I'm leading a program of clinical trials research in collaboration with the Australian Red Cross Blood Service looking at the usefulness of cryopreserved platelets," Professor Reade said.

The pilot clinical trial in this program was awarded the 'Best Paper' at the largest international military medicine conference worldwide in 2018. If ultimately successful, this would extend the shelf-life of platelets from five days to two years, which would be very significant.

Professor Reade is also involved in multicentre clinical trials of erythropoietin as a drug to reduce inflammation and mortality after severe trauma, and the prehospital administration of tranexamic acid, used to treat or prevent excessive blood loss from major trauma and other causes.

He is also exploring the feasibility of other treatments for exsanguinating haemorrhage, including fibrinogen concentrate and cold-stored platelets, as part of a Centre of Research Excellence grant.

Professor Reade's other research areas include acute cognitive dysfunction, and trauma system design in collaboration with the Jamieson Trauma Institute based at RBWH.

"Treating combat casualty care as an academic discipline, with equipment, practices and systems subjected to objective scrutiny, is an important change that's been key to the substantial improvements in mortality after battlefield trauma observed over the last 15 years," Professor Reade said.

"But there are many other opportunities for improvements, such as in trauma systems design, and in using biomarkers to identify devitalised tissue. Or, better imaging devices appropriate for field hospitals, or in regenerative medicine, which looks at improving long-term outcomes after traumatic amputation or other severe wounds.

"While the combat casualty care has developed rapidly, there is always more that can be done. With seven Australian Defence Force clinicians now studying for higher degrees in the academic program I lead, Australia is investing substantially in its future contribution to this important area."

From January 2019, Professor Reade was appointed Director General Health Reserve - Army, responsible for all part-time personnel providing specialist medical, nursing and allied health support to the Australian Army.

He has served overseas in Bosnia, Kosovo, East Timor, the Solomon Islands, Iraq and Afghanistan and is currently seconded to The University of Queensland to lead research where his interests are those most relevant to the care of severely wounded military personnel.



LEADING TRAUMA RESEARCH AND CARE



Jamieson Trauma Institute (JTI) Director Professor Michael Schuetz believes that Queensland and Metro North have all the factors in place to be a world leader in trauma research and care.



A love of skiing led a young Michael Schuetz to a serendipitous connection with one of the world's best fracture clinics and research organisations in Switzerland, and he has brought that knowledge and those skills to Queensland and Metro North.

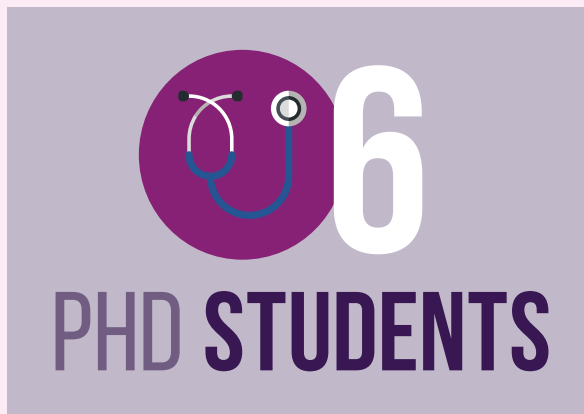
"I got engaged with trauma care and orthopaedic trauma research because I had a great mentor, Professor Peter Matter, someone I really admired as a person," Professor Schuetz said.

"I wanted to go skiing. In the Swiss Alps there are a lot of skiing accidents and a lot of fractures, so there has been a lot of work done there and there is a really well-known institute for fracture management at the AO Foundation, and so I got interested in fractures.

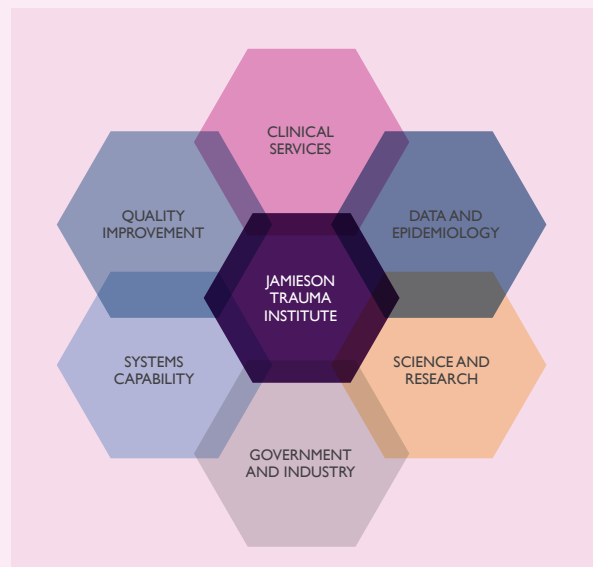


"One of the major areas of challenge are large bone defects. What to do when someone has lost significant portions of large bone through trauma (or infection, or malignancy)? How do you generate sufficient bone to make up for the loss? There are various avenues of research being explored – looking at stem cells, scaffolding, proteins, vascularity, and so on."

Following stints in Davos, Brisbane and Berlin, Professor Schuetz was appointed Director of the Jamieson Trauma Institute, based at Royal Brisbane and Women's Hospital, in August 2018.



"Professor Matter was in the second generation of people to come out of this group, and they just had a fantastic culture, they are driven by the work, and they are very supportive. Many of the techniques of standardised fracture management and care used around the world came out of this group.





\$421,201

TOTAL RESEARCH DOLLARS RECEIVED FOR 2018

JTI is a collaboration between Metro North Hospital and Health Service, Queensland University of Technology and the Motor Accident Insurance Commission. Road traffic accidents are a major cause of complex trauma in Queensland.

It brings together key trauma services – quality and data analytics, injury prevention, clinical trials, innovation, diagnostics and translation, education and training, a virtual trauma centre, and rehabilitation and outcomes – with the goal of advancing trauma care across Queensland.

JTI is well located at Herston Health Precinct, collocated with at a large metropolitan hospital along with the Herston Imaging Research Foundation, QIMR Berghofer, The University of Queensland School of Medicine and UQ Centre for Clinical Research, the Queensland Health Clinical Skills Development Centre and more.

"I see JTI as the opportunity of a lifetime. Queensland has the chance to get ahead, to be first in the world, particularly with the digital agenda," Professor Schuetz said.

"The Institute is young, and we can set up the culture early, to improve quality and reduce costs in trauma care, to increase value for the society.

"We've got to start by looking at the data and scale the problems. JTI will be able to have a central look at the available data on trauma: what occurred, how was it managed, what were the outcomes, and what was the cost.

"Then you can look at where will research make the most difference."



12 RESEARCH FELLOWS



3 COLLABORATIVE PARTNERSHIPS

ICCC STUDY HELPS CABOOLTURE FAMILIES



HEALTH AND SOCIAL IMPACT

Woodford primary school student Ruby Raine is benefiting from a research study underway at Caboolture Hospital.

Ruby has Attention Deficit Hyperactivity Disorder (ADHD) that affects her behaviours and learning development at home and within the classroom. After referral from her GP, Ruby attended several appointments with a paediatrician at Caboolture Hospital.

The paediatrician organised appointments with a speech pathologist, psychologist and other health professionals, but Ruby's mother Belinda was still concerned her daughter wasn't progressing as well as she could.

Ruby and Belinda had the opportunity to meet with Caboolture Hospital Research Coordinator Thuy Fracking and joined the Integrated Children's Clinic Care (ICCC) research trial. The ICCC project is exploring alternative care pathways for vulnerable children newly diagnosed with chronic health and developmental conditions and connects families with alternative healthcare pathways that lead to better health outcomes and improved prospects for children.

Over the next 12 months, Thuy supported Belinda and Ruby on their healthcare journey. Thuy attended GP and other health and professional appointments with Belinda and Ruby, including working one-on-one with Ruby's teachers to identify strategies to help her learning in class.

Thuy helped Belinda connect with community-based and specialist services to ensure she had the tools needed to help Ruby.

After a year participating in the trial, Belinda has seen significant benefits for Ruby. She's developing well, her behaviour at home has improved, her marks at school are much better and has a big smile on her face.

"It was all a bit full-on at first and I wasn't sure where to turn, then we got to meet awesome Thuy and she's set everything out for us," Belinda said.

"The ICCC trial has been a great opportunity for Ruby and I. Thuy has been a great help to me and being able to point me down the right path and find the help we needed for Ruby.

"We are very thankful to Thuy and for the opportunity to participate in the study and the amazing, positive difference it has made to our lives."

"WE ARE VERY THANKFUL TO THUY AND FOR THE OPPORTUNITY TO PARTICIPATE IN THE STUDY AND THE AMAZING, POSITIVE DIFFERENCE IT HAS MADE TO OUR LIVES."



Belinda Anderson and Ruby Raine.



LESS INVASIVE DRUG ADMINISTRATION ON THE HORIZON

HEALTH IMPACT

Growing up in India, Dr Jayesh Dhanani has always had an interest in helping people access more effective healthcare. Following many years working in respiratory medicine in his hometown of Pune, Maharashtra state, Dr Dhanani saw an opportunity to research a new way of administering vital medicines.

Now, he is on his way to discovering whether inhaling certain drugs could be more effective than traditional methods of administration.

During his years working as a respiratory specialist in India, Dr Dhanani saw many cases of tuberculosis. He observed patients defaulting on medications due to the side effects of the drugs, making it difficult for doctors to treat the infectious disease.

“At the time, I thought there may be a way for patients to inhale the anti-tuberculosis drugs rather than having them injected through an intravenous drip, which would decrease the risk of side effects. However, due to resource limitations I was unable to explore the theory further,” Dr Dhanani said.

Dr Dhanani recently received a first round Metro North Collaborative Research Grant which will allow him to research the pharmacokinetics of inhaled fentanyl and morphine.

The project will directly compare the effects of inhaling pain-relief drugs using a puffer-like device to the traditional intravenous administration widely used throughout the world.

“It is hoped that the inhaled drugs will be released slowly into the blood stream through the lungs, rather than the quick spike that is seen when they are administered intravenously. This would allow medical professionals to provide the same levels of pain relief using less medication, eliminating side effects,” Dr Dhanani said.

“This less-invasive method of administration will also allow us to treat certain groups more effectively, such as children, who’s veins are smaller and therefore more difficult to locate to insert intravenous drips.”

The research team aims to recruit patients and be ready to start the project by early 2020.

The research is supported by the UQCCR and is a joint effort from Professor Michael Reade, Professor Jason Roberts, Associate Professor Victoria Eley and Dr Julian Williams.

UNIVERSITY OF QUEENSLAND CENTRE FOR CLINICAL RESEARCH (UQCCR)

AWARDED \$471,977.65 IN GRANT FUNDING IN 2018

72 PUBLICATIONS CO-AUTHORED WITH MNHHS IN 2018

FOUR CENTRES OF RESEARCH EXCELLENCE (CRE)

- Australian Cerebral Palsy Clinical Trials Network (AusCP-CTN)
- Centre for REdefining antibiotic use to reDUce resistanCE and prolong the lives of antibiotics (REDUCE)
- Centre for Research Excellence in Advanced Cardio-respiratory Therapies Improving OrgaN Support (ACTIONS)
- Centre for Research Excellence in Prostate Cancer Survivorship

WHAT

IS OUR
IMPACT?

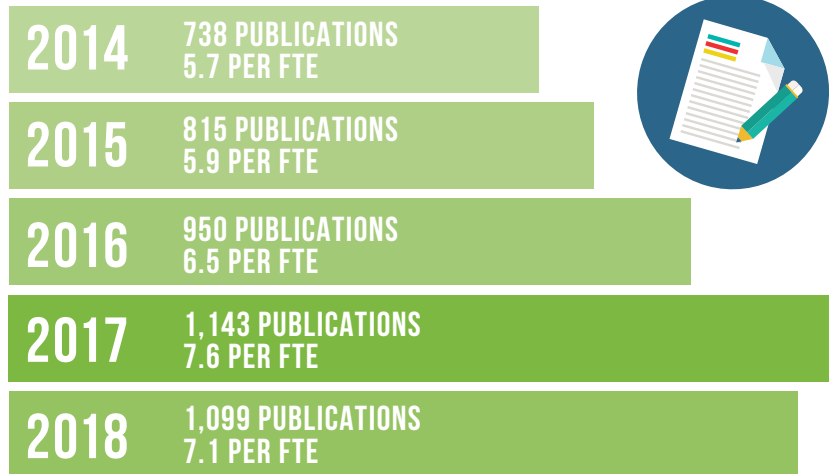
HOW

ARE WE
INFLUENCING
HEALTHCARE?

METRO NORTH RESEARCH IMPACT

The efforts of Metro North researchers are having a significant global impact on the generation and adoption of new knowledge increasing the understanding of complex health needs of our patients. This knowledge supports the innovative development of novel diagnostics, therapeutics and health services to deliver a positive impact on health care delivery. Implementation of our Research Strategy is enabling our researchers to address questions that lead to improvements in the health and socioeconomic outcomes for our patients and community.

METRO NORTH STAFF HAVE AUTHORED OVER
4,745 ACADEMIC PEER REVIEWED
RESEARCH JOURNAL ARTICLES
OVER THE LAST FIVE YEARS, INDICATING OUR
SUBSTANTIAL CONTRIBUTION TO NEW KNOWLEDGE:



CITED BY OTHER
RESEARCHERS OVER **40,815** TIMES

INDICATING THE INFLUENCE OF OUR RESEARCH WITHIN
THE CLINICAL AND ACADEMIC COMMUNITY.

142 POLICY
MENTIONS

INDICATING THE KNOWLEDGE
TRANSLATION OF OUR
RESEARCH AND INFLUENCE
AT A NATIONAL AND
INTERNATIONAL LEVEL

41 COCHRANE
REVIEWS

INDICATING THE HIGH LEVEL
OF RESEARCH EVIDENCE
COLLATED AND EVALUATED
READY FOR KNOWLEDGE
TRANSFER INTO PRACTICE



HOW MANY PARTNERS?

CO-AUTHORED WITH OVER



18,490 RESEARCHERS

THIS EXEMPLIFIES OUR WIDE COLLABORATIVE NETWORKS

50

PUBLICATIONS CITED IN GRANTED PATENTS

CITATIONS WITHIN PATENTS OF SCHOLARLY PUBLICATIONS PROVIDES EVIDENCE ABOUT THE COMMERCIAL INFLUENCE OF OUR ACADEMIC RESEARCH

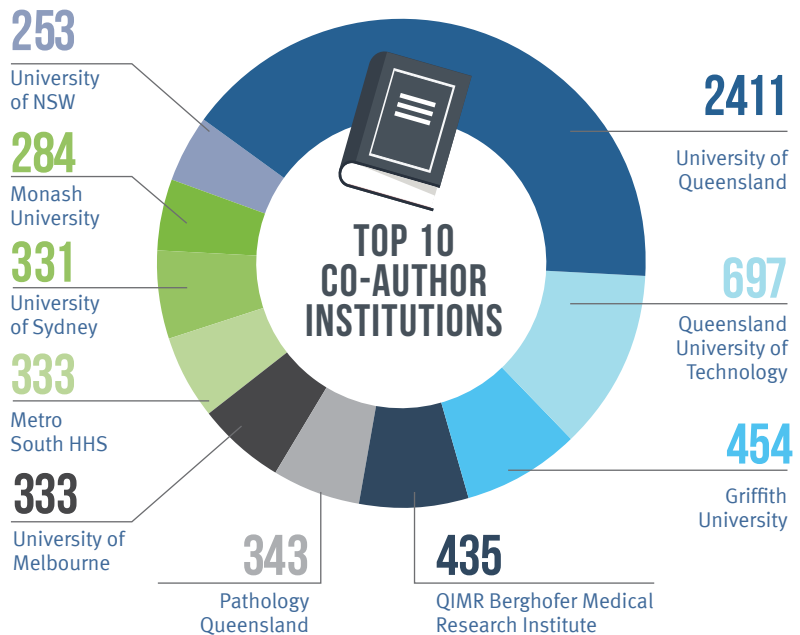
OUR RESEARCHERS FREQUENTLY PUBLISH IN LEADING JOURNALS

1 IN SCIENCE, 7 IN NATURE, 11 IN THE LANCET, 15 IN THE NEW ENGLAND JOURNAL OF MEDICINE, 5 IN JOURNAL AMERICAN MEDICAL ASSOCIATION, AND 14 IN THE MEDICAL JOURNAL OF AUSTRALIA, SINCE 2014



SIX OF OUR FEMALE RESEARCHERS ARE WITHIN OUR **TOP 20 MOST PRODUCTIVE RESEARCH AUTHORS** OVER THE LAST 5 YEARS

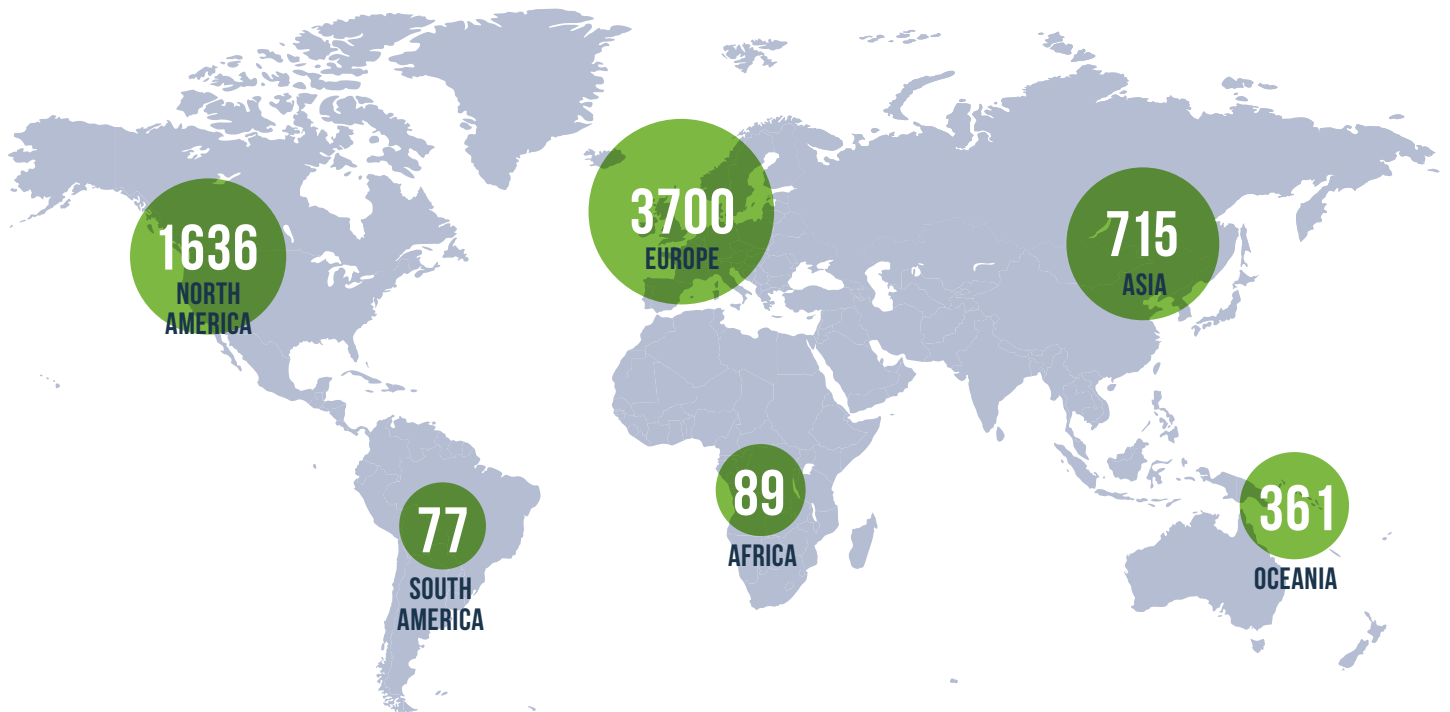
BETWEEN 2014-2018 WE PUBLISHED WITH 12,750 CO-AUTHORS FROM 138 AUSTRALIAN INSTITUTIONS. NUMBER OF CO-AUTHORED PUBLICATIONS (5 YEARS) FOR THE TOP 10 INSTITUTIONS:



WHO DO WE PARTNER WITH?

INTERNATIONAL PUBLICATION COLLABORATIONS

Over the last five years we published with investigators from 1399 institutes across 92 countries:



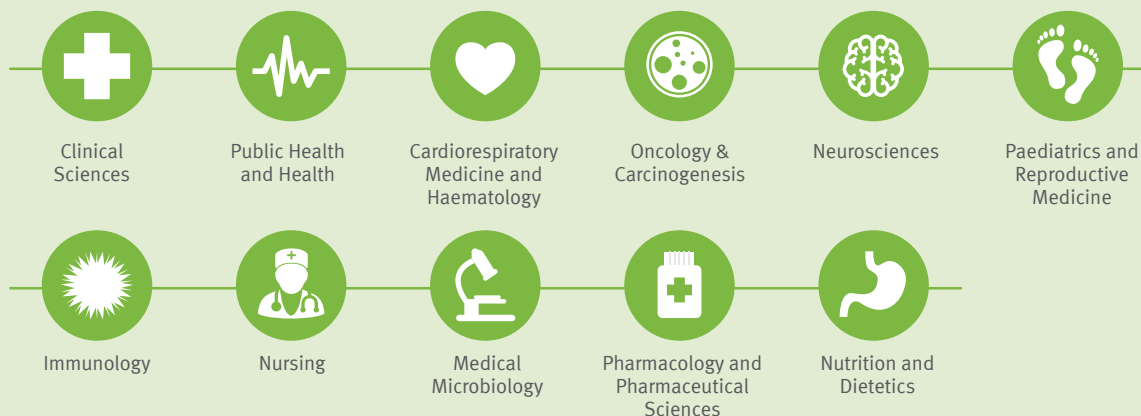
SOME OF THE COUNTRIES METRO NORTH RESEARCHERS RESEARCHERS HAVE CO-AUTHORED PUBLICATIONS WITH:

JAMAICA **BANGLADESH**
ZAMBIA **PERU** CROATIA MONGOLIA
NEPAL **PHILIPPINES**
ANDORRA MALTA TANZANIA
UGANDA **ESTONIA** SLOVAKIA

WE PUBLISHED IN 20 NHMRC FIELDS OF RESEARCH:

Top 3 Fields of Research

1. MEDICAL & HEALTH SCIENCES



2. BIOLOGICAL SCIENCES | 3. PSYCHOLOGY & COGNITIVE SCIENCES

Other Fields of Research (in order)

- Information and Computing Sciences
- Engineering
- Studies in Human Society
- Economics
- Physical Sciences
- Mathematical Sciences
- Chemical Sciences
- Education

We also published in the following Fields of Research: Earth Sciences; Environmental Sciences; Technology; Commerce, Management, Tourism & Services; Law and Legal Studies; Language, Communication & Culture; Studies in Creative Arts and Writing; History & Archaeology; Philosophy and Religious Studies.

OUR RESEARCH WAS MENTIONED
2833 TIMES
IN THE NEWS STORIES OF
45 COUNTRIES

ON AVERAGE,
38% OF OUR PUBLICATIONS
INCLUDE AN INTERNATIONAL
COLLABORATING CO-AUTHOR

OUR TOP 20
ARTICLES OF 2018,
ATTRACTED OVER
10,000

MENTIONS ACROSS
A BROAD RANGE OF
ONLINE
AND **SOCIAL**
MEDIA PLATFORMS

OUR RESEARCH
WAS MENTIONED IN
800
NEWS POSTS ACROSS
29 COUNTRIES
IN 2018

IN 2018
OUR RESEARCHERS COLLABORATED
ON PUBLICATIONS INVOLVING
715 INSTITUTES FROM **60** COUNTRIES

OUR RESEARCH
WAS TWEETED
20,000
TIMES ACROSS
140
COUNTRIES
IN 2018

STUDY BRINGS SAFETY AND MORE UNDERSTANDING AROUND BREECH BIRTHS



KNOWLEDGE IMPACT

Caboolture Hospital is now providing mothers with more informed birthing options around vaginal breech birth (VBB) thanks to a recent study.

Caboolture Hospital Midwifery Educator Janene Rattray said it was common practice for most babies in a breech position to be delivered by a caesarean section because it was considered safer by some professionals than being born vaginally.

“As part of a VBB study of maternity doctors and midwives at Caboolture Hospital differences in the training that professionals experienced for breech management was highlighted,” Ms Rattray said.

“Our study showed that many of the maternity staff were highly experienced in maternity services, yet few were experienced in breech management.”

As part of the study, the Caboolture Hospital and University of Southern Queensland research team conducted evaluations with staff to ascertain knowledge, attitudes, experiences and confidence levels for breech births.

“Surveys highlighted that there was inconsistent information being offered to women about breech births,” Ms Rattray said. “Some clinicians raised concerns that when women chose options such as a breech birth it may not align to standard medical guidelines.”

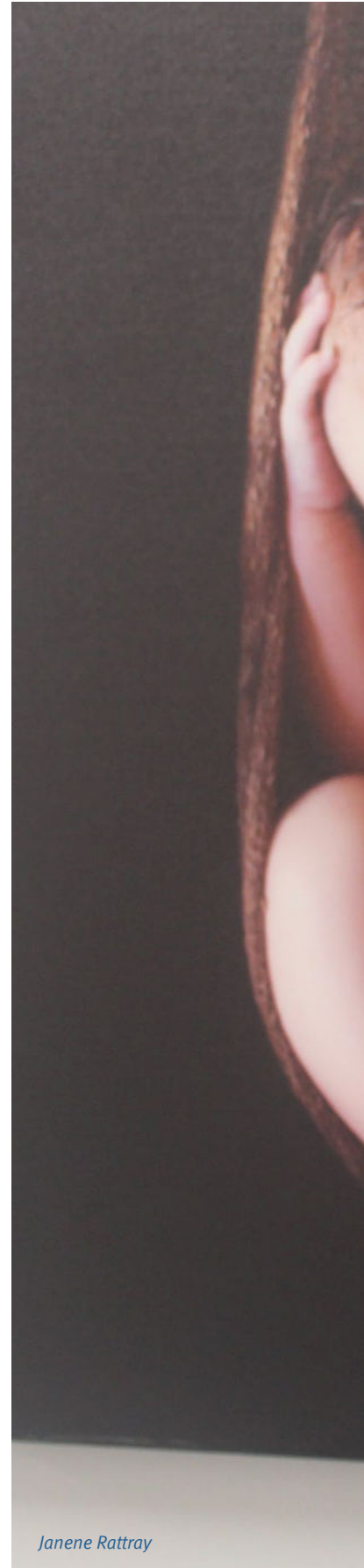
The VBB study led to 40 maternity doctors and midwives from Caboolture Hospital completing multi-disciplinary BABE – Becoming A Breech Birth Expert training.

“This training has increased their knowledge, understanding and confidence in facilitating women’s access to a vaginal breech birth and developed a more consistent approach to maternity care,” Ms Rattray said.

“It has led to the recommendation that maternity clinicians engage in regular, dedicated training for management of breech at term to improve their skills and knowledge to help women make informed choices.”

Ms Rattray said following the training, more than 90 per cent of the participants expressed an intention to discuss all options to women when presenting with a breech baby at the end of their pregnancy.

The findings have been presented at two conferences and will be submitted for publication to suitable peer-reviewed journals.



Janene Rattray



APP HELPS SELF PAIN MANAGEMENT



HEALTH AND SOCIAL IMPACT

Technology is helping people with chronic pain reduce their opioid use. The Pain ROADMAP mobile health platform has been developed using the results of research from Senior Occupational Therapist Dr Nicole Andrews.

As many as 20 per cent of the Australian population suffers chronic pain, which has played a significant role in the increasing rates of opioid dependence.

As a Clinical Specialist in Pain Management, Dr Andrews's PhD research into the relationship between pain, activity and daily function has generated great interest for its role in potentially reducing opioid use in our community.

A large proportion of her thesis papers have now been published including three in PAIN (the official publication of the International Association of the Study of Pain), one of which has earned her a prestigious most cited paper award.

Dr Andrews has used her research to create a mobile health platform, Pain ROADMAP, that's being implemented at RBWH's Professor Tess Cramond Multidisciplinary Pain Centre.

"Pain ROADMAP is a mobile health platform that can identify what activities have caused a severe pain aggravation for individuals with chronic pain through monitoring procedures," Dr Andrews said.

"Clinicians can use this information to provide specific feedback on how pain provoking activities can be altered and develop highly-specific, individualised treatment plans."

A preliminary clinical trial has showed that Pain ROADMAP eliminates activity-related pain exacerbations and has resulted in 70per cent of participants ceasing their "as needed" opioid medication.

Increased productivity and improvements in mood were also observed.

With another seven research projects underway, as well as collaborations with the University of Queensland, CSIRO, Kaiser Research Institute in the US, and Orthopaedic Research Institute in the UK, Dr Andrews is working toward applying her knowledge to improve the self-management of chronic pain conditions.

"We are currently planning for an implementation of Pain ROADMAP across the wider health care system" she said.

"The pain community is very excited about the prospect of being able to use this technology to improve the lives of those who suffer from chronic pain."

CLINICIANS CAN USE THIS INFORMATION TO PROVIDE SPECIFIC FEEDBACK ON HOW PAIN PROVOKING ACTIVITIES CAN BE ALTERED AND DEVELOP HIGHLY-SPECIFIC, INDIVIDUALISED TREATMENT PLANS.

Dr Andrews was named Rising Star at the 2018 Metro North Research Excellence Awards.

NICOLE'S RESEARCH IMPACT

91% OF HER PUBLICATIONS ARE IN THE **TOP 25**

RECEIVED THE **MOST CITED PAPER AWARD IN THE JOURNAL PAIN** FOR 2015

TURNING TIDE ON DEADLIEST CANCER



KNOWLEDGE AND HEALTH IMPACT

A team at The Prince Charles Hospital Department of Thoracic Medicine is using new technology to advance lung cancer screening in a bid to increase survival rates worldwide, under the guidance of Professor Kwun Fong.

Lung cancer is the deadliest cancer in the world—it takes more lives than breast and ovarian cancers combined—a driving factor behind the scientist-clinician’s impressive track record in securing more than \$20 million in funding across six grants, co-authoring more than 200 publications and mentoring more than 40 higher research degree students through the University of Queensland School of Medicine.

Professor Fong’s early work after completing his PhD in Brisbane led to highly-cited publications including a 2005 paper in the *Journal of the National Cancer Institute* on epidermal growth factor receptor gene mutations in lung cancer, which has been cited 1,464 times.

“Lung cancer accounts for almost 19 per cent of deaths because it is typically diagnosed at an advanced stage, which greatly reduces the efficacy of even the most cutting-edge treatments,” Professor Fong said.

Thanks to the generous participation of selfless patients, the team at TPCH established a lung cancer tissue bank which has enabled collaboration with The Cancer Genome Atlas project, through the US National Cancer Institute, National Institutes of Health.

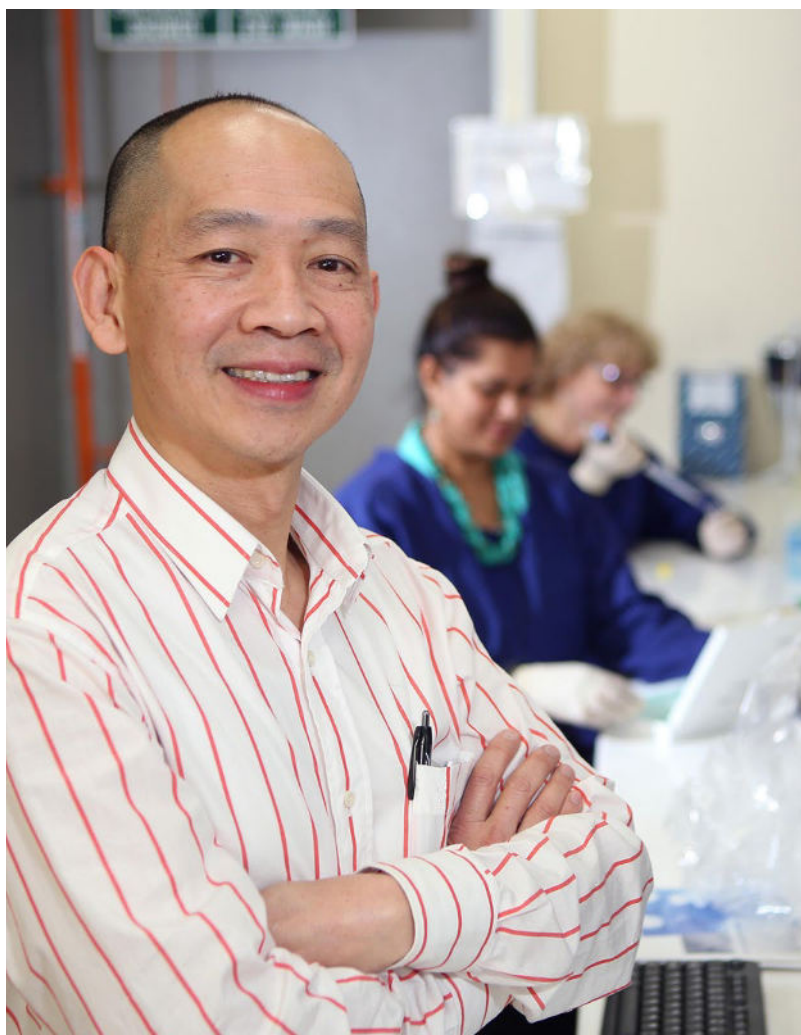
The team is carefully annotating crucial clinical, demographic and outcome (survival and recurrence) data on lung cancer tissues, generously donated by research volunteers for nearly 20 years, to make possible new scientific laboratory-based discoveries, in collaboration with the University of Queensland Thoracic Research Centre.

Under Professor Fong’s leadership, the team is also part of a multicentre, international low-dose CT screening study which is recruiting 4,000 participants across Australia and Canada. Aimed at drastically improving the efficiency of CT screening for those at high risk, the trial is already saving lives.

“This trial aims to identify ways we can detect lung cancer in its early stages using state-of-the-art, low-dose CT scanners, incorporating Computer Aided Diagnosis (CAD) advanced imaging technology,” Professor Fong said.

“This should help in improving CT lung screening success rates selecting and screening those who are at highest risk, and thus, most likely to benefit.”

In 2018, Professor Fong was named Metro North Researcher of the Year in honour of his commitment and extensive contribution to the field of lung cancer research.



Professor Kwun Fong

STUDY OF NEW CATHETER DESIGN



KNOWLEDGE IMPACT

Each year more than 25 million intravenous catheters are used in healthcare throughout Australia – a portion of the 1.8 billion used globally.

However, for the most commonly used invasive medical device worldwide, current failure rates are unacceptably high at 40 to 50 per cent.

Royal Brisbane and Women's Hospital Cancer Care Services is starting a pilot study involving 60 patients to test a new design for the catheter.

Metro North Nurse Researcher Dr Nicole Gavin and QUT Professor Samantha Keogh are leading the trial of the new device which is designed to allow fluids to empty into the blood stream via multiple points.

"The current design is a hollow tube with single entry and exit points that is inserted into the vein to provide essential fluids, medications and blood products," Dr Gavin said.

"We know that flushing through the standard catheter changes the turbulence within the vein, which can cause vein collapse or blood clots with the potential to lead to stroke and other critical conditions.

"A new catheter has been designed to minimise the harmful pressure created at the end of the device when fluids are given, and we will test its ability to minimise negative side effects."

The study involving patients being treated for cancer, will test the feasibility of the new device across several categories including patient and clinician satisfaction and will be conducted in the Medical Imaging setting when patients undergo routine CT scanning.

"Throughout diagnosis and treatment, these patients will require many scans and often more than one CT scan, so this provides the ideal scenario for the device to be tested," Dr Gavin said.

"During a scan, patients are injected with CT contrast through a catheter which is most often placed in the arm. The high-pressure flow of the contrast generally increases the risk of damage to veins and surrounding tissues."

While the results may be positive for a broad range of patients, the study will focus on patients with cancer because the outcomes are extremely important for this cohort.

"Cancer patients are high-end users of catheters and other vascular devices to receive treatments intravenously, and preservation of vessel integrity and reduction of infection risk are some of the highest priorities for this vulnerable patient group," Dr Gavin explains.

"We cannot treat cancer without vascular devices and I'm motivated to ensure that we continue this research to find the best possible alternatives to better patient care and safety."

Dr Gavin is optimistic the results of the pilot trial at RBWH may form the basis for a larger study in the future.



The catheter trial research team

ANTHONY BLYGH FOCUSED ON IMPLEMENTATION SCIENCES



KNOWLEDGE IMPACT

Metro North Mental Health Director of Psychology Anthony Bligh is becoming a travelling spokesperson for implementation science through his involvement in the Graduate Certificate in Health Services Innovation.

Part of the first cohort of Metro North staff undertaking in the graduate certificate, Mr Bligh sees a huge benefit in improving knowledge translation skills.

“I see it as a blueprint to do things differently and more successfully,” he said.

An experienced researcher, Mr Bligh was first approached about taking part in the certificate by Dr Gail Robinson, Metro North Mental Health’s Director of Medical Services.

“My first thought was ‘I’m too busy’. Then I read about the course and I saw my role description reflected back at me,” Mr Bligh said.

“It was directly relevant to the challenges of my job and the need to learn how to do things better.

“It’s hard to find the time, but there’s no doubt about the benefit. I’ve recommended it to colleagues.”

Having started the certificate in February 2018, Mr Bligh will begin his second semester with an ongoing evaluation of a Cognitive Behavioural Therapy for Psychosis project that was also successful in Metro North’s SEED (Support, Explore, Excel, Deliver) Innovation Funding Program.

“With this project we have been focused on implementation science from the word go: how can we do better to make the implementation of interventions in mental health more of a success.

“I’d really like to see more mental health involvement in the graduate certificate. There’s a lot to learn in this space about following the evidence base more strongly to achieve effective implementation.

“It’s about putting great ideas into practice.”

Mr Bligh has a range of research projects behind him, most notably in alcohol and drug treatments and co-existing mental health disorders. He also has a strong interest in depression, anxiety and PTSD, as well as involvement in the supervision and training of psychology students. Most recently he has refocused on clinical work.

WITH THIS PROJECT WE HAVE BEEN FOCUSED ON IMPLEMENTATION SCIENCE FROM THE WORD GO: HOW CAN WE DO BETTER TO MAKE THE IMPLEMENTATION OF INTERVENTIONS IN MENTAL HEALTH MORE OF A SUCCESS.



Anthony Bligh

FOOT DISEASE – THE SILENT INPATIENT BURDEN



ECONOMIC AND KNOWLEDGE IMPACT

A Metro North-led research study has highlighted a health condition silently affecting large numbers of hospital inpatients throughout the world.

The world first study, led by Dr Pete Lazzarini from Metro North's Allied Health Research Collaborative, based at The Prince Charles Hospital, investigated the prevalence and predictors of foot disease and other foot complications in inpatients across five Queensland hospitals.

The research team assessed all inpatients within the five hospitals, looking at their demographics and medical histories, and to determine whether they had foot disease disorders and other foot complications, and if these foot disease disorders or complications were the reason they were admitted to hospital or needed amputation.

Dr Lazzarini said the study found that five per cent of all inpatients were in hospital for the primary reason of treating foot disease, while another five per cent of all inpatients also presented with active foot disease despite this not being the reason for their admission.

Nearly half of all inpatients had at least one foot complication, approximately a quarter of inpatients had more than two foot complications, and two per cent of all inpatients had had an amputation procedure during their current inpatient hospital stay.

These findings equate to foot disease being in the top 10 causes of all hospitalisations in Australia with an estimated cost to the health care system of approximately \$1.6 billion annually.

"The findings from our study indicate that foot disease in hospitalised patients is a significantly under recognised condition, but has serious consequences for patients and the hospital system," Dr Lazzarini said.

The study also challenged common belief through identifying that over half of all inpatients with foot disease did not have diabetes. Researchers found that the factors independently linked with having foot disease were diabetes, stroke, arthritis, smoking, male gender and being Indigenous.

"These findings indicate that one in 20 of all inpatients in our hospitals on a given day, are in hospital because of foot disease. Foot disease is already well-known to result in longer than average hospital stays, is the biggest reason for amputations and causes significant morbidity," Dr Lazzarini said.

"If we are to reduce a considerable existing burden on the hospital system, the management of foot disease should be prioritised and mainstreamed like more common conditions which cause hospitalisation such as heart disease, lung disease and kidney disease."

Recommendations of the study included improved admission triage processes, implementation of inpatient foot disease units in hospitals, access to outpatient multi-disciplinary foot services for all people with foot disease, and the annual reporting and monitoring of foot-disease related hospital admissions across Australia.

On the back of these findings, Dr Lazzarini said has been awarded an Early Career Fellowship from the National Health and Medical Research Council to investigate the national incidence and predictors of foot disease hospitalisation.



Dr Pete Lazzarini from Metro North's Allied Health Research Collaborative led the world first study on the prevalence of foot disease in hospital inpatients

IMPROVING STRENGTH IN OLDER ADULTS DURING PERIODS OF RESTRICTED WEIGHT-BEARING



KNOWLEDGE IMPACT

For older adults, being confined to bed due to a serious trauma can quickly lead to reduced muscle strength and function.

An innovative new study at Community and Oral Health is looking at ways we can reduce the impact of strength loss in older adults who are not allowed to fully weight bear early after suffering a broken bone.

Community and Oral Health Senior Physiotherapist Dr Ann Rahmann said for older adults there were possible strategies that may reduce the effects of immobilization and improve health care outcomes.

“One of these techniques is motor imagery where the person imagines themselves doing an activity like standing up or walking,” she said.

“Motor imagery is regularly used by sportspeople to train and condition the brain, for example a golfer will mentally rehearse the swing he will use to hit a drive without actually performing the swing.

“Research has shown that motor imagery techniques are useful for improving the performance of athletes, or recovery of people who have suffered strokes, spinal cord injury or Parkinson’s disease.”

The Motor imagery in older adults trial will be undertaken at both the Brighton Health Campus and the Residential Transition Care unit at Zillmere.

“Motor imagery will be added to standard physiotherapy care to see if it improves strength in subacute rehabilitation patients during the restricted weight bearing period,” Dr Rahmann said.

“Around 100 subacute patients aged 65 years or more with restricted weight bearing conditions will be recruited for the study over the next two years.”

Participants will be allocated to either the standard physiotherapy (Control) or standard physiotherapy plus motor imagery (Experimental) group, with participants in the motor imagery group undertaking motor imagery training using narrated videos on an iPad for 15 minutes each day for four weeks.



Brighton Health Campus Senior Physiotherapist Dr Ann Rahmann will be working with the Australian Catholic University to investigate the benefits of motor imagery to help older adults minimise the loss of muscle strength when confined to bed

Dr Rahmann anticipated that participants in the experimental group would maintain better muscle strength than those in the control group.

“The significance of this research is its potential to minimise the loss of strength in older adults and influence clinical practice within the gerontology and rehabilitation setting,” she said.

The trial is a partnership between Community and Oral Health and the Australian Catholic University, involving co-investigators Dr Ann Rahmann from the Brighton Rehabilitation Unit and Dr Vaughan Nicholson from the Discipline of Physiotherapy.

Community and Oral Health is also delivering 34 research trials and activities in the areas of pressure injuries, social inclusion for the elderly, nutrition, speech therapies, and physiotherapy.

CLINICIAN RESEARCH FELLOWSHIPS 2019

Metro North has awarded its first Clinician Research Fellowships, providing four years of clinical backfill for clinicians to enhance their research capacity.

The Fellowships will ensure a strong foundation of evidence-based health care through high-quality research that is embedded within Metro North services to provide better health outcomes for patients.

DISCOVERY DR SIOK TEY

Senior Staff Specialist Dr Siok Tey is fighting cancer with state-of-the-art technology modern methods at Royal Brisbane and Women's Hospital.

Funding through the Clinician Research Fellowships is enabling Dr Tey and a team of scientists to work together with her clinical colleagues to conduct cutting edge research using cell and gene therapy to treat cancer and complications of cancer treatment.

"There is now a new form of cancer treatment using genetically modified immune cells. We are bringing to Metro North this treatment where we take immune cells out of the patients, genetically modify them in the lab so that they are better at killing cancer, and grow them up to millions and millions of cells," Dr Tey said.

"We can then put these enhanced immune cells back into the patient so that they can kill the cancer."

The time Dr Tey spends working as a clinician, enabled by the Fellowship, is a vital component of her research.

"For me, to bring what I develop in the laboratory and my scientific expertise into the clinical sphere, I have to work closely with the hospital because it is the clinical need that drives the research," she said.

"Our research is very proximate to the patients, very clinically relevant. The Fellowship enables me to work closely with my clinical colleagues and the entire clinical team, and together we have made good progress on this big undertaking."



"Hopefully we can start to treat our first patients within the next nine months. It sounds like a long way away but for this type of research, that's how long it really takes to bring this to patients."

Her paper for which she was the second author "Inducible apoptosis as a safety switch for adoptive cell therapy" published in 2011 in the *New England Journal of Medicine (NEJM)* has been cited over 660 times with a field weighted citation impact score of 51.74. This same paper has been cited 76 times in patent literature.

DISCOVERY

DR DON McLEOD



Dr Don McLeod is a Senior Staff Specialist in Endocrinology and Diabetes at Royal Brisbane and Women's Hospital and The Prince Charles Hospital conducting a wide scope of research into thyroid disease.

The Clinician Research Fellowship has allowed Dr McLeod to delve deeper into the root causes and treatments of thyroid cancer, autoimmune thyroid disease and Graves' disease.

"The beauty about having time to have make a large research program is that you can have projects in all research stages of discovery, innovation and implementation. I have four large projects already underway and the Fellowship allows me to broaden them further," Dr McLeod said.

"I'm conducting research into thyroid cancers including the genetics of thyroid cancer and am looking at the patterns of disease in patients who have died of thyroid cancer.

"I'm looking at the causes of Graves' disease, whether it's bacterial or microbial and I am also assessing possible triggers of disease in people who come from high stress military backgrounds."

Lead author on the paper: "Controversies in primary treatment of low-risk papillary thyroid cancer" published in 2013 with 118 citations and 11.2 field weighted citation impact.

"I LOVE DOING MY CLINICAL WORK AND I LOVE SEEING PATIENTS SO I DON'T EVER WANT TO GIVE THAT UP BECAUSE IT IS REALLY CRITICAL TO HAVE THAT FACE-TO-FACE TO DRIVE IMPROVEMENTS IN HEALTHCARE."

Being a clinician and a researcher allows Dr McLeod to ask different questions that are more clinically relevant and get to the heart of why delivering healthcare and try to keep people well.

"I love doing my clinical work and I love seeing patients so I don't ever want to give that up because it is really critical to have that face-to-face to drive improvements in healthcare," he said.

"This farsighted program is really going to drive research across Metro North for the benefit of our patients and the wider community."



DISCOVERY

ASSOCIATE PROFESSOR ANDREW MALLET



Royal Brisbane and Women’s Hospital nephrologist Associate Professor Andrew Mallett has a special interest in researching and looking after people with genetically or inherited kidney disease (GKD).

“One in 80 to one in 100 adults will have GKD and we don’t understand it anywhere near well enough, so it follows that we cannot treat what we don’t understand,” Assoc Prof Mallett said.

“Our research is the discovery work to understand the underpinnings of GKD, so that we can hopefully, in 10 to 20 years, find cures.”

The Fellowship is critical in allowing Assoc Prof Mallett to pursue clinician researcher pathways.

“Traditionally in Australia, you’re one or the other, a researcher or a clinician,” he said.

“The motivation for me to apply for the Fellowship was seeing that there was another way to be and do both - conduct research and be a clinician.

“It allows me to balance my clinical and research load because I can take up more opportunities, work with more and new people, and learn new skills to bring all skillsets together to make new discoveries and, ultimately, make a real difference.

“That’s what research is all about, learning new skills and applying them to find answers to questions, and sometimes we find questions that we never knew we weren’t answering.”

Assoc Prof Mallett’s research into GKD is broad and the Fellowship allows him to leverage significant current and future clinical and research opportunities.

His 2017 paper “Massively parallel sequencing and targeted exomes in familial kidney disease can diagnose underlying genetic disorders” published in *Kidney International*, for which he was the lead author has a field weighted citation impact of 2.66 and has already been cited 11 times.

“This will help me understand genetic conditions that are related to kidney disease and then, with this new knowledge, look towards new research applications such as clinical trials. The future that I envisage is vastly different to what we are doing today.”

“OUR RESEARCH IS THE DISCOVERY WORK TO UNDERSTAND THE UNDERPINNINGS OF GENETICALLY OR INHERITED KIDNEY DISEASE, SO THAT WE CAN HOPEFULLY, IN 10 TO 20 YEARS, FIND CURES.”



INNOVATION

DR CLARE BURNS

Speech pathologist Dr Clare Burns is passionate about telehealth, with her research bringing clinical services closer to home for patients with swallowing and communication disorders.

The Clinician Research Fellowship is enabling Dr Burns to take the next step, developing two new models of care for patients with swallowing disorders.

“For the first model, we are developing an integrated telehealth service to improve access to rehabilitation for patients with swallowing difficulties,” Dr Burns said.

“We will be using live videoconferencing coupled with a software application accessed via the patient’s mobile device to provide an individualised therapy program.

“Patients usually come into a speech pathology clinic or the clinician travels to their home to access their swallowing rehabilitation. The new personalised telehealth model will guide patients through their therapy at a time and place that is convenient to them, while receiving remote monitoring and support from their speech pathologist.”

The second service will develop a clinical model delivering the instrumental assessment, Fibreoptic Endoscopic Evaluation of Swallowing (FEES) via telepractice.



“This model aims to increase the efficiency of diagnostic swallowing services and support the expansion and sustainability of FEES services across our district,” she said.

Dr Burns’s research through the Fellowship aims to establish these new telepractice models within speech pathology services across Metro North and has the potential for expansion to other clinical services using similar assessment and rehabilitation models.

IMPLEMENTATION

DR ALISON MUDGE

The Eat Walk Engage program has been a tremendous success at Royal Brisbane and Women’s Hospital, with evidence showing simple measures such as better mobility and keeping minds active can reduce delirium in older patients.

The Clinician Research Fellowship has enabled physician Dr Alison Mudge to take the next step with her research into delirium prevention and extend the scope of implementing better practice.

“Delirium affects around one in three older people in hospital but the condition still under recognised by many medical, nursing and allied health professionals,” Dr Mudge said.

“It increases risks in falls, complications, length of hospital stays, higher risk of going to a nursing home, increase in risk of death and there is even compelling research that it increases the risk of dementia.

“The Eat Walk Engage program focuses on the small things that are fundamental to good care. It helps staff encourage and assist our patients to be mobile, eat and drink enough, and have things to keep their minds active — things that are often taken for granted but often missed.”

“WE WILL BE USING LIVE VIDEOCONFERENCING COUPLED WITH A SOFTWARE APPLICATION ACCESSED VIA THE PATIENT’S MOBILE DEVICE TO PROVIDE AN INDIVIDUALISED THERAPY PROGRAM.”

The Clinician Research Fellowship will provide Dr Mudge time to think about how to translate the work that she’s doing at RBWH into a whole lot of smaller, middle sized, larger, rural and city hospitals around Australia.

“It really is an enormous opportunity for our team to lead change and deliver better care to older patients on the ward through team-based and evidence-based practices which reduce delirium,” she said.

Policy Citations
UK National Institute for Health and Care Excellence (NICE)
US National Academies Press

THE RESEARCHERS CONCLUDED THAT SESQUIZYGOSIS—WHEREBY TWINS ARE GENETICALLY IDENTICAL TO EACH OTHER WITH RESPECT TO ONE PARENT BUT DIFFER FROM EACH OTHER BY APPROXIMATELY 50% WITH RESPECT TO THE COMPOSITION OF DNA INHERITED FROM THE OTHER PARENT

QUEENSLAND RESEARCHERS IDENTIFY A THIRD TYPE OF TWIN



KNOWLEDGE IMPACT

Most people have heard of two types of twins – colloquially referred to as identical (monozygotic) twins, and fraternal (dizygotic) twins.

As a world first, in a paper published in the *New England Journal of Medicine*, a team of researchers theorised a third, much rarer, form known as sesquizygotic twinning existed.

The research team included RBWH Maternal Fetal Medicine staff specialists Dr Renuka Sekar and Dr Johanna Laporte and genetic counsellor Pauline McGrath, cytogeneticist Dr Adayapalam Nandini, and geneticist Dr Michael Gabbett and QUT Professor Nick Fisk.

Monozygotic twins are genetically identical individuals from a single sperm and egg. Dizygotic twins share

approximately 50 per cent of their DNA sequence identity (the same as full siblings).

The third postulated form—sesquizygosity—is where individuals share between 50 and 100 per cent of genetic identity.

The research came about when routine first-trimester ultrasounds scans of a 28-year-old Queensland woman showed unequivocally what was identical (monozygotic) twins. But at 14-weeks, further scans showed that one foetus appeared to be male, and the other female.



Genetic studies determined that the twins appeared to be neither identical nor fraternal.

Instead the twins were found to be 100 per cent maternally identical and 77.7 per cent paternally identical, meaning they shared an identical maternal DNA but two separate paternal sets of DNA.

The results were compared with data on fraternal (dizygotic) twins and large population-based sibling studies, which yielded no other evidence of sesquizygotic twins.

The researchers concluded that sesquizygosis—whereby twins are genetically identical to each other with respect to one parent but differ from each other by approximately 50 per cent with respect to the composition of DNA inherited from the other parent — is a third, and rare, form of twinning.

Genetically, sesquizygosis is on a continuum between monozygosis and dizygosis. It's believed to occur when two paternal sperm fertilise the same maternal egg at a particular juncture, resulting in two paternal genomes and one maternal genome.

STUNNING NEW SKIN CANCER IMMUNOTHERAPY TREATMENT ON TRIAL



HEALTH IMPACT

Results of a new immunotherapy treatment being trialled at Royal Brisbane and Women's Hospital Cancer Care Services are signalling a major advancement in the treatment of patients with advanced squamous-cell carcinoma (SSC) skin cancer.

Senior Medical Oncologist Dr Brett Hughes is leading the clinical trial at RBWH as part of a global study which will evaluate the effectiveness of Cemiplimab, an anti-Programmed cell Death 1 (PD-1) immunotherapy treatment.

Immunotherapy, which allows the patient's own immune system to fight cancer, has revolutionised cancer treatment over the past decade and has made a significant impact on survival rates in other cancers.

However, for patients with incurable SSC, a poor prognosis of less than 12 months is common with standard chemotherapy as until now there have been no effective therapies.

"Since commencing the trial we've found an impressive response rate to the drug of 47 per cent, one of the highest responses to immunotherapy of all cancer types and much higher than what we would expect from chemotherapy," Dr Hughes explained.



Dr Brett Hughes

"Many patients have responded within the first two months of treatment and we are seeing the cancer being controlled on average for more than 18 months after commencing treatment – four times as long as we expect chemotherapy to be effective for."

While incurable skin cancers are uncommon in other parts of the world, skin cancer rates in Australia are higher than average, making the benefits of this new treatment important locally.

"The benefits of this drug for patients are far superior to that expected from chemotherapy, and with fewer side effects."

"The side effects of immunotherapy are manageable for the majority of patients. We are seeing our patients getting back to work and living their lives throughout treatment."

Recruitment of patients into the trial, which does not include a placebo, is ongoing, with 16 patients from across Queensland already involved.

"The trial is not randomised and there is no placebo, and the results are so effective that it would almost be unethical to randomise such a trial in the future," Dr Hughes said.

"Patients are able to see the results themselves, they are visible and exciting to see."

SINCE COMMENCING THE TRIAL WE'VE FOUND AN IMPRESSIVE RESPONSE RATE TO THE DRUG OF 47 PER CENT

HARNESSING RESEARCH OPPORTUNITIES IN BUSY EMERGENCY DEPARTMENT



KNOWLEDGE IMPACT

More than 60,000 patients present to the Redcliffe Hospital Emergency Department each year. The volume and variety of cases presenting to the hospital each year provide a rich source of research opportunities for clinicians.

To make the most of research opportunities for patient improvement, the Emergency Department at Redcliffe Hospital has a new goal – for all clinicians to be actively involved in research at some level by 2021.

It's an ambitious goal, but an achievable one, according to Dr Catherine Forristal, who joined the Emergency Department team last year as its first Research Manager, a position funded by the Emergency Medicine Foundation and Redcliffe Hospital Private Practice Trust Fund.

“Our goal is to have all staff members in the department involved in research at some level; from small quality improvement studies to large clinical trials,” Dr Forristal said.

“It's about building a culture of research in the department, where emergency clinicians focus on the patient in front of them; while improving patient care for the many who will follow.

“Our primary aim is to improve patient care and clinical outcomes in the Emergency Department, and the projects our clinicians work on are focused on improving the emergency care that patients receive.

“We're talking about research that translates to improving the diagnosis, treatment and care pathways for emergency department patients.”

That culture of research got a boost last year when, for the first time, medical interns in the Emergency Department were required to complete a research audit aimed at improving patient care.

“That initiative alone delivered 27 research audits. Two exemplary projects investigating pre-school wheeze and febrile neutropenia have resulted in significant change to clinical practice,” Dr Forristal said.

“It also created a buzz around research in the department; now we are seeing more and more clinicians coming up with their own research initiatives based around the care we provide patients in our department.”



Dr Catherine Forristal

That surge in support for research in the Emergency Department has already been instrumental in supporting four publications, grant applications and preparations for two clinical trials.

“We're committed to sustaining that buzz over the longer term and over the next couple of years, that research activity will become part of what everyone here does,” Dr Forristal said.

ROYAL BRISBANE AND WOMEN'S HOSPITAL FOUNDATION

RBWH Foundation is committed to ensuring Royal Brisbane and Women's Hospital remains at the forefront of healthcare in Queensland by providing funds for research, equipment, education and patient care initiatives that fall outside government funding.

Being a part of the Hospital, and helping to be the best it can be, is a privilege. We are honoured to work with and support some of the country's most brilliant researchers and medical practitioners across a diverse range of healthcare specialties. We are also honoured to work with extremely generous individuals, businesses, and the community at large through our fundraising activities.

The generosity of these people and organisations is humbling, and we are truly grateful to them for their conviction to invest in the advancement of medical research and other initiatives to further improve patient outcomes at our hospital.

Chief Executive Simone Garske said the support we received through donations, sponsorships, bequests and participation at our various events in 2017-18 enabled RBWH Foundation to distribute \$6.8 million to the hospital. Of this, 84 per cent or \$5.7 million was given to fund a myriad of research projects across different departments on the campus.

"I am in awe of the medical practitioners at RBWH and have seen time and again that our donors' investment in their research and innovation reaps invaluable returns for our patients, both now and in the future," Ms Garske said.

One of the Foundation's key goals is to foster new researchers by providing 'seed funding' to enable their projects to be established and evidence gathered to support applications to larger funding bodies. One of the key ways it does this is through its annual Research Grant Awards program. This program is competitive with all applications reviewed on merit by RBWH's Research Advisory Committee. Based on its recommendations, grants are awarded to both new and established research projects.

In 2018, in conjunction with the Private Practice Trust Fund, \$2.9 million was distributed through grants, scholarships and fellowships. This included 36 Research Project Grants, 15 Research Postgraduate Scholarships and five Research Postgraduate Scholarship Top Ups.

One of the grants awarded in 2018 was for a world-first study that that could potentially save lives and improve outcomes for stroke victims. The SPIDER Study (Stroke Prehospital Informed Decision-making using EEG Recordings), pioneered by RBWH and Queensland Ambulance Service (QAS), involves placing hospital-grade scientific equipment in the back of ambulances to allow for more timely and accurate diagnosis of stroke. It is hoped this will enable a stroke and its severity to be identified early, allowing QAS to activate the health system pathways and transport the patient in a timely manner to the most appropriate facility. This innovative investigation has already received media attention and RBWH Foundation is extremely proud to have been able to support it.

Aside from its annual Research Grant Awards program, RBWH Foundation has strong collaborations with several key research groups on the campus. These groups include the Burns, Trauma and Critical Care Research Centre, the Perinatal Research Centre, the Motor Neurone Disease Research Group and Cancer Care Services. Many of these groups also work closely with the Foundation to raise the funds needed and have established tied funds which they are able to draw on when needed.

To find out more about RBWH Foundation, the projects and programs it funds, and its fundraising activities, visit www.rbwhfoundation.com.au



THE PRINCE CHARLES HOSPITAL FOUNDATION

The Prince Charles Hospital Foundation continues to partner with world leading researchers across all disciplines and departments at The Prince Charles Hospital.

The Foundation is committed to providing sustainable funding for medical innovation and discoveries that will both improve and save lives. They are a collective of people including patients, scientists, funders, engineers, advocates, medical and allied health teams all coming together to support and sustain the efforts that are determined to improve the chances for leading healthier, happier and longer lives.

In 2018, TPCH Foundation distributed over \$5 million in research funding, making this its single largest funding allocation in the 32-year history of the Foundation. This funding was made possible through the remarkable generosity of everyday people—the mums and dads, individuals and businesses who donate to and are part of The Common Good, which is an initiative of the Foundation that brings people together to power medical discoveries.

Delivering sustainability to researchers and innovative research projects is an important objective of the Foundation. In 2018, they provided \$1 million in sponsorship funding to six highly productive research teams, The Adult Cystic Fibrosis Centre Multi-Disciplinary Research Team, Critical Care Research Group, Innovative Cardiovascular Engineering and Technology Laboratory, IHBI Cartilage and Skeletal Biology Research Group, The Prince Charles Hospital Community Gut and Liver Research Group and Qld Lung Transplant Research Program. This recurrent funding was made on a three-year basis to support new and current projects of these teams.

Last year, a new grant program was also released – Innovation Grants. Two rounds were offered in 2018 with 20 new projects funded. These one-year grants funded new, innovative research projects that aim to improve patient outcomes and included projects to investigate diabetic foot ulcers, to define spirometry reference values for Aboriginal and Torres Strait Islander peoples, to diagnose pleural effusions using exosomes and to develop small muscle training for heart failure patients.

TPCH Foundation continues to support researchers at all stages of their careers including 21 New Investigator Grants, four PhD Scholarships and two post-doctoral Research Fellowships. The New Investigator Grants continue to launch research careers, with first-time researchers able to obtain their first grant and run their first research project under the mentorship of senior researchers in their field.

Another initiative launched in 2018 was the Caboolture Small Grants Scheme. In association with Caboolture Hospital, we awarded four small grants to researchers at Caboolture to support studies that have already commenced.

To help understand the outcomes and impact of the funded research, TPCH Foundation engaged the Australian Centre for Health Services Innovation (AusHSI) to evaluate previously awarded grants. This evaluation identified that 40 per cent of grants lead to a change in clinical practice and improved patient outcomes, while 80 per cent of the studies were published in peer-review journals.

Other outcomes from research funded by TPCH Foundation included:

- the work led by nurse researcher Amanda Corley, which has established a baseline and understanding of infections related to the securement of cannulas used in extracorporeal membrane oxygenation, which will help inform future practice;
- the research conducted by the Cystic Fibrosis Research Team also changed international practice and infection control guidelines through their research looking at cough aerosols; and,
- the research lead by Prof Greg Scalia identifying new ways that echocardiography can diagnose cardiac conditions without the need for invasive tests.

All of this was made possible through the extraordinary community and corporate support provided to TPCH Foundation. They continue to maximise donor contributions by operating commercial businesses like our social enterprise cafes at TPCH and offsite at the Kedron Emergency Services Complex to help self-fund its charitable operations.

The Foundation looks forward to continuing to support a diverse range of projects across the whole research continuum from basic science to clinical research and implementation. As an organisation, TPCH Foundation is excited to partner with the basic scientists, engineers, allied health, nursing and medical staff to together find ways for people to recover faster, live healthier and enjoy quality time for longer. To find out more, visit thecommongood.org.au.



THE COMMON GOOD
THE PRINCE CHARLES HOSPITAL FOUNDATION

EARLY-CAREER RESEARCHERS FIRST IN LINE FOR COLLABORATIVE RESEARCH GRANTS



In a first of its kind, seven early career research grants have been awarded from a funding collaboration between the Metro North Office of Research, the University of Queensland, Queensland University of Technology, and QIMR Berghofer.

Executive Director of Research Professor Scott Bell said this is an exciting step in fostering strong research careers early.

“Early career researchers can find it difficult to access funding, so this is precedent-setting for us,” Professor Bell said.

“The grants are an excellent way of building long-term collaboration between clinicians, researchers and academics, and to continually strengthen our research programs, results, and ultimately, outcomes for our patients.”

Research partners The University of Queensland, QUT, and QIMR Berghofer matched funding for the grants.

One of the grants went to the investigative team led by early career researcher Dr Chandima Divithotewala of The Prince Charles Hospital (TPCH), and investigators Dr Timothy Wells (UQ), Professor Daniel Chambers (TPCH and UQ), and Ms Amy Pham (UQ) for a study on infections in lung transplant recipients.

“This grant is a fantastic opportunity to further our research with the team at The Prince Charles Hospital,” Dr Wells said.

“Our collaboration started by only investigating a small number of samples, however has already led to novel treatment for one post-lung transplant patient.

“This grant gives us the resources to expand our research to a much larger cohort.”

Another grant recipient was the investigative team lead by Dr Andrea Warwick of the Redcliffe Hospital, with molecular microbiologist Associate Professor Makrina Totsika (QUT), biomedical scientist Professor Mia Woodruff (QUT), and Dr Andrew Riddell, also of the Redcliffe Hospital, to develop new biofabricated meshes for use in pelvic surgery to treat incontinence and prolapse.

“There have been concerns about synthetic meshes and possible complications, with some products recently withdrawn,” Associate Professor Totsika said.

“So, we are looking at biofabricating meshes from biodegradable polymers that are optimal for application, with the right biological and mechanical properties and balance of structural rigidity and flexibility.

“We are also looking at incorporating antimicrobials to prevent risk of infection and seeding the patient’s own cells into the structure for better integration of the mesh to the patient’s tissue.

“This is an exciting and promising area for application of biomedical technologies and we are very pleased to receive this grant funding.”

The investigative team led by early career researcher Ms Tracey Mackle of Metro North Mental Health (MNMH) has received a grant in collaboration with Dr Lucia Colodro Conde and Professor Sarah Medland from QIMR Berghofer’s Psychiatric Genetics Research Group, and Associate Professor Susan Patterson, also of MNMH, on a project to help tackle mental health issues among new mothers.

“We will collaborate with Metro North to develop and test a screening tool for post-traumatic stress disorder (PTSD) in women during pregnancy and after birth,” Dr Colodro Conde said.

“Some women who experience unexpected complications or negative experiences during pregnancy and birth, are at risk of developing PTSD, and if undetected and untreated, this can have devastating consequences.

“We hope this screening tool will help health professionals to accurately detect symptoms of possible PTSD and to provide an early intervention.”

METRO NORTH RECEIVED A TOTAL OF



47 NEW COLLABORATIVE RESEARCH GRANT APPLICATIONS IN THE 2019 ROUND

SUMMARY OF PROJECTS AWARDED GRANTS:

BIOFILM AND NEOINTIMA FORMATION ON EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO) CANNULAE

ECMO therapy provides heart and/or lung support to critically ill patients. ECMO cannulae are tubes inserted into major blood vessels to circulate blood through the ECMO machine. Micro-organisms can live on ECMO cannulae, creating communities called biofilms which can become resistant to antibiotics. It is thought that neointimas—cellular sheaths produced by the body to coat the artificial cannula surfaces— encourage the adherence of micro-organisms to cannulae.

This study is looking better understanding how and where biofilms and neointimas form to inform re-engineering the physical properties of the cannula surface to provide a less conducive environment for micro-organism growth.

PHARMACOKINETICS OF INHALED FENTANYL AND MORPHINE

Pain due to trauma or other causes is common in patients treated prehospital by paramedics. Optimal treatment is strong analgesia (often fentanyl/morphine) given intravenously (IV). However, inserting an intravenous cannula prehospital takes time. An alternative, inhaled methoxyflurane, is commonly given pre-hospital.

The aim of this study is to determine the dose-equivalence of intravenous and inhaled fentanyl and morphine.

NHMRC FIELDS OF RESEARCH

39 CLINICAL MEDICINE AND SCIENCE

16 BASIC SCIENCE **4** PUBLIC HEALTH

12 HEALTH SERVICE RESEARCH

BIOLOGICAL PELVIC MESHES FOR PELVIC SURGERY

Pelvic meshes are commonly used in surgery to treat incontinence and prolapse. Non-absorbable synthetic meshes can cause complications that require surgical removal.

This study is looking possibilities for removing these risks by biofabricating bioabsorbable mesh that will have optimal degradation, mechanical and biological properties and none of the risks associated with placement of synthetic material.

STANDARD VERSUS PERFORATED PERIPHERAL INTRAVENOUS CATHETERS

Peripheral intravenous catheters (PIVCs) are the most commonly used invasive medical device worldwide, but they have a high failure rate of 40-50 per cent, requiring that they are removed, discarded and replaced which can be unpleasant for the patient.

This study will look at what effects the use of a novel perforated PIVC design has on patient outcomes compared with a standard (non-perforated) PIVC.

Continued over >

EARLY-CAREER RESEARCHERS FIRST IN LINE FOR COLLABORATIVE RESEARCH GRANTS *continued*

PREGNANCY, BIRTH AND TRAUMA; DESIGNING A SCREENING TOOL FOR POST-TRAUMATIC STRESS DISORDER (PTSD) IN THE PERINATAL SETTING

Pregnancy, childbirth and the early post-partum necessitates significant adjustment physically, socially and emotionally. For some women, particularly those with histories of trauma or abuse, unexpected complications or negative experiences during pregnancy/birth can cause symptoms of PTSD.

The aim of this study is to promote detection and early diagnosis and intervention of perinatal PTSD. This project will develop and validate a screening tool that can be used by health professionals and researchers, and will assess the prevalence and correlates of perinatal PTSD in the study sample.

OUTFOXING PSEUDOMONAS AND BURKHOLDERIA INFECTION IN LUNG TRANSPLANT RECIPIENTS

Bacterial infection, particularly with the Gram-negative bacteria *Pseudomonas* and *Burkholderia*, is a very serious problem in lung transplantation, killing many patients around the world each year. The bacteria seem to outsmart the patient's immune system by making the patient produce antibodies which protect the bacteria from immune attack.

The study is looking at understanding the prevalence and importance of, and treatment options targeting Gram-negative bacteria that produce 'inhibitory antibodies' in the context of lung transplantation.

SOMATIC MUTATION IN ENDOMETRIOTIC LESIONS AND THEIR RELATIONSHIP TO DISEASE PROGRESSION, SEVERITY AND SYMPTOMS

Endometriosis is complex, heterogenic disease characterized by endometrial tissue outside the uterine cavity. It is associated with chronic pelvic pain, has inadequate diagnostic and treatment options and is a significant burden on patients and the health economy. Although the pathogenesis of endometriosis is unclear somatic cancer-driving mutations are found in up to 20 per cent of the lesions. Endometriosis lesions harbouring somatic mutations may be associated with more severe symptoms, physical appearance or growth characteristics.

The objective of the study is to determine the prevalence and relevance of somatic mutations in endometriotic lesions.

MEDICAL ENGINEERING RESEARCH FACILITY (MERF)

The Medical Engineering Research Facility hosts collaborative research between QUT and The Prince Charles Hospital.

MERF underpins pre-clinical research and currently supports translational research that has resulted in

- 25 publications
- 8 presentations
- 3 research awards
- 12 higher degree research students
- \$2,180,788 grant funding
- Clinical Centre of Excellence

HERSTON IMAGING RESEARCH FACILITY (HIRF)

- HIRF is a dedicated facility for human imaging research on RBWH campus.
- The facility houses one of only four combined PET and MR scanners in Australia, as well as a 3T Prisma MRI scanner and a PET/CT scanner.
- HIRF is an alliance of four partners: Queensland University of Technology, University of Queensland, Metro North Hospital and Health Service, and QIMR Berghofer Medical Research Institute.
- 2018 scan numbers were routinely more than 100 per month and over 50 research studies were actively recruiting
- HIRF seed grants in 2018 resulted in four successful grants covering research projects in stroke, post traumatic dysarthria, mild traumatic brain injury, and cerebral hypoxia.
- Collaborative Partners include Metro North research groups, including the Jamieson Trauma Institute, CSIRO and the Herston Biofabrication Institute.
- 9 publications including high impact Nature Neuroscience and Nature Communications
- 18 presentations including 8 invited speakers

RESEARCH IMPROVES CARE OF VENTILATED PATIENTS



HEALTH IMPACT

In Intensive Care Units all around the world, even with the best of nursing and medical care, ventilated patients don't always receive the nutrition that they need.

Two years ago, Redcliffe Hospital's ICU improved its nutrition protocols for ventilated patients. ICU dietitian Alicia Wiese recognised this as an opportunity to support evidenced-based practice through publishable research.

"Ventilated and critically ill patients in an ICU setting often receive their nutrition through an enteral tube placed into their stomach or small bowel," Ms Wiese said.

"Nurses and medical staff make every effort to meet a patient's goal energy and protein requirements during their ICU stay, but many ICUs are still following protocols that rely on the measurement of gastric residual volume (GRV) despite there being no evidence to support this practice.

"Our ICU at Redcliffe became the first in Australia to move away from the use of GRV testing. Along with supporting our patients better, this has led to the first published research around both the removal of GRV monitoring and enteral nutrition rate titration."

With the support of other ICU clinicians and Nutrition and Food Services at Redcliffe Hospital, Alicia designed a research project that analysed the nutritional and other outcomes of ventilated patients under the new protocol, comparing it retrospectively with patients back to 2014. That comparison showed patients were faring much better under the new protocol.

"The research confirmed that our patients are benefiting from more enteral nutrition without increasing gastrointestinal intolerance. Patients are also benefiting from a decreased need for prokinetics and the side effects that can come with those medications."

In conducting the research, Ms Wiese says Dr Emma Ballard from the QIMR Berghofer Medical Research Institute was of great support and assistance.

"This was my first research project. Dr Ballard came on board initially to help me out with the study design and data analysis, but ended up acting as a research mentor for me.

"I'm also grateful to have received funding from the Redcliffe Hospital Private Practice Trust Fund Advisory Committee."

Ms Wiese's research now has also been accepted for publication in the Australian Critical Care Journal.

"The paper is online and currently in press. I also presented the abstract at the 2018 Australasian Society for Parenteral and Enteral Nutrition Conference," Ms Wiese said.

"Hopefully this research will encourage and support other ICUs to make a similar change to their protocols, and move away from the use of GRV monitoring."



Alicia Wiese



ROBOTIC BRONCHOSCOPY CLINICAL TRIAL



HEALTH IMPACT

Royal Brisbane and Women's Hospital thoracic physicians have conducted the first human trial of a steerable robotic bronchoscopy and virtual lung-mapping device.

Lung cancer remains the most common cause of cancer death, and there has been wide uptake of CT screening for lung cancer. Nodules that are detected by the CT scan then need to be sampled for biopsy.

But some nodules in patients' lungs requiring biopsy are too small to sample using conventional methods.

Dr David Fielding and Dr Farzad Bashirzadeh recruited 30 patients to the trial of the Da Vinci robot which uses data from a CT scan that is fed into the robot's software, producing a custom virtual map of the patient's lungs and airways.

The software provides 'GPS-like' directions through the maze of the lungs to the operator, with a route map, directional symbols, a position marker, and a target designator, or bullseye.

The physician can drive the steerable, just over 3mm, articulating tip of the robot, which has a tiny camera and can turn corners, to the nodule.

"It really is like using a GPS in your car. You know how the GPS says, 'turn left' and shows you a left arrow, well this system also shows you the way," Dr Fielding said.

The robot's catheter has a fibre bundle along its length which allows for highly accurate positional and shape feedback. The catheter stays stationary in any position the physician places it in and has sufficient internal diameter to allow the passage of biopsy instruments.

This allows for precise sampling of nodules as small as 10mm that require biopsy.

"The average size of the nodules we sampled was around 12-13mm," Dr Fielding said.

"These are some of the smallest lung lesions reported in the literature for bronchoscopic biopsy.

"The robot allowed us to drive into the tiniest spaces in the human lung. Navigating that deep into the lung system is a bit like parking in the smallest spot in town.

"The robot stays perfectly still when you arrive at the target and use the sampling tool, helping to ensure precision and safe sampling without causing damage to the bronchial walls, even if the patient moves or coughs.

"We ended up with a nearly 88 per cent diagnostic yield compared with the usual of about 40-50 per cent with even the best bronchoscopic methods, and we were able to detect 15 cancers, around double what would have been detected with existing methods. This is life-saving technology."

The results were presented at Chest World Congress in Toronto and the research paper from the trial was published in the European journal *Respiration*.

A second phase of studies using a Mark 2 robot is being planned.

TRIAL REDUCES MEDICATION ERRORS



ECONOMIC AND HEALTH IMPACT

Caboolture Hospital Nurse Unit Manager Colleen Herrmann is inspiring nurses to include research in their day-to-day duties having taken on an Associate Investigator role in a research study in collaboration with the University of the Sunshine Coast.



Colleen Herrmann

The project is investigating how nurses read medical prescriptions on the ward using a visual enhancement aid, *iCheck*, which helps clinicians read medication orders more clearly.

Ms Herrmann has no prior participation in research but sees it as a strong driver towards improving patient care and workplace culture. She's proof that someone with significant experience can inspire staff to include research in their daily role.

"Medication errors are a result of a multitude of circumstances and one of the leading causes is the misreading labels and prescriptions," Ms Herrmann said.

"I have found the *iCheck* beneficial to check the expiry on well-used alfoil packaging on controlled drugs. Dates are so hard to read sometimes especially when the date stamp has nearly been obliterated."

Before starting the project, USC PhD Candidate and Principal Investigator Heather Borradale assessed the

degree of lighting within various parts of the ward to determine what areas would benefit from the *iCheck*. The only area that had sufficient level of lighting was the medication room and the desk area during the day.

Participating in the research project has confirmed Ms Herrmann's belief that clinicians – especially nurses – needed to be more proactive about being involved in research. She is encouraging staff to use the *iCheck* as least two or three times during their shift to see the difference it made when reading ampoules and labels in different lighting environments.

"It is great that this particular research project has been initiated by a nurse for the benefit of both nurses and patient safety," Ms Herrmann said.

"Nurses need to take up every opportunity to participate in research – we are front line clinicians and need to explore all avenues of our profession to improve care delivery and safety for our patients."

IMPROVING NUTRITION IN HIP FRACTURE PATIENTS



HEALTH AND SOCIAL IMPACT

Malnutrition in patients admitted to hospital with a hip fracture is a leading cause of increased length of stay, treatment costs, and poor health outcomes.

A multidisciplinary team of health professionals at The Prince Charles Hospital has developed an innovative tool to help clinicians determine whether enteral or tube feeding will benefit particular patients undergoing surgery as a result of a hip fracture.

Research shows that half of the patients admitted to hospital with a hip fracture were malnourished.

Principal Research Fellow Allied Health for The Prince Charles Hospital and University of Queensland, Dr Jack Bell said that hip fracture patients typically reported inadequate protein and energy intake upon admission to hospital.

“One of our early studies showed that less than 10 per cent of hip fracture patients were meeting their nutritional requirements,” Dr Bell said.

“Our patients are typically older and frail, and have been under nourished for quite some time prior to their admission.

“Having correct nutrition is critical for hip fracture patients in supporting their recovery from surgery, and restoring their independence so they can return home.

“However, surgery has its own challenges for getting patients to meet their nutritional requirements. Patients often don’t want to eat, are experiencing some pain, and have other medical conditions affecting their well-being.

“That’s why enteral feeding can be beneficial in helping patients meet their nutritional requirements.”

Until now, there has been no standard method to assist health professionals identify whether enteral feeding would benefit particular patients in this cohort.

The tool developed covers a broad range of areas for members of the multidisciplinary team to consider when deciding whether a patient is suitable for enteral feeding. These include how much patients are eating, whether they are malnourished, and treatment goals and preferences.

A key component of program to improve nutrition care has been understanding patient perception of enteral feeding.

A separate study showed that some patients did not want to be tube fed with a number of patients thinking they did not need it. However, it was identified that some of these patients did not understand the importance of nutrition.

“When educated about the importance of nutrition in assisting in their recovery and return home, a number of patients and their families changed their mind and said they thought they would say yes to enteral feeding,” Dr Bell said.

“Our research shows the decision to enterally feed a patient varies for each individual. It’s not a matter of one size fits all.

“Any clinical decision made using the tool should be accompanied by discussions with patients or family members to ensure the right patients are getting tube fed. It’s about shared decision making and appropriate informed consent.”



Dr Jack Bell and the multidisciplinary research team

OUR RESEARCH ENABLERS



Lead excellence in patient centred research

Our patients are at the centre of the research we provide. In 2018 there were 2,176 patients who participated in our clinical trials within Metro North Cancer Care Services and the Cardiology, Cystic Fibrosis and Internal Medicine and Dementia research units at the TPCH.



Our people engaged with research

Supporting our next generation of early career researchers with a dedicated Clinician Research Fellowship annual grant award program. In 2018 we selected five inaugural recipients who will grow a burgeoning program of research to advance health care for our patients.



Integrated research information, management and communication systems

In 2018 we introduced the Metro North Good Clinical Practice (GCP) course to demonstrate our commitment to the highest standards of research integrity.

We continue to acknowledge and celebrate our research achievements with the annual Research Excellence Awards, now in their 4th year.



Sustainable research infrastructure and resources

In partnership with the QUT Australian Centre for Health Services Innovation (AusHSI) we launched a Graduate Certificate in Health Services Innovation and 60 of our Metro North staff are currently enrolled and driving innovation in the health service.

We have continued to increase biostatistics capacity, and during 2018 the QIMRB Statisticians worked on 235 projects with 195 clients to publish 35 peer-reviewed papers with our Metro North staff.



Strategic collaborations and partnerships

In 2018 we released the inaugural round of the Collaborative Research Grants with three of our key academic partners, QUT, UQ and QIMRB. Seven grant proposals led by our next generation of early career researchers were awarded across Metro North in close collaboration with academic and professional leadership.

CLINICAL TRIALS IN METRO NORTH



Metro North Hospital and Health Service provides care for hundreds of thousands of people living across Queensland. As Queensland's largest public hospital and health service, Metro North is committed to continually improving patient care through research and the healthcare needs of our patients drive our research focus. This research will help us to find new ways to diagnose, treat and prevent diseases and ill health.

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

Metro North Hospital and Health Service provides care for hundreds of thousands of people living across Queensland. As Queensland's largest hospital and health service, Metro North is committed to continually improving patient care through research and the healthcare needs of our patients drive our research focus. This research will help us to find new ways to diagnose, treat and prevent diseases and ill health.

Clinical trials are essential to the discovery of new interventions that can help people to live longer, have less pain or be free of ill-health or disability. Many of our modern medical interventions to prevent, diagnose, treat and potentially cure diseases or health conditions – including cancer, heart disease, cystic fibrosis and dementia – have been developed through clinical research activities. This research is possible through the willingness of healthy participants and those diagnosed with a health condition or disease who voluntarily participate in clinical trials.

Clinical trials can also lead to improvements in quality of life due to their focus on monitoring and improving the quality of patients' lives, not simply the efficacy of treatments.

This valuable research can improve health care services by raising standards of treatment as doctors and hospital staff involved in clinical trials are continually trained to provide best practice patient care. Australian clinical trials are recognised internationally for including very high-quality patient care, and in Metro North we are proud of the high quality clinical trials being conducted within our health services.

In Metro North, we are extremely grateful to our patients for their participation in clinical trials who make this important research possible and make an invaluable contribution to improved healthcare for so many, now and into the future. Patients in Metro North can expect to receive the highest quality care, and when enrolled on a clinical trial, they may also benefit from the specialised attention and support provided by the additional clinical trial staff who understand the disease or condition being studied.

By taking part in a clinical trial, patients can contribute to the advancement of scientific understanding and, in some cases, to improved health for themselves and others with the same disease or health condition.

METRO NORTH CLINICAL TRIALS IN FOCUS

METRO NORTH CANCER CARE SERVICES

- Cancer care clinical trials are conducted at RBWH, TPCH and Redcliffe Hospital
- Trials are conducted across all clinical trial phases, with the majority being Phase 2 or Phase 3 clinical trials
- In 2018, 1646 Metro North patients were enrolled on a clinical trial across haematology, radiation oncology and medical oncology.
- In 2018, there were 192 clinical trials either actively recruiting participants or following-up participants after treatment of which 38% commercially-sponsored, 36.5% sponsored by a collaborative research group, 25.40% investigator-initiated
- 2018 Clinical Trials Revenue: RBWH \$3.95m; TPCH \$433,930; Redcliffe Hospital \$39,180

TPCH INTERNAL MEDICINE AND DEMENTIA

- 5 active clinical trials during 2018, of which 4 were commercially-sponsored and one was investigator-initiated
- 4/5 (80%) Phase 3, 1/5 (20%) Phase 2
- 22 participants currently enrolled on a clinical trial
- 2018 Clinical Trial Revenue \$151,288

TPCH CYSTIC FIBROSIS

- Clinical trials for cystic fibrosis, bronchiectasis and non-tuberculosis mycobacterial Infections
- 7 active clinical trials during 2018, all of which were commercially-sponsored
- 3/7 (43%) Phase 2 studies, 4/7 (57%) Phase 3 studies
- 55 participants currently enrolled on a clinical trial
- Approximate income from patient fees \$434,600

TPCH CARDIOLOGY

- During 2018, there were 50 active cardiology clinical trials, of which:
 - 47 were commercially-sponsored,
 - 1 was sponsored by a Collaborative Research Group and
 - 1 was investigator-initiated
- 4/50 Phase 2, (8%) 40/50 Phase 3 (80%), 6/50 (12%) Phase 4
- 453 participants were enrolled on a clinical trial in 2018
- 2018 clinical trial revenue was \$590,842 plus a contribution to the value of \$167,245 in free devices

GOOD CLINICAL PRACTICE (GCP) COURSE

In early 2019, the Metro North Office of Research coordinated delivery of its first, face-to-face Good Clinical Practice (GCP) course for researchers.

GCP training is an international ethical and scientific quality standard which underpins the conduct of clinical trials.

The course was facilitated by Eleanor Allen from Caledonian Clinical Training and involved 31 participants from across Royal Brisbane and Women's, The Prince Charles, Redcliffe and Caboolture hospitals.

Metro North Research Monitoring Officer Dr Tania Crough said it was wonderful to see registrations across all fields involved in clinical trials including medical, nursing, allied health and administration staff.

“The Metro North Office of Research is committed to supporting quality clinical research and looks forward to offering regular GCP training opportunities for our staff,” Tania said.

BUILDING CAPABILITY IN RESEARCH AND INNOVATION



KNOWLEDGE IMPACT

Metro North welcomed its second cohort of 30 senior clinicians, allied health professionals and health service administrators into the Graduate Certificate in Health Science (Health Services Innovation).



The tertiary qualification was developed in 2018 in partnership with the Australian Centre for Health Services Innovation (AusHSI) to support staff to build and enhance skills in health economics, policy analysis and implementation science.

Sixty staff are now participating in the two-year program, learning and innovating in this emerging field focused on how to best implement research findings into practice across Metro North.

The second cohort of students are building on the enthusiasm of the first intake having navigated their way through a rigorous selection process to demonstrate their energy and commitment to challenge the status quo and support the implementation of innovative change in Metro North.

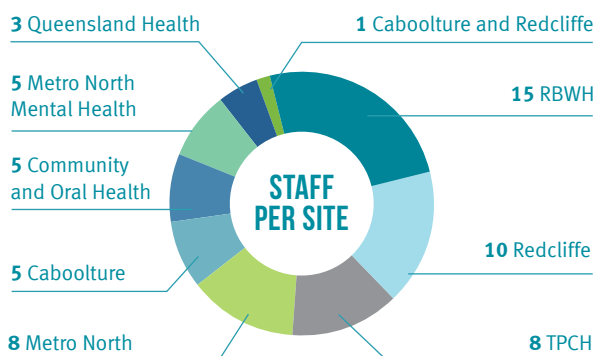
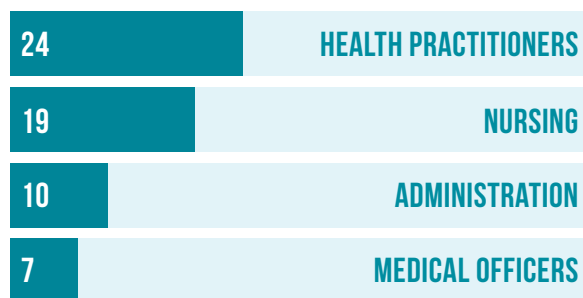
The range of projects students presented to secure a place is varied and include inter-professional collaborative practice, reducing waste, enhancing clinical education and examining models of care for improved outcomes for Metro North.

Chief Executive Shaun Drummond said that the investment in our people through this program will deliver better outcomes for patients and demonstrate values in action.

The program ensures staff have the potential to develop, assess and implement innovation within the healthcare setting to enable high performance teams with high value decision making skills. We are supporting our staff to develop skills in designing sustainable programs that

will allow us to measure our effectiveness across a wide range of patient, health service and economic outcomes.

Metro North staff are taking a leadership role in the program to translate their research and quality improvement projects into clinical practice while actively networking across the alumni of Graduate Certificate students across all disciplines, streams and facilities in Metro North.



GRANTS SUPPORT EMERGENCY RESEARCH



KNOWLEDGE IMPACT

Four Metro North researchers have been awarded almost \$300,000 in grants from the Emergency Medicine Foundation (EMF) to tackle issues ranging from asthma to improving blood culture collection.

Caboolture Hospital's Dr Sean Clark is leading a study looking at the decision making behind the transfer of residential aged care facility (RACF) residents to the emergency department.

With a large proportion of older patients arriving at ED from RACFs, the proposed mixed methods study will engage with RACF nursing staff to understand their decision to transfer a resident, their perception of communication with the emergency department, and the services that influence the decision. The project outcomes will provide a detailed understanding of existing service provision, communication between facilities, and potential gaps in education and skills.

Dr Julian Williams heads the Royal Brisbane and Women's Hospital 'Bugs in bottles' project, which aims to assess the effectiveness of an intervention designed to improve the quality of blood cultures collected in a busy ED.

Dr Williams believes several factors may influence the quality of sample collection and increase the chance of sample contamination. These include not collecting enough blood and poor sterility of the collection process. Contamination of blood cultures may result in the patient staying longer in hospital, being prescribed unnecessary antibiotics and increasing the costs of care.

This study will implement a rigorous intervention to reduce contamination rates in blood culture samples collected at RBWH Emergency and Trauma Centre. The intervention comprises: education to staff that collect blood cultures; the introduction of blood culture collection kits; and regular feedback of quality indicators to the clinicians that collect blood cultures.

If the intervention is successful then a reduction in blood culture contamination rates and single sets of cultures should be seen, with an increase in the average volume of blood cultured. These outcomes are predicted to lead to a reduction in patients' lengths of stay, costs of care,

and positive effects in anti-microbial stewardship and patient flow.

At The Prince Charles Hospital, Dr Frances Kinnear and her team in collaboration with Professor Janet Davies and the QUT Allergy Research Group are continuing research on pollen allergy impact on asthma in Queensland. Grass pollen is the major outdoor allergen globally and exposure has an important measurable and manageable impact on the medical burden of asthma.

The study is looking at the role of allergy status on triggers for asthma in patients visiting hospital emergency departments in two regions of south east Queensland over a two year period. Study outcomes are expected to inform need for using local current pollen exposure information to manage ED demand surges and underpin better management of pollen allergies outside of hospital by allergy physicians and GPs.

RBWH has also received a Building Capacity Grant to continue a supporting a conjoint senior nurse research fellow with QUT for the hospital's Emergency and Trauma Centre.

THE PROJECT OUTCOMES
WILL PROVIDE A DETAILED
UNDERSTANDING OF
EXISTING SERVICE PROVISION,
COMMUNICATION BETWEEN
FACILITIES, AND POTENTIAL GAPS
IN EDUCATION AND SKILLS.

DRIVING LIFE CHANGING RESEARCH FOR CF PATIENTS



HEALTH IMPACT

As Clinical Research Coordinator for The Prince Charles Hospital's Adult Cystic Fibrosis (CF) Centre, Michelle Wood plays a critical role in progressing potentially life changing research for Queenslanders living with the condition.

With the assistance and support of a medical Principal Investigator, Ms Wood is responsible for coordinating and overseeing the pharmaceutical clinical trials for TPCCH's Adult CF Centre, an area of research that has become increasingly important to the outcomes of people with CF.

CF is a genetic, life-shortening progressive condition that results in thick secretions in the lungs, pancreas and digestive tract. Up until recently, available treatments had only managed the symptoms and complications of the disease.

However, with exciting clinical developments, TPCCH has participated in the first international trials which investigate new therapies that aim to correct the underlying cause of CF, and could potentially improve the future outcomes of patients.

Ms Wood said that enrolment into clinical trials can be extremely competitive which means that research sites need to be efficient and organised.

"Trials provide our patients with access to novel therapies, so there is incentive for the site to be ready to commence when the trial opens," Ms Wood said.

"A collaborative effort is required to conduct such studies, and this involves support from the CF clinical team and other hospital departments such as pharmacy and medical imaging."

The track record of TPCCH Adult CF Centre's research unit speaks for itself, having participated in over 25 international CF clinical trials in the last decade. The experience and skill of the Adult CF Centre team is often sought out by pharmaceutical companies for feedback and input into study design, feasibility and logistics.

Ms Wood attributes study success to a team approach, attention to detail to ensure quality data collection and patient safety, effective communication, ability to meet deadlines and problem solve, and a passion for research.

She feels privileged to be part some of the most exciting changes in drug therapy for people with CF.

"Three drugs trialled at TPCCH have become licensed in Australia in the last five years, which is a significant milestone. These medications are revolutionary and have the potential to modify the CF disease," Ms Wood said.

"It is an honour to help drive research which has the potential to improve the outcomes and change the lives of people living with CF."

Trial transforms Tracey's life

Tracey Van Gestel's life was transformed after accepting an offer to participate in a revolutionary trial of a drug that could potentially treat the cause of cystic fibrosis, not just the symptoms.

A patient of TPCCH's Adult CF unit for 25 years, the mother of two started the trial a decade ago when her health was rapidly deteriorating.

"At the time, I was in hospital every six to eight weeks and my lung function was extremely poor. I struggled to walk from the car to pick my son up at school," Tracey said.

"I was told I may need to start thinking about a lung transplant in the near future."

So when the prospect of a potentially life changing drug came along, Tracey jumped at the chance - and she's never looked back.

"Within a few weeks of starting the drug, I noticed a huge difference. I started to get better and better and my lung function increased dramatically from 40 to 60 per cent. I wasn't out of breath anymore," Tracey said.

"I was able to start full time work for the first time in almost 20 years."



A COLLABORATIVE EFFORT IS REQUIRED TO CONDUCT SUCH STUDIES, AND THIS INVOLVES SUPPORT FROM THE CF CLINICAL TEAM AND OTHER HOSPITAL DEPARTMENTS SUCH AS PHARMACY AND MEDICAL IMAGING.

Michelle Wood

Tracey owes her improved health to the trial which gave her access to the life changing drug therapy. Since starting the drug 10 years ago, she has only been in hospital three times.

“This drug completely changed my life,” she said.

“Before the drug, I constantly worried about my health and if I was going to be around for my kids.

“Having improved health has given me hope for the future. It has allowed me to see kids grow up – there’s no greater gift.”



Tracey Gestel on a family holiday in the Grand Canyon with husband Greg, son Shuyler, and daughter Safiya

METRO NORTH RESEARCH EXCELLENCE AWARDS 2018

The annual Metro North Research Excellence Awards recognise the outstanding work of researchers and research supporters across the health service.

The awards attracted 77 stellar submissions from all facilities showcasing a wide variety of research projects and excellent researchers.

PROFESSOR KWUN FONG RESEARCHER OF THE YEAR 2018

Professor Kwun Fong's vision is to improve health outcomes for patients with lung cancer and support their families by developing novel high value interventions, then implementing these into clinical practice. His full-time clinical role as a thoracic physician allows him to interact with people with lung cancer. His leadership in providing samples from patients with lung cancer, who have consented to be part of the lung tissue bank, led to contribution to a high impact publication in the leading scientific journal Nature, with The Cancer Genome Atlas Research Network. His track record has been exceptionally productive, with greater than \$20 million awarded in 106 grants, 168 publications, and supervision of more than 40 HDR students.

132 PEER REVIEWED
ACADEMIC PAPERS OVER
THE LAST 10 YEARS



4379 CITATIONS. AN AVERAGE
OF 33 PER PUBLICATION



**71% OF KWUN'S
PAPERS ARE IN THE
TOP 25 JOURNAL
PER CENTILES**

His research has been cited 43 times in National and International Guidelines and 15 times in Policy documents including: National Institute for Health and Care Excellence (NICE) in the UK; US National Academies Press (NAP); US Centres for Disease Control and Prevention (CDC); The Association of the Scientific Medical Societies in Germany (AWMF); and Analysis and Policy Observatory (APO) Australia and New Zealand.

PROFESSOR JEFFREY LIPMAN RESEARCHER OF THE YEAR 2017

345 PEER REVIEWED
ACADEMIC PAPERS
OVER THE LAST 10 YEARS



JEFF'S PAPERS HAVE RECEIVED
82 NEWS MENTIONS
AND HAVE BEEN TWEETED 1954 TIMES



11,811
CITATIONS

**77% OF JEFF'S
PAPERS ARE IN THE
TOP 25 JOURNAL
PER CENTILES**

His research has been cited 78 times in National and International Guidelines and 9 times in Policy documents including: Analysis and Policy Observatory (APO) Australia and New Zealand; The Association of the Scientific Medical Societies in Germany (AWMF); National Institute for Health and Care Excellence (NICE) in the UK; and World Health Organisation (WHO).

2018 CATEGORY AWARD WINNERS

Rising Star

Dr Nicole Andrews

Dr Andrews is an occupation therapist who completed her doctoral research in the field of chronic pain management. She was awarded her PhD in 2015 and has already published an impressive 10 first author papers in leading quality journals. She leads multidisciplinary collaborations and her research is making an impact at a national and international level, influencing change in treatment processes to help patients better pace their activities to manage pain.

Research Support Award

Professor Ian Yang

Working as a Thoracic Physician while taking on the role as Professor of Medicine and Head of UQ Northside Clinical School, Professor Ian Yang has been a force in supporting research excellence across Metro North, working shoulder to shoulder with both professionals and students to inspire a culture of learning and research that will improve the health of communities. Ian has established a program of integrated clinical, molecular genetics and cell biology research in airway diseases (asthma and COPD) in the UQ Thoracic Research Centre at TPCH. He has also supported staff and students resulting in 69 refereed journal articles in the past 5 years.

Discovery and Innovation Research Award

UQ Thoracic Research Centre

The UQ Thoracic Research Centre focuses on identifying improved methods to diagnose lung cancer and chronic respiratory diseases. Their biomarker research program has trialled new cancer diagnostic techniques to find less invasive, more comfortable diagnostic tests for early intervention in patients. The team has published 22 journal articles in the past year and collaborated internationally. They are also focusing on nurturing the next generation of researchers, fostering 8 PhD students, with some successfully presenting their research to a world stage such as the World Conference on Lung Cancer in Japan and the European Respiratory Society in Milan.

Clinical Research Award

Qld Lung Transplant Program Clinical Trials Team

The Queensland Lung Transplant Clinical Trials Team is at the forefront of excellent research into advanced lung disease. The team's focus is on developing an evidence base for new therapies for severe and life-threatening lung diseases where few or no other treatments exist. The team are national and international leaders, best known for leading the NHMRC sponsored ASSIS-CLAD trial of stem cell therapy for lung transplant rejection, one of the largest trials ever done.

Complex Health Challenges Award

Queensland Forensic Mental Health Service

Queensland Forensic Mental Health Service researchers are recognised leaders in Indigenous Mental Health in the criminal justice system. The researchers led Australia's first and largest systematic study of the mental health of Indigenous people in custody and were the first to examine the trauma experiences and prevalence of PTSD among Indigenous women in custody, with the results published in national and international journals.

Health Services & Implementation Research Award

Physiotherapy Screening Clinic Research Team

Over the past five years, the Neurosurgery and Orthopaedic Physiotherapy Screening Clinics research team, consisting of service managers and university based researchers, have pioneered projects that significantly improving the cost and effectiveness of Physiotherapy Screening Clinics. Their innovative work has not only benefited Metro North, but other health services across the state. Their results have influenced a new investment of approximately \$6.5 million in changes to service delivery, improving outcomes and reducing waiting times.

Chief Executive's Award

Professor Louise Cullen

Professor Louise Cullen's research is changing practice in our emergency departments. The ACRE and IMPACT projects are saving crucial time and reducing the pressure on busy EDs by helping identify which patients with chest pains are having heart attacks. This work is now being rolled out across Queensland public hospital emergency departments and has informed national and international guidelines in chest pain management. Louise also manages to find time to train the next generation of clinician researchers while participating in numerous collaborations, producing journal articles, and sharing her knowledge and expertise at conferences around the world.

METRO NORTH HHS RESEARCH STRATEGY

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

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

Patients, healthcare consumers and the community

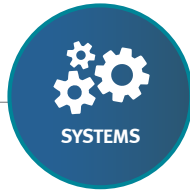
Lead excellence in patient centred research



PEOPLE

People engaged with research

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



SYSTEMS

Research information, management and communication systems

Establish integrated research information, management and communication systems



INFRASTRUCTURE

Research infrastructure and resources

Enhance sustainable research capacity through management of infrastructure and resources



PARTNERS

Collaborations and partnerships

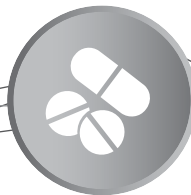
Support strategic collaborations and partnerships to drive globally recognised discovery and translation

EXCEPTIONAL HEALTH OUTCOMES BY EMBRACING



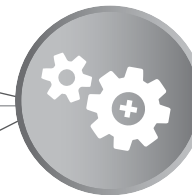
DIAGNOSTICS

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

Continuous data integration and knowledge synthesis

DISCOVER

Address fundamental knowledge gaps

TRANSLATE

Translate new knowledge and innovations

IMPLEMENT

Bring new knowledge into practice

IMPACT

Positively impact long-term health outcomes

www.metronorth.health.qld.gov.au

