



# The Prince Charles Hospital Research Report

2016



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# Contents

Introduction	02
Allied Health & Medical Services	04
Thoracic	34
Cardiology	54
Grants	84
TPCH Research Awards	98
Higher Research Degree Students	100
TPCH Published articles 2015	106
Journal Editorial Positions	115





## Professor John Fraser, Chair of The Prince Charles Research Council

Research is driven not by the agenda of medical institutions but by the passion and dedication of practitioners who are determined nothing less than the best achievable outcome for our patients. The fuel that facilitates our drive in this quest is the funding and goodwill of our funders and benefactors.

This report again highlights some of the remarkable efforts of the teams who go above and beyond to find ways to ensure that future patients can be treated better and recover faster from the effects of chronic disease.

It is highly likely that the public would not know that many of our senior medical, nursing, and allied health staff donate

their expertise and time to drive research. They would not realise that many of our scientists have only annual appointments, subject to the success of grant applications. Or would they know that less than 10% of research projects will be supported financially.

I am so very proud to work alongside my colleagues who share the commitment to make things better, and not accept defeat.

It is this conviction, this desperate desire to improve the lives of our patients, that not only connects us but over the past year has forged international collaborations which I am confident will result in some amazing health outcomes in the future.

This year we have again seen huge progress in not only improving medical procedures, gained greater knowledge of major disease implications and their treatments and along the way we have launched a number of young research careers. And in doing so, putting The Prince Charles right at the top of both national and international research agendas in a number of fields.

To all of my colleagues, to our collaborators, our partners and funders and to the patients we serve, thank you for coming together for the common good.



## Anthony Williams Executive Director, The Prince Charles Hospital

The delivery of high quality patient care is fundamentally connected to the ability to conduct excellent research.

At The Prince Charles Hospital (TPCH), we have numerous researchers and research teams who diligently strive and succeed in creating new knowledge that improves and transforms the way we can provide care to our patients.

The level of innovation on this campus is impressive. Researchers dedicate immeasurable amounts of time and effort towards finding solutions to important clinical issues that impact the health of our patients. The benefits of their research are experienced not only by our patients here at TPCH, but have the potential to help people across the world.

The Prince Charles Hospital is committed to fostering an environment that actively supports research as part of its daily business, and there are many people who make research on this campus possible. Firstly and foremost, the staff from across all disciplines and programs who dedicate their time to this area are the hands on drivers of research. TPCH's Research Council and TPCH's Research, Ethics and Governance team play essential roles in driving, supporting and facilitating quality research initiatives. Acknowledgement must also be extended to The Prince Charles Hospital Foundation for their ongoing support in funding and promoting research at this hospital.

More broadly, it must be acknowledged that the success of our research efforts is supported by ongoing collaborations and partnerships with our major health providers, universities and academic partners, as well as other prominent health centres throughout Australia and internationally.

I look forward to the future growth of research on this campus, and supporting new projects and activities that will enable improved health outcomes for our patients.



The Prince Charles Hospital Foundation Board

## Bernard Curran Board Chair, The Prince Charles Hospital Foundation

It is a privilege to be the Chair of a charity which enables the community to support such critical, life changing work at The Prince Charles Hospital.

This year marks the 30th year of The Prince Charles Hospital Foundation. We are proud to be an active partner in the journey of discovery to help tackle heart disease, lung disease, dementia, arthritis and a range of allied health initiatives – all of which serve to detect the disease early, improve treatments and to enable better recovery, in an effort to return the quality of life which is taken away from so many.

The issue for medical research is the lack of financial security to the research teams. Surviving from grant application to grant application is inefficient and lifesaving projects run the risk

of being shelved. We are now looking to not only seed projects which will translate to patient outcomes quickly we are also hoping to provide a safety net to sustain research that is showing positive signs.

I would like to acknowledge the support of The Prince Charles Hospital and Metro North Hospital and Health Services who provide us with the opportunity to reach out to the community and corporate Australia to support our inspiring researchers. Most importantly I would like to thank our donors and sponsors.

These are everyday people who respond to our requests, who make such generous donations, funding which fuels the efforts of people who have dedicated their lives to save others.

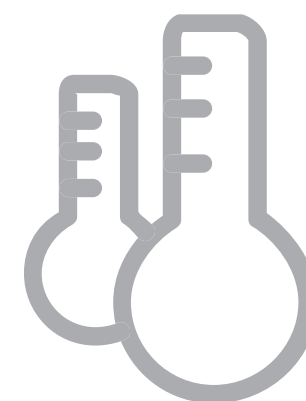
For every \$44 donated we can support another hour of research; research that I have seen impact on the lives of patients whom I have met. It's real and it's inspiring.

I urge you to join me and become involved for The Common Good.



## Research Groups & Feature Stories

# Allied Health & Medical Services



Allied Health Research Collaborative	6
Anaesthesia Research Group	10
Emergency Medicine Research Group	13
Internal Medicine Services	17
Richard Slaughter Best Clinical Paper Award 2015	20
Gastroenterology & Hepatology Research Program	22
Medical Imaging & Practice Development Cardiac Imaging Research Group	24
Nursing Research and Practice Development Centre	28
Sleep Disorders Centre Research Group	31

# Allied Health Research Collaborative

## RESEARCH HEAD

Associate Professor  
Petrea Cornwell

The Allied Health Research Collaborative aims to drive research excellence in the Allied Health disciplines, in order to create and translate research evidence-based practice and improved patient outcomes. We want to use research to improve health outcomes for patients through the evaluation of screening programs, best practice interventions, prevention or reduction of long-term disability and maximising life participation. Broadly speaking, Allied Health Research seeks to "change the lives" of people living within our community. A number of our research streams focus

on improving rehabilitation processes and outcomes for survivors of stroke; optimising the recovery and functioning of the frail, aged patient; and early identification and management of malnutrition and vestibular dysfunction (i.e. people who are dizzy, or fall), to prevent hospitalisation and increase life participation.

Other research streams are focused on early identification and management of foot disease (i.e. foot ulcers and infections) to prevent avoidable hospitalisation and leg amputations; examining the role of exercise in improving health outcomes for heart and

lung patients; and maximising patients quality of life through considering the impact of chronic health conditions on varied aspects of everyday living such as mood, communication, eating and drinking, memory, and participation in basic life activities. Clinical benefits from the research conducted by members of the Allied Health Research Collaborative include:

- Early identification / screening of health status in order to minimise long-term disability
- Providing patients with best practice treatment programs to facilitate recovery from surgery, including heart and lung transplants
- Ensuring treatment programs and models of care in rehabilitation maximise patient recovery
- Prevention of hospital admissions and re-admissions in a range of clinical groups, including the older patient through best practice treatment and support

Research conducted by the Allied Health Research Collaborative occurs at "the coal-face" of health care. The patients are our research participants and so they are part of the research evidence as it evolves. Our focus is on improving the quality of life for patients so that they can participate in everyday activities to their maximum potential; through either improved

preventative programs or early identification of conditions, or maximised rehabilitation. Research conducted by the group seeks to improve assessment techniques and treatment options available to our patients. It also enables us to identify the most appropriate management for each patient group, with a focus on right patient, right place, and right time.

Our research can ensure patients receive the most appropriate clinical management for their condition, that evidence based and cost effective treatment options are available, and that the staff treating them continue to question their practice and improve the service quality in a rigorous and systematic way.

## HIGHLIGHTS

International profile of the AHRC continues to grow with a number of researchers presenting at International Conferences including Mr Peter Lazzarini who presented 4 papers at the International Symposium on Diabetic Foot, and A/Prof Petrea Cornwell at the World Federation of Neurorehabilitation Special Interest Group meeting. The growing international profile of our researchers has resulted in an increasing number of international collaborations within Europe and Canada.

## GRANTS

In 2015 the Allied Health

Research Collaborative received \$1.1 million of funding for a variety of research projects. This funding came from several key funding bodies including TPCF Foundation, Wound CRC, Diabetes Australia Research Program, AHRC Research Grant, CAHRLI (MNHHS), TVN (Canada) Gold Coast Hospital Private Practice Trust Fund, Allied Health Professionals Office of Queensland, Office of Health and Medical Research, Stroke Foundation Australia, Griffith University and the Queensland Physiotherapy Rehabilitation Network.

## PUBLICATIONS AND PRESENTATIONS

As a group the Allied Health Research Collaborative presented at 73 conferences and seminars in 2015, including both national and international presentations.

Mr Peter Lazzarini was also a guest editor of the Journal of Foot and Ankle Research, specialising in Diabetic Foot conditions, and Associate Professor Petrea Cornwell was the Associate Editor of the Brain Impairment journal.

## AWARDS

The group received five awards in 2015. These included the Best Clinical Novel Research Presentation from TPCF for Anna-Liisa Sutt, the Australia Day Award from the Metro North HHS Board for Dr Donna Pinsker



and Dr Jack Bell.

Mrs Maureen Peasey was also awarded the Best Poster in COPD Session by the Thoracic Society of Australia, and Dr James Walsh received the Richard Slaughter Best Clinical Research Project Award at the 2015 TPCH Health Discoveries Forum.

#### RESEARCH STUDENTS

The Allied Health Research Collaborative supervised 19 higher degree and student placements in 2015. This included 11 PhD students, 3 MRes students, 3 MPhil students and 2 Professional Doctorates.

#### RESEARCH COLLABORATIONS

The group had a number of local collaborating partners in 2015, including Royal Brisbane and Women's Hospital; Community, Indigenous and Subacute Services; Redcliffe Hospital; Centre for Innovative Psychology Practice, Education and Research, Caboolture Hospital, NOFEAR - Network for Orthopaedic Fracture Education and Research, Critical Care Research Group and the Heart and Lung Institute. State-wide and national collaborations included Metro South, Gold Coast, Sunshine Coast, Townsville, Cairns and Hinterland, Central Queensland, Central West, West Moreton, Wide Bay, Mackay, Darling Downs, North West, South West Hospital and Health Services; Queensland University

of Technology, James Cook University, Griffith University, Australian Catholic University, The University of Queensland; Australian Wound Management Association – Qld Branch; Queensland Institute of Medical Research, CSIRO, Institute of Health and Biomedical Innovation, as well as La Trobe University, Monash University, University of Adelaide, Curtin University, University of Melbourne, Wound Clinical Research Centre - University of Western Sydney.

We also had an increased number of international collaborations with the Canadian Malnutrition Task Force (CMTF), The Canadian Frailty Network, University of Cambridge, Canadian Critical Care Practice Group, University of Ottawa, University of British Columbia, Hong Kong Polytechnic University, University of Toronto, and the Netherland International Working Group on the Diabetic Foot.







# Anaesthesia Research Group

## RESEARCH HEAD

Dr Usha Gurunathan

The Anaesthesia Research Group at The Prince Charles Hospital aims to improve patient outcomes following surgery, with its involvement in projects pertaining to safety and efficiency of perioperative care.

Our key research areas in 2015 included delirium in hip fracture patients, cognitive impairment following surgery and anaesthesia and prevention of thromboembolic complications in obese individuals. We have also looked at blood component therapy, minimising transfusions during surgery, safety of anti-inflammatory drugs and the effectiveness of mindfulness

practice in reducing autonomic dysfunction associated with chronic obstructive pulmonary disease. Anaesthesia is a specialty that links medical and surgical fields in the form of perioperative medicine. We plan to encourage multidisciplinary translational research projects in future with our expertise in physiology and pharmacology for improved patient outcomes.

Continual research and quality assurance activities are essential for the improvement of clinical practice. The benefits of our research activities are evident in superior pain relief following surgery, reduced transfusion

risk by optimising iron stores and careful blood component therapy based on point of care tests and efforts to reduce delirium in older patients. Future research will target measures to reduce cognitive decline following anaesthesia in high risk population and smoking cessation in surgical patients.

As patient centred outcomes have been the key areas of our interest, projects on safety and quality of recovery are encouraged. Our projects have been targeting the old and obese population and patients undergoing high risk surgery to try minimise poor outcomes and to provide best possible recovery following surgery. Persisting cognitive deficits and postoperative delirium are examples of our research topics.

#### HIGHLIGHTS

In 2015, an exciting project on the effect of midazolam on the cognitive recovery following colonoscopy sedation (MIMiCRY) was initiated. This randomised controlled project will follow up 400 patients both short term and long term, following their sedation to assess if there are any residual effects of the midazolam.

For the first time at TPCH, anaesthetic fellow Dr. Lisa Stanton received a novice investigator grant from TPCH Foundation for a feasibility study on using ROTEM test to predict thrombotic complications

following joint surgeries. Oral and poster presentations were given in local forums and national meetings on our projects about the temperature changes in elderly patients undergoing hip fracture surgery, association of central obesity with adverse outcomes following non cardiac surgery and delirium incidence in hip fracture patients.

Through collaboration between different hospitals and departments at TPCH, our research group successfully participated in the international multicentre studies RELIEF and METS. In conjunction with cardiac, thoracic surgical and critical care departments at TPCH, discussion about projects on high flow oxygen and blood product use was initiated. A project about postoperative cognitive dysfunction and behavioural interventions to reduce the impact was initiated as a neuropsychology higher degree project.

A sub study of the international multicentre project (BALANCED) on the influence of obesity on the association between depth of anaesthesia and outcomes following major surgery was commenced by Dr. Gurunathan. While the nationwide survey on the research interests among Australian anaesthetists was completed, the research group also supported a quality assurance project by Kit Reynolds, a visiting medical

student on the occurrence of delirium in hip fracture patients.

#### GRANTS

The Anaesthesia Research Group received one New Investigator Grant in 2015 for \$10,000, awarded to Lisa Stanton for her research into ROTEM assays to detect postoperative thrombotic complications in hip and knee reconstruction patients.

#### PUBLICATIONS AND PRESENTATIONS

The group presentation at four conferences and symposiums, including the ASA/NZSA Conference, the ANZ Clinical Trials Network and the 24th Annual RBWH Health Care Symposium. This included poster and oral presentations from Dr Chris Stonell and Dr Usha Gurunathan.

#### RESEARCH COLLABORATIONS

Collaborations locally, nationally and internationally included CCRG, Thoracic medicine, Cardiology and Haematology departments at TPCH, University of Queensland, Princess Alexandra Hospital, QIMR Berghofer, University of Melbourne, Alfred Hospital, University of Western Australia, Fiona Stanley Hospital and St Michael's Hospital, Toronto.

# Emergency Medicine Research Group (EMRG), Emergency & Children's Services (ECS)

#### RESEARCH HEAD

Dr Frances Kinnear

The Emergency & Children's Services (ECS) is a relatively new department that continues to expand exceedingly rapidly, both with respect to number and complexity of presentations. There has been over threefold growth in the last five years to a current level of 80 presentations per annum, making us one of the busiest departments in QLD, now with a separate but co-located paediatric emergency.

Until recently development of clinical pathways for patient care & training programs to allow accreditation with relevant colleges for training purposes took precedence. With the

formation of the Emergency Medicine Research Group, EMRG, attention to the third pillar of academic excellence, namely research, has however now commenced as per our strategic plan:

- Focus initially on individuals areas of expertise/interest and/or topical healthcare issues
- Develop research capacity with respect to both volume & quality
- Develop a culture where research is part of core business with multidisciplinary involvement at all levels of seniority



- Expand collaboration with local, national & international partners in both health care and academic sectors
- Develop reputation with respect to output so that we can develop a niche area in minimisation of medical harm and maximising workforce potential including longevity and mental well-being
- Expand on same to produce future growth in self-sustaining fashion, including training and funding

In line with our position as the access point for hospital-based care, studies conducted by EMRG span the age spectrum plus a wide range of conditions, with an emergency-specific slant. For example much of the work in emergency involves diagnosis of the condition actually underlying the patients presenting complaint. Many of our projects therefore focus on this aspect of the medical journey with an aim to finessing our processes in what is still a relatively new speciality. They include studies describing the demographics of common presenting complaints (eg shortness of breath, headache), baseline descriptions of current practise (eg investigation of suspected pulmonary embolism) and comparison of different methods (eg novel urine collection methods in non-toilet trained children and use of lung ultrasound for differentiation of wet from dry lungs).

We also operate within a fast complex system providing care to 200+ patients a day. Through research we hope to improve the system itself within which the medical care is delivered, via studies such as the following: electronic pathology result cross-checking, derivation of quality indicators for the elderly; registries such as the Airway Registry and Emergency Medicine Events Register; evidence-based translation studies; improved patient flow using novel roles such as NAVIGATOR nurse. Another developing facet of our research approach examines the “human” side of this complex system both from the perspective of the patient but also from that of the staff with respect to resilience in this burn-out environment.

With increasing recognition of the potential for medical harm many of our projects are also aimed at minimisation of same. For example the studies on investigation of pulmonary embolism and use of lung ultrasound ultimately aim to decrease radiation exposure. Other such studies in the ECS include early use of high flow oxygen in paediatric bronchiolitis; intramuscular sedation of acute behavioural disturbance and one developing a more conservative approach to pneumothorax treatment.

Aside from harm minimisation, in one sense all of our studies

are aimed at improving the quality of care for our patients, but approached from a variety of different angles. This includes increasing awareness of and compliance with best practise, including multidisciplinary cross-pollination. Knowledge translation is essential to the research process if it is to change practise. In addition, silos are an issue with respect to different specialities. ED is in a unique position at the front line of care delivery as we have interactions with the full range of inpatient teams, hence we are ideally positioned to influence this.

Flow-related research may not seem to benefit the individual but in fact does via improved overall function, particularly in the current climate of bed-block/emergency department overcrowding. This results not only in enhanced compliance with government targets with associated improvement in hospital reputation and function, but also increased patient satisfaction and decreased complications related to extended ED stays. Research into quality and process similarly reduces negative patient outcomes.

Another way our research benefits patients is by investigating novel ways of doing things throughout the medical care process from early detection/preventing deterioration through to ways of reducing invasive/potentially

harmful diagnostic or treatment strategies without reduction in efficacy or accuracy. Although the benefit to the patient may be more intuitive, not all aspects may be readily appreciated. For example, anticipated reduced intubation rates with a novel method of oxygen delivery under study in children with bronchiolitis is clearly desirable. Less obvious perhaps are the benefits of avoiding transfer to a specialist centre with respect to stress on the whole family.

Similarly better understanding of the demographics of a particular presenting complaint and/or current practice with

respect to investigation for a particular condition will lead to improved/novel diagnostic strategies resulting in improved risk/benefit profiles. Better understanding of the patients' journey from their perspective can help tailor the way care is delivered to result in a more positive experience. Better understanding of staff resilience and burn-out factors will enhance staff functioning and satisfaction and should help contribute to staff retention and positive patient experiences. These projects ultimately lead to better patient outcomes and/or benefits in terms of direct cost reductions but also indirect

benefits related to longevity, litigation and reputation.

#### HIGHLIGHTS

The efforts of the EMRG are just beginning to result in tangible outcomes with respect to both output and reputation. With projects in all phases of the research process and many developing partnerships this should provide a solid foundation for future growth in line with our strategic plan. Following the initial phases of same we are now well-positioned to capitalise on the capacity already built and focus more on our unique areas of interest. It is also particularly



gratifying to witness research slowly becoming seen as part of core business within ECS.

Our highlights this particular year included publication of twelve papers in peer reviewed journals, plus various presentations by multidisciplinary team members regarding work done in our department. We also had our Director of EMRG appointed to the current chair of the Queensland Emergency Research Collaborative, and have two nurses currently completing their PhDs in the field of emergency medicine.

For our NHMRC-funded pneumothorax study we have completed more than 80% of the recruitment required. We also had several successful grant applications including the SEED innovation fund, two further QEMRF grants and three TPCH Foundation New Investigator Grants.

#### GRANTS

In 2015 the EMRG received \$126,000 in research funding from a number of funding bodies, including TPCH Foundation, QEMRF and the SEED Innovation. This went to seven different research projects looking into emergency medicine health issues.

#### PRESENTATIONS AND PUBLICATIONS

The EMRG had 15 different presentations in 2015, including

one international presentation. These were made at the Annual Scientific Meeting of the Australian College for Emergency Medicine, the Unlocking Nursing and Midwifery Leadership and Workforce, the 13th Annual Conference for Emergency Nurses, TPCH 7th annual Health Discoveries Research Forum, the Queensland Autumn Symposium, and the International Forum on Quality and Safety in Healthcare held in London.

#### RESEARCH STUDENTS

We supervised two PhD students in 2015 alongside the Australian Catholic University.

#### RESEARCH COLLABORATIONS

Within MNHHS we collaborated with several research and healthcare groups, including TPCH Foundation Nursing Research & Practice Development Unit, TPCH Allied Health Research Group, TPCH Cardiology, TPCH General Medicine Research Group, TPCH Critical Care Research Group, TPCH Medical Imaging Program and TPCH Thoracic Medicine Program plus the Royal Brisbane Emergency Medicine Research Group.

We also had several collaborating partners within Queensland, including Queensland Emergency Research Collaborative (QERC), Queensland Emergency

Medicine Research Foundation (QEMRF), Pathology Queensland, Queensland Ambulance Services, Princess Alexandra Emergency Medicine Research Group, Ipswich Hospital Emergency Medicine (BLUE), the Australian Catholic University, the Queensland University of Technology and the University of Queensland.

Nationally our research collaborations extended to the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Joseph Epstein Centre for Emergency Medicine Research, VIC Central Clinical School, Monash University, VIC University of Western Australia, WA Centre for Clinical Research in Emergency Medicine, WA Institute for Medical Research, WA Australasian College of Emergency Medicine and PREDICT.

## Internal Medicine Services

#### RESEARCH HEAD

Dr Eamonn Eeles,  
Dr Chrys Pulle  
Professor Tony Rahman

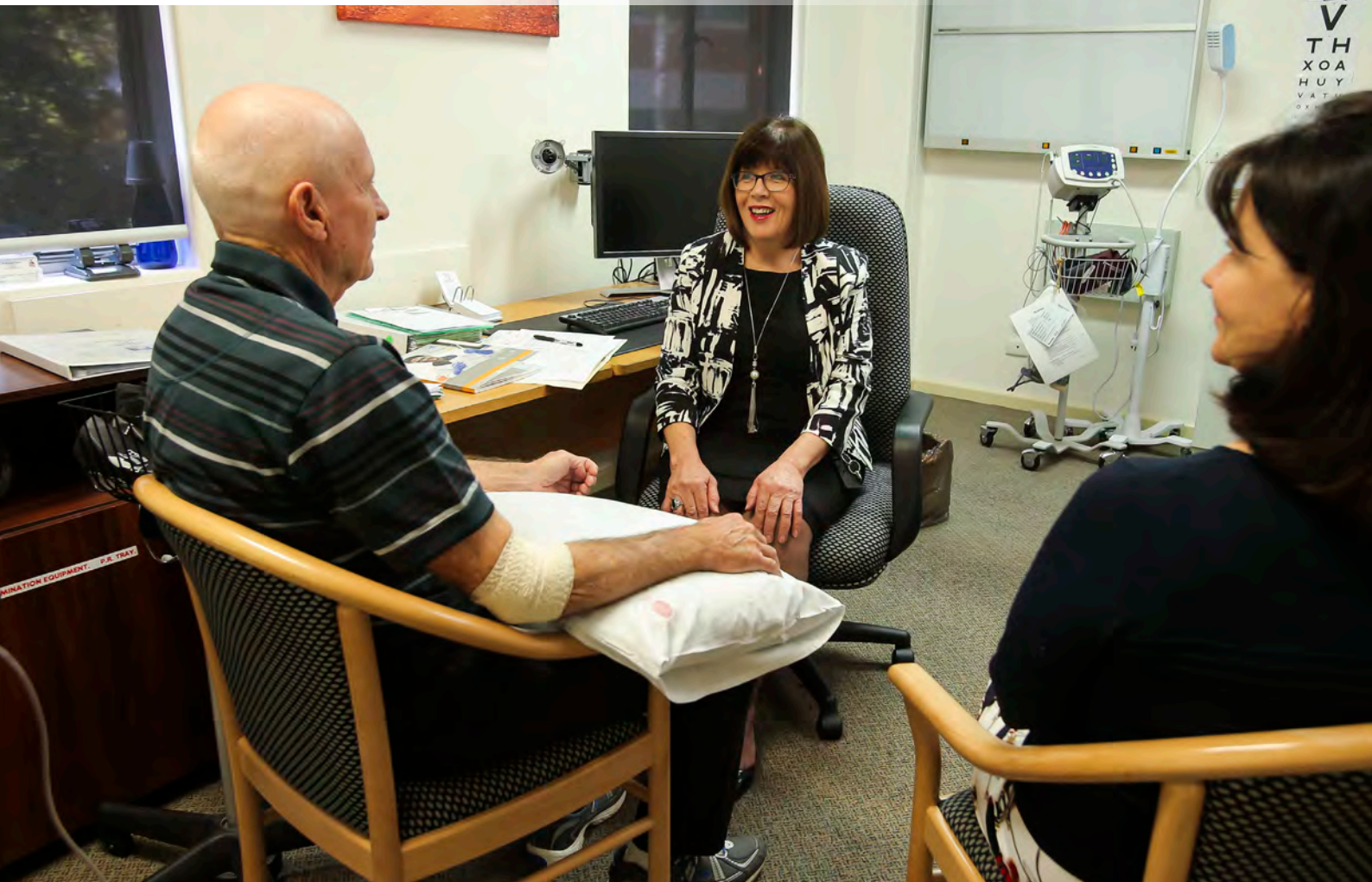
The Internal Medicine Services Research Committee is comprised of the Internal Medicine and Dementia Research Group (IMDRU), Network for Orthopaedic Fracture Education & Research (NO FEAR) & Gastroenterology Research Program. The committee aims to foster a culture of research in practice, build collaboration and partnerships and drive better patient care outcomes.

The Internal Medicine Services Research Committee strives to target numerous health domains for a diverse patient cohort aligned to the programs. Our

specific areas of health research include delirium, dementia, stroke (functional outcomes and efficiency of stroke rehabilitation), hip fractures (malnutrition and mortality), frailty in the ageing population, innovative models of care.

The committee provides leadership in the promotion and support of research and strives to foster a research culture to achieve innovative and better patient care. Governance over needs of individual research projects and the sometimes competing demands of clinical activity is provided by our peer group comprising of a





multidisciplinary team of experts. Discoveries, innovations and enhanced models of care have all in turn been inspired, nurtured and translated into practice.

Research undertaken by Internal Medicine research groups continue to assist in the search for a cure, diagnosis, assessment of risk and the opportunity for patients to trial possible new treatments in the area of cognitive decline, dementia, fractured neck of femur, stroke, coeliac disease, hepatic encephalopathy & hepatitis (HSV). For instance, our group developed a new model of care in delirium (Eeles et al),

new screening tools that can be applied to everyday practice (Lin et al), explore quality of life in dementia (Gordon et al), optimise day to day care in hospital (Mudge et al), promote early discharge in delirium (Eeles et al) and meet standard of care. IMDRU is currently undertaking new clinical research trials in the area of dementia and has been a lead site for the only disease modifying drug shown to be effective in Alzheimers disease. The Gastroenterology research group is developing models of care for HSV and continuing NHMRC research into coeliac disease and Hookworm. Members of the research

committee are leaders and organisers for state and national bodies involved in shaping research and care for patients (QBI advisory board/state-wide dementia network, Australasian Delirium Association/ ACSQHC/ ANZSGM).

#### HIGHLIGHTS

In 2015 the researchers within Internal Medical Services obtained a BUPA grant for predicting cholinesterase inhibitor response in patients with dementia, and Dr Emily Gordon received an IMS bursary Award for 'unmet need in persons with dementia and their care partners'. We also secured

a UQ Summer scholarship for the development of key performance indicators in the care of patients with delirium. In collaboration with CCRG and COGNUSE, we were awarded an early career research grant for the development of a delirium screening instrument for the critical care setting. We also collaborated with QBI and TPCH sleep group, to investigate the role of basal forebrain in the development of cognitive impairment for persons with sleep apnoea. Our NO FEAR group research into post hip fracture community dwelling patients resulted in the establishment of a physiotherapy review process to optimize functional performance outcomes.

The Gastroenterology research group we successful in receiving NHMRC grant funding as well as being the recipient of Queensland fellowship award for ongoing research into Coeliac Disease and Hookworm.

#### GRANTS

The Internal Medicine Services Research Committee (including IMDRU, NO FEAR & Gastroenterology research program) received just over \$2 million in funding from various granting bodies in 2015. This included funds from The Prince Charles Hospital Foundation, NHMRC, QIMR, BUPA, TVN (Canada), the Allied Health Research Collaborative, IMS

Research Committee Bursary, MNHHS and the Health Practitioner Research Scheme 2015.

#### AWARDS

Our team received two awards for research; this included the MNHHS Australia Day Award given to Dr Jack Bell (as part of NO FEAR) and Ms Vicki Steward, who received the Excellence in Integrated Care Award form MNHHS.

#### PRESENTATIONS & PUBLICATIONS

NO FEAR gave 3 presentations in 2015 at the Falls Fractures and Pressure Injuries Conference, and the ANZ Society of Geriatric Medicine Annual Conference.

The Internal Medicine Research committee in conjunction with IMDRU had over 24 presentations at national and international forums on a variety of topics. Notable forums included the 9th World Congress of the International Society of Physical and Rehabilitation Medicine, Medical Oncology Group of Australia (MOGA) Annual Scientific Meeting and the AFRM/NZRA Combined Rehabilitation Meeting.

The Gastroenterology research group gave 5 presentations at the Australian Gastroenterology Week (AGW) World Gastroenterology Organisation Meeting.

#### RESEARCH COLLABORATIONS

Our formal research collaboration partners in 2015 were the CCRG at TPCH, the Queensland Brain Institute (QBI), CSIRO, the University of Queensland (UQ), and the Comprehensive Rehab Platform for the Continuum of Care (Cognuse).





# // Richard Slaughter Best Clinical Paper Award 2015

## Award Winner Dr James Walsh

Dr James Walsh is a physiotherapist and clinical consultant for heart and lung transplant suitability at The Prince Charles Hospital. He spends his days helping to assess the physical health of patients and choose the best candidates for organ transplants. It's a task that can't be taken lightly – with each decision is the potential life of a patient relying on a new set of lungs or a heart.

This research has helped Dr James Walsh and the team to better understand how frailty impacts on transplant outcomes; the award winning study showed that functional performance is the strongest marker of risk for post-transplant outcomes.



# Gastroenterology & Hepatology Research Program

## RESEARCH HEAD

Professor Tony Rahman

The Gastroenterology and Hepatology Research Program specialises in innovation in Gastroenterology, Hepatology and Endoscopy. We aim to pioneer international peer-reviewed translational clinical studies, and develop service and quality improvement strategies.

Our main health issues that we address include coeliac disease, and the role of hookworm in mitigating the devastating effects that gluten has on the lives of patients with coeliac disease. We also investigate Hepatic Encephalopathy, to better understand the social, economic and clinical impact of

this disease. We hope to develop early diagnostic testing and treatments to help patients. Our other major focus is Hepatitis C, and examining alternative clinical models of effective service delivery, especially to those in non-Metropolitan areas.

Through our research we hope to provide clinical benefits to people suffering from these illnesses. Specifically, we endeavour to develop a long term cure for coeliac disease, using the favourable immunobiology of Hookworm. We also want to improve patient well-being for those with Hepatic Encephalopathy by

finding diagnostic tests for early detection and treatment, and to eradicate HCV by reaching out to vulnerable patient groups and offering new successful treatments.

With our research, successful Hookworm treatment would allow those with coeliac disease to lead a normal life with reduced physical symptoms (such as pain, diarrhoea and vomiting). Additionally, successful

detection and treatment of Hepatic Encephalopathy would allow a person who is currently in a variable state of coma to function in society again, to interact with family, work and other normal activities.

## HIGHLIGHTS

We successfully secured NHMRC funding and TPCH grants for our research into the impact of Hookworm immunobiology on patients with coeliac disease.

## GRANTS

We received three grants totalling \$1.25 million in funding, awarded by NHMRC, The Prince Charles Hospital Foundation, QIMR and Metro North.

Dr John Croese & Professor Tony Rahman



# Medical Imaging Research Program

## RESEARCH HEAD

Wendy Strugnell

The Medical Imaging Research Program broadly aims to deliver improvements in diagnostic imaging through evidence-based assessment and development of imaging techniques. Our ultimate goal is to provide safer, faster, more accurate diagnoses of medical conditions.

The Richard Slaughter Centre of Excellence in Cardiovascular MRI operating within the Medical Imaging Department at TPCH, provides Australia's largest Cardiac MRI service. We aim to undertake clinical research to progress the development of MRI as a diagnostic tool for

congenital and acquired heart disease. Through a Research Collaboration Agreement with Siemens Healthcare we explore the application of novel MRI technologies to determine new clinical applications help improve image quality, acquisition speed, and diagnostic accuracy to guide clinical management.

The Cardiac Imaging Research Group also aims to improve patient safety through the optimization of acquisition protocols and radiation reduction in patients undergoing cardiac CT.

Cardiovascular imaging is a fast-expanding area of expertise in diagnostic imaging, providing better diagnosis and informing clinical decision-making. The health needs are to provide more robust, accurate, less invasive, more rapid, and patient-friendly, non-invasive imaging techniques for diagnosing disorders of the cardiovascular system.

Clinical benefits that have come about from our research in the past twelve months include: improved utilization of stress-perfusion cardiac MRI (as per the CE-MARC trial, increased accuracy and reduced radiation compared to SPECT nuclear perfusion imaging); application of advanced imaging such as tissue characterisation imaging methods to assist with diagnosis of subclinical cardiac diseases; and improved quantitation of residual valve dysfunction after percutaneous valve interventions.

A highlight has been the exercise cardiac MRI program which has made great inroads into the assessment of right ventricular contractile function and early detection of right ventricular maladaptation in patients with pulmonary arterial hypertension. This research will enable clinicians to risk stratify patients and assist them in treatment decision making. Re-assessment of patients after completion of treatment permits evaluation of

the effectiveness of treatment and further adjustment of management. Ongoing research is assessing the benefits of exercise training on the quality of life for this patient group.

Many patients travel from remote locations or interstate to access the advanced services of the Richard Slaughter Centre of Excellence in Cardiovascular MRI, which is a luminary site in Australia for the clinical application of advanced cardiac MRI imaging for diagnosing cardiac conditions.

Our cardiac imaging research helps patients through improving the non-invasive diagnosis of coronary artery disease and heart failure (with CT and MRI imaging); reducing radiation exposure to patients (audit and QA activities over the last 4 years, resulting in relevant publications); improving our understanding of right ventricular function with exercise and how exercise training might improve the quality of life and function in patients with pulmonary hypertension.

Continual development of imaging technology is improving the quality and efficacy of MR imaging of the heart. New applications and improvements in image quality help avoid diagnostic dilemmas in complex patients in whom implementation of treatment might otherwise be

delayed. Early identification of cardiac dysfunction means that appropriate medical treatment and other therapies could be initiated in patients before the development of overt symptoms and therefore improves their quality of life and prognosis.

## HIGHLIGHTS

One of our major highlights was the Exercise MRI Project. Through an international research collaboration with Siemens Healthcare, the CIRG was one of the first MRI research groups in the world to have access to advanced technology enabling the capture of ultrafast images of the heart. This ground breaking technology makes MR imaging during exercise clinically feasible by maintaining spatial resolution and reducing the image acquisition time more than ten-fold (whole-heart imaging in one breath hold, rather than the usual ten breath holds). During 2015 our research was focused on the effects of exercise on right ventricular contractile function in patients with pulmonary arterial hypertension. This work resulted in three proffered papers at international and national meetings – all of which won awards.

## GRANTS

In 2015 we received one grant to the amount of \$10,000 from the Australian Institute of Radiography, for our project 'Factors impacting on patient



and operator radiation dose during percutaneous cardiac intervention in the modern era'.

#### AWARDS

Our group received three awards in 2015, including the President's Award for Best Proffered Paper from the Society for Magnetic Resonance Radiographers and Technologists; Best Abstract: Nurses and Technicians from the European Society of Cardiology; and Best Oral Abstract from the Pulmonary Hypertension Society of Australia and New Zealand.

#### PRESENTATIONS & PUBLICATIONS

The group made nine presentations nationally and internationally in 2015, including at the EuroPCR forum, the 10th Annual Meeting of the Society for Magnetic Resonance Radiographers and

Technologists in Auckland and the Society for Cardiovascular MR Annual Scientific Meeting in Nice, France.

#### STUDENTS

The group supervised three higher degree students in 2015 from UQ, Griffith University and QUT, including one PhD, one Honours and one Masters student.

#### RESEARCH COLLABORATIONS

Our local collaborating partners were the Queensland Pulmonary Hypertension Unit, Critical Care Research Group, Cardiology Program and Clinical Cardiac Research Centre, the Department of Physiotherapy, and the Thoracic Program. Across Queensland we worked with Professor Norman Morris (Menzies Health Institute QLD & Griffith University) and the Centre

for Advanced Imaging (University of Queensland).

We also had a number of national and international collaborations that included Siemens Healthcare Pty Ltd (Australia), Professor Andre LaGerche (Baker Institute IDI, Melbourne) and Siemens Healthcare GmbH (Germany)







# Nursing Research & Practice Development Centre

## RESEARCH HEAD

Professor Paul Fulbrook

The Nursing Research and Practice Development Centre (NRPDC) aims to undertake research and practice development that is aligned with The Prince Charles Hospital (TPCH) nursing strategy, that impacts on the quality of patient care and improved outcomes. This is achieved by supporting and co-writing research articles for local, national and international conferences and peer-reviewed journal publications.

With our research we hope to extend nursing research capacity and capability, and enhance research culture

within the hospital and the university. In turn, this will assist clinicians in research activities by providing mentorship and facilitation for research development, data collection, data analysis and dissemination.

The group also aims to provide ethics and governance guidance, as well as support regarding internal and external funding sources and collaborating on research grant applications. We strive to assist clinical staff in obtaining adequate funds to provide time away from their substantive roles to work on research



projects. We also support nursing staff to undertake higher degrees by research (HDR) studies by providing them with supervision, a research community, office space and facilities to work on their research.

Our current research priority areas, which are established in the NRPDC Strategic Plan 2015 – 2017, and are aligned with nursing priorities that are identified within TPCH Nursing Strategic Plan, are;

- Falls injury prevention
- Pressure injury prevention
- Emergency care
- Cardiothoracic care

NRPDC's research also aims to improve patient outcomes, such as preventing hospitalised patients developing pressure injuries, reducing the incidence and harm associated with patient falls, and evaluating and improving emergency department (ED) patient experiences by reducing time spent in the ED.

Focus on pressure injuries and falls prevention is a hospital-wide initiative and is linked to the National Safety and Quality Health Service and Quality Health Service accreditation standards. Reducing the impact of these two adverse events will improve patient and hospital outcomes, in terms of pain, extra treatment, increased

hospital length of stay, and the financial and personal costs associated with these events.

#### HIGHLIGHTS

We were successful in obtaining several grants and had a range of publications on clinical and research topics including falls, pressure injury, the patient experience, and the emergency department. Additionally, we were very busy presenting research findings at several local and international conferences.

#### GRANTS

The NRPDC received \$106,000 of research funding in 2015, for four different nursing practice projects. These came from two funding bodies; The Prince Charles Hospital Foundation and the Queensland Health Seed Grant.

#### PRESENTATIONS AND PUBLICATIONS

The group had 11 national and international presentations on their research in 2015; this included presenting at the World Federation of Societies of Intensive and Critical Care Medicine in South Korea and 9 local and national health care conferences and forums.

#### STUDENTS

The group supervised 7 higher degree and student placements in 2015, including five PhD students, one MPhil and one MRes student, all

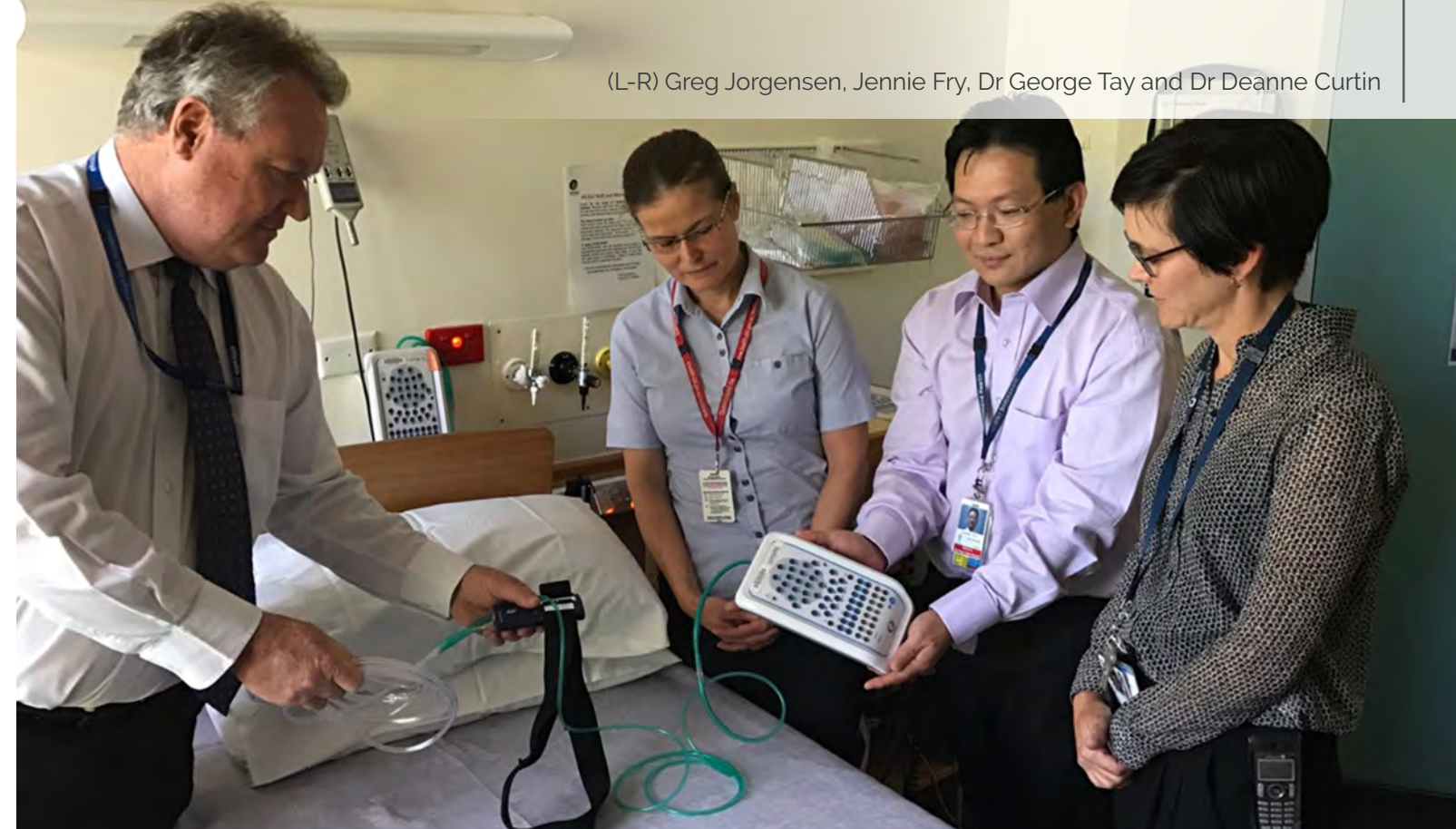
from the Australian Catholic University.

#### RESEARCH COLLABORATIONS

In 2015 we collaborated with a number of TPCH clinicians and researchers, including Dr Usha Gurunathan, Prof Kwon Fung, Dr Frances Kinnear, Dr Colin Myers, Dr Jeffrey Rowland and Associate Prof Ian Yang.

Our collaborations also extended state-wide and nationally; Dr Emma Bosley, Queensland Ambulance Service; Dr Justin Boyle, CSIRO; Marc Colbeck, Australian Catholic University; Dr Aaron Conway, Queensland University of Technology, Professor Gerard FitzGerald, Queensland University of Technology; Professor Nancy Low Choy, Australian Catholic University; Associate Professor Shawn Somerset, Australian Catholic University; Professor Linda Shields, James Cook University; Associate Professor Kerriane Watt, James Cook University; Professor Nerida White, Australian Catholic University National Associate Professor Liz McInnes, Nursing Research Institute, St Vincent's Hospital Sydney; Professor David Thompson, Australian Catholic University Melbourne.

(L-R) Greg Jorgensen, Jennie Fry, Dr George Tay and Dr Deanne Curtin



## Sleep Disorders Centre

#### RESEARCH HEAD

Dr Deanne Curtin

The Sleep Disorders Centre (SDC) aims to improve the sleep health of patients at The Prince Charles Hospital (TPCH) and the surrounding community. Obstructive sleep apnoea (OSA) and insomnia, both of which are highly prevalent were addressed in 2015. The management and outcomes of inpatients at TPCH with respiratory failure on non-invasive ventilation were also addressed in our research in 2015.

Treating sleep disorders such as OSA can improve quality of life, cardiovascular outcomes and reduce the risk of motor

vehicle and workplace accidents. Similarly, treating insomnia can improve quality of life, productivity and mood disorders. Auditing our use of Non Invasive Ventilation (NIV) at TPCH ensured our service is of world class standard with comparable mortality and was able to highlight some minor areas to improve.

#### HIGHLIGHTS

In 2015, the SDC focused on two main areas of sleep research. The first area was the efficacy of cognitive behavioural therapy for insomnia (CBTi) in patients with co-morbid OSA and insomnia.

TPCH sleep clinic patients and community volunteers were recruited for a multi-centre randomized controlled clinical effectiveness trial. This NHMRC funded study was a collaboration between the Adelaide Institute for Sleep Health, the Queensland University of Technology and TPCH.

Both OSA and insomnia represent huge health burdens in Australia with approximately 10% of middle aged men and 5% of middle aged women in the general population having OSA. Up to 40% of OSA patients also suffer from insomnia.

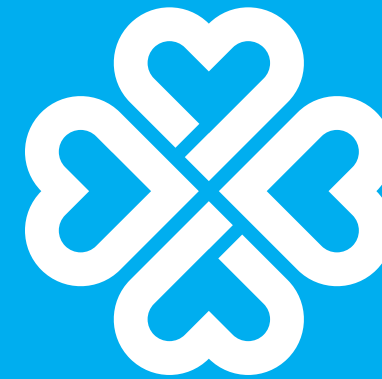
Untreated sleep disorders have a high public health cost due to long term health consequences, reduced quality of life, loss of productivity and the increased risks of motor vehicle and workplace accidents. OSA can be effectively treated but poor treatment compliance is a major clinical problem. Patients with coexisting OSA and Insomnia are known to be half as likely to even try Continuous Positive Airway Pressure (CPAP), the gold standard treatment for OSA and also have been shown to have reduced CPAP adherence.

The second research area of interest for the SDC in 2015 was an audit of the indications and outcomes of Non Invasive

Ventilation (NIV) at TPCH over 12 months. All patients commenced on NIV for acute respiratory failure outside of the Intensive Care Unit (ICU) were included. Results including mortality were compared to international published data and were found to be comparable. TPCH results were also benchmarked against two other sites in Australia, The Princess Alexandra Hospital in Brisbane and Sir Charles Gardiner Hospital in Perth. Results were comparable confirming that our practice is in keeping with international and national standards. The results were presented at the annual Australasian Sleep Association Conference and the annual scientific meeting of the Thoracic Society of Australia and New Zealand.

#### COLLABORATIONS

The Sleep Disorders Centre collaborated with the Queensland University of Technology, the University of Queensland and the Adelaide Institute of Sleep Health.



# THE COMMON GOOD

## PEOPLE POWERING MEDICAL DISCOVERIES

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AN INITIATIVE OF THE PRINCE CHARLES HOSPITAL FOUNDATION

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"Chronic disease remains a massive challenge, and medical research is the key. But brilliant, world-class researchers are working on the smell of an oily rag.

Sometimes they can't afford to do it at all. It's shameful, and we can do something about it by joining forces with the researchers themselves. I've seen what can do, I've seen their breakthroughs, and I've seen the passion that drives them. I haven't taken this decision lightly to be an ambassador for the Common Good. I consider this to be an urgent imperative."

- Kerry O'Brien  
Ambassador, The Common Good, for The Prince Charles Hospital Foundation

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## Research Groups & Feature Stories

# Thoracic



Feature: Associate Professor Dan Chambers & Patient	36
Oncology Services Research	40
Adult Cystic Fibrosis Research Group	42
Core Thoracic Research Group	46
Queensland Lung Transplant Service	47
University of Queensland Thoracic Research Centre (UQTRC)	50





It's extremely potent, personalised medicine that could see the end of melanoma, leukaemia – and in the case of TPCH patient Matt Meyers – lymphoma.

## A medical revolution

A team at The Prince Charles Hospital is leading the way in developing a whole new class of therapeutic products for patients with a range of previously incurable lung diseases, infections and cancers. These new products – the 'advanced biologics' – will transform medicine in the coming decade.

The team, led by A/Prof

Dan Chambers from the Queensland Lung Transplant Service and the Department of Thoracic Medicine, recently received \$1.9 million in NHMRC funding to conduct the world's largest ever study of an advanced biologic product for lung disease. "The first medicinal products were small molecules, such as penicillin, statins and blood pressure medication. The next

Associate Professor  
Daniel Chambers



generation of products, which became available 15-20 years ago, were the biologics; these are antibody molecules which are now used widely to treat cancers and autoimmune diseases. Now we are on the verge of a new revolution in medicine with the introduction into clinical practice of the 'advanced biologics.'" A/Prof Chambers said.

Using whole cells and even parts of cells (as opposed to molecules) which can be isolated from either the patient or a third party donor, the advanced biologic products are culture-expanded and engineered outside the body and so are more potent and can be designed to be highly specific for the disease being targeted. Much of the early focus of this research has been on the production and clinical testing of T-cell products, such as chimeric antigen receptor (or 'CAR') T cells, to treat previously incurable cancers such as leukaemia, lymphoma, mesothelioma and melanoma; and viral infections resistant to all known drug treatments.

Together with QIMR-Berghofer and collaborators in the United States, A/Prof Chambers' team has been conducting a first-in-human study of a T cell product to treat cytomegalovirus infection. These cells are taken from the patient, and grown to large numbers in a lab by

exposing the T-cells to part of the virus forcing them to respond and multiply as the normal immune system does. When grown in sufficient numbers the cells are then re-injected into the patient, and work to destroy virus -infected and even cancerous cells.

In the case of CAR T-cell research, trials have successfully cured 95% of cancer patients. It's extremely potent, personalised medicine that could see the end of melanoma, leukaemia – and in the case of TPCH patient Matt Meyers – lymphoma.

A/Prof Chambers says it is working with patients like Matt that highlights how close the clinical application of this research is. Matt Meyers was born with Cystic Fibrosis, and a few years ago had a successful double lung transplant. While the post-transplant recovery had its hiccups, it was the diagnosis that came four months later that was devastating; Matt had lymphoma from a glandular fever virus he'd contracted.

Already on a strong dose of immunosuppressants, and not responding to conventional chemotherapy, treating the lymphoma proved to be a challenge for A/Prof Chambers and his team. However, A/Prof Chambers was able to source third party T-cells targeting the

virus causing the lymphoma from his collaborators at Memorial Sloane Kettering Hospital in New York. A year later and Matt Meyers is a healthy, thriving young adult.

Now, in partnership with QIMR-Berghofer, The University of Queensland, The Prince Charles Hospital Foundation and the Queensland Government, A/Prof Chambers is establishing the Queensland Centre for Advanced Biologics, which will ensure that Queensland and Australia remain at the forefront of these incredible medical advances.





# Oncology Services Research

## RESEARCH HEAD

Associate Professor  
Brett Hughes

The Oncology Services Research group aims to provide access for all patients with lung cancer and mesothelioma to quality clinical trials, and state of the art therapeutic lung cancer trials. We hope to increase integration and collaboration with other research programs at The Prince Charles Hospital.

Historically people with lung cancer and mesothelioma have had limited treatment options, and we hope to provide other lines of effective therapy for these people. Our research can give these patients access to new therapeutic modalities, including next generation

Tyrosine Kinase Inhibitors, Immunotherapy and novel agents.

The Oncology Services Research group can help improve cancer outcomes through research, with newer therapies that are potentially less invasive and very effective in controlling the disease. Investigative treatments are generally well tolerated and effectively improve the participants' quality of life.

### HIGHLIGHTS

We had recruitment for a number of international studies, participating in practice-changing research such as

Accalia (Alectinib). The group also produced 9 publications, had 7 presentations at national and international meetings and increased clinical research coordinator staffing.

### GRANTS

We received \$30,000 in funding from the Royal Brisbane & Women's Hospital (RBWH) Foundation for our research into 'Prophylactic nutrition support in high risk patients prior to treatment for head and neck cancer'.

### PRESENTATIONS AND PUBLICATIONS

Our group had five international

and two national presentations in 2015. This included presenting at ELCC in Switzerland, ASCO in the USA, ESMO in Austria, SNO in the USA and MOGA and COSA in Hobart, Australia.

### RESEARCH COLLABORATIONS

Our collaborating partners in 2015 were Professor Kwun Fong (TPCH), Mark Smyth (QIMR), the Cancer Council Queensland, the Australasian Lung Cancer Trials Group (ALTG) and the Canadian Cancer Trials Group.

Brett Hughes and the Minister of Health, Cameron Dick  
at the opening of the Oncology Ward





# Adult Cystic Fibrosis Centre

## RESEARCH HEAD

Professor Scott Bell  
Associate Professor David Reid

The Adult Cystic Fibrosis Centre aims to improve the fundamental understanding of the complications of Cystic Fibrosis (CF) as a multi-system disease, in order to enhance all aspects of care delivered to our patients. Our group aim to test and then translate into clinical care novel therapies to correct the basic defect in CF, study the pathophysiology of CF focusing on infection and inflammation of CF airways using laboratory based in vitro and in vivo (mouse model) techniques to complement our clinical studies, and to attract and retain (and train) members of the CF multi-disciplinary team in research

methods and principles ensuring future sustainability of the CF research program at TPCH.

Through our research we hope to gain an improved understanding of infection and inflammation of the CF lung, the major cause of mortality and morbidity of cystic fibrosis. The group also want to increase the population of adults with CF who are growing older and a number of emerging complications are now common place. We need to understand how best to diagnose and manage each of these complications and the aetiology of manifestations such as an increased risk of colonic

cancer, kidney disease and drug allergy.

Cross-infection is now well established and the group's research aims to improve understanding of how this occurs and what the implications of such infection are to their patients, as well as understanding the optimal model of care to deliver to our patients including the growing numbers of adults with CF and within the geography of Australia.

The Adult Cystic Fibrosis Centre's research is highly beneficial to the clinical care of adult CF patients. The most common CF gene (F508del) affects 90% of our patients, including 50% who have two 'copies' of this gene. Novel therapies for correcting the abnormal CF gene are crucial to enhancing the quality of life of people with CF. The group has been an international leader in participating in early stage and pivotal studies to evaluate the role of new treatments. In 2015, the largest CF trial ever performed was completed and showed promising results (more than a dozen of our patients contributed to the global study).

With increasing survival, more than 50% of the CF population are now adults in Australia. The pursuit of careers is now important and an increasing number of adults with CF

are training in health care professions. We have identified for the first time an increased risk of MRSA infection in healthcare workers with CF. This increased risk is likely to be related to exposure in professional life and will contribute to new national guidelines to advise people with CF.

The opening of the purpose commissioned CF ward has allowed examination of the benefits for quality and health outcomes for patients to hospital with CF. Early results confirm improved patient satisfaction.

Our research programme aims to better understand the causes of lung damage (inflammation and infection) using studies in the laboratory, in parallel with understanding the natural history of the disease using the national CF data registry and a vast local metadata set of microbiological and inflammation cell BioBank. We aim to ask clinically important questions posed by members of our multidisciplinary team which address both the factors which impact on daily quality of life and also how we as a team can improve the care we deliver. We aim to communicate the results of our research in the international literature to allow broader translation. We participate in clinical trials especially to study the safety and benefit of new drugs to correct the basic CF defect and then to support those which

are proven effective into the routine care of our patients, as has occurred with Ivacaftor in the past two years.

## HIGHLIGHTS

In 2015 the Adult Cystic Fibrosis Centre was able to demonstrate social contact of adults with CF attending CF centres for clinical care is an important risk factor for the acquisition of shared strain *P. aeruginosa* infection (Lancet Respiratory Medicine, ranked 2nd in Respiratory Medicine). Another highlight was the demonstration that dilatation of the pulmonary artery on CT scan of the chest is predictive of pulmonary exacerbations in people with CF, utilising two cohorts, one a discovery cohort from a phase III RCT and a validation cohort from Brisbane (Lancet Respiratory Medicine, ranked 2nd in Respiratory Medicine).

We published the initial report from the international consortium examining >1000 *Pseudomonas aeruginosa* genomes by reporting the clinical utilization of genomics data of *P. aeruginosa*, and also a curriculum for training of physicians in adults CF care by a taskforce established by the European Respiratory and CF Societies (European Respiratory Journal, ranked 4th in Respiratory Medicine).

## GRANTS

In 2015 the Adult Cystic Fibrosis





Centre was awarded over \$2 million in grants, including funding from the TPCH Foundation, QIMR, NHMRC and the CF Foundation in the USA.

#### PUBLICATIONS AND PRESENTATIONS

The group presented at over 13 conferences nationally and internationally, and had a total of 23 publications in high-tier publications. Professor Scott Bell was also the Editor-in-Chief for the Journal of Cystic Fibrosis.

#### AWARDS

Dr Laura Sherrard received the Shelly Shephard Memorial Scholarship, the best oral presentation prize at the TPCH Health Discoveries forum, and the best oral presentation prize in the clinical stream at the 11th Australasian CF Conference. Rebecca Stockwell received an Advance Qld Top-up Scholarship, Dr Anna Tai received the TSANZ/Vertex Travel Scholarship from the Thoracic Society of Australia, and Michelle Wood was the winner of the best oral section award at the 11th Australasian CF Conference.

#### RESEARCH STUDENTS

The Adult Cystic Fibrosis Centre supervised four PhD students, two MPhil students and one BSc (hons, first class) student from the University of Queensland in 2015.

#### RESEARCH COLLABORATIONS

Within MNHHS the Adult Cystic

Fibros Centre collaborations included Dr Chris Coulter, Dr Andrew Burke (Infection Prevention and Control, TPCH) and Prof David Paterson (RBWH). Queensland collaborations include Prof Lidia Mowraska (QUT), Dr Luke Knibbs (SPH, UQ), Prof Claire Wainwright and Prof Peter Sly (UQ), A/Prof John Miles (QIMR Berghofer Institute of Medical Research) A/Prof Scott Beatson (UQ), and Dr Colleen Lau (ANU).

We also had significant national collaborations, which included Prof Peter Wark (HMRI, Newcastle), CI A/Prof Rachel Thomson and Prof Claire Wainwright (UQ), A/Prof Geraint Rogers (SAHMRI), Prof Archie Clements (ANU), Prof Andres Floto (Cambridge University, UK) and all 21 CF centres in Australia as well as all related microbiology and mycobacteriology labs.

Internationally we collaborated with Prof Roger Levesque (Montréal, Canada) and Prof Iain Lamont (Dunedin, New Zealand).



# Core Thoracic Research Group

## RESEARCH HEAD

Associate Professor  
Phillip Masei

The aim of the Core Thoracic Research Group is to explore new diagnostic tests, mechanisms and treatments in a diverse range of thoracic diseases with a particular focus on bronchiectasis and COPD.

There are a range of health needs that we address, including a diverse range of respiratory diseases (such as therapies for COPD and Bronchiectasis), Allied Health interventions for COPD and pneumonia (includes nursing, occupational therapy, speech pathology, physiotherapy, psychology departments), we are also investigating an intervention for Pneumothorax, and a review of rare lung diseases including

alveolar proteinosis and pulmonary AVM's.

Clinically the work of the Core Thoracic Research Group helps to advance knowledge of interventions and mechanisms in a range of lung disease, and they are involved in studies which explore the benefits of various new therapies in a diverse range of lung diseases. We examine the characteristics and outcomes of various lung diseases.

### HIGHLIGHTS

In 2015 the group were involved in TSANZ presentations, with many staff members contributing as speakers, chairs and poster mentors.

### PUBLICATIONS AND PRESENTATIONS

The Core Thoracic Research Group had four presentations at the 2015 TSANZ based in Perth, on topics of COPD and CF Infections.

### RESEARCH COLLABORATIONS

Collaborations with the Core Thoracic Research Group included RBWH Internal Medicine (CHERISH Professor Alison Mudge, Respiratory Nurse Enable Access for COPD to HITH (REACH), and the Multicentre Randomised Control Trial of Intercostal Catheter Intervention in Patients with Large Spontaneous Pneumothoraces.

# Queensland Lung Transplant Service

## RESEARCH HEAD

Associate Professor  
Daniel Chambers

The aim of the Queensland Lung Transplant Service is to improve outcomes of patients with incurable lung disease through innovation and basic, clinical and translational research. We hope to bring clinicians and scientists together so that laboratory findings can be rapidly translated to improved outcomes for patients.

We address several health needs including post-lung transplant outcomes and advanced lung disease such as idiopathic pulmonary fibrosis and pulmonary hypertension. We also aim to understand

both the biology of lung disease and to trial potential new therapies in conditions for which there are no or few therapeutic options available.

As our research program is embedded in the clinical program, our research has direct clinical benefits for our patients. The clinical trial program tests new therapies to stop the progression of advanced lung disease, with many patients having positive results.

For idiopathic pulmonary fibrosis and post-lung transplant rejection, our clinical



trial centre is one of the largest in the world, and we have developed tests which allow for more accurate diagnosis of infection and rejection in lung transplant patients. These laboratory results are directly translated into the clinical management of the patient to save lives.

#### HIGHLIGHTS

We continue to be recognised as a world leader in our field, and have emerged as the world's largest centre of stem cell therapies for lung disease. We have completed world first trials of stem cell therapy for chronic lung allograft dysfunction, idiopathic pulmonary fibrosis and pulmonary hypertension.

The Queensland Lung Transplant Service is also the lead-site for a world-first trial of autologous T cell therapy for refractory viral infection, and we established an Australian-first model of ex-vivo lung perfusion.

In 2015, we were one of the top contributors at The International Society of Heart and Lung Transplantation Annual Scientific Meeting. We published 16 original studies during the year and our PhD student Tim Sladden won the School of Medicine 3 minute thesis (3MT) competition for the School of Medicine and was Runner-Up for the Faculty

of Medicine and Biomedical Sciences. We also received two NHMRC grants with funding in excess of \$2.5 million dollars over 3-5 years.

#### GRANTS

Our group received \$191,000 of funding for three different projects in the 2015 period. This including funding from the Australian Respiratory Council, the University of Queensland Academic Title Holder Research Funder and the Queensland Health (Office of Health and Medical Research).

#### AWARDS

Our researchers Dr Stephanie Yerkovich and Dr Tim Sladden both received awards in 2015, for the Best Presentation. Thoracic Society of Australia and New Zealand (OLIV Special Interest Group) and 3 Minute Thesis Competition (UQ) respectively.

#### PRESENTATIONS AND PUBLICATIONS

There were eight national and international presentations, including the Annual Scientific Meetings for the Thoracic Society of Australia and New Zealand, and for the International Society for Heart and Lung Transplantation in Nice, France.

Associate Professor Daniel Chambers was also an Editorial Board Member for the European Respiratory Journal.

#### STUDENTS

We supervised five students in 2015, including two PhD, one MBBS Honours and two Mphil students.

#### RESEARCH COLLABORATIONS

In 2015 we had several national collaborating partners, including Norman Morris (Griffith University), Peter Soyer (UQ), Adele Green (QIMR), Rajiv Kanna (QIMR), Nikky Isbel (Dept of Nephrology PAH), Marian Sturm (Cell & Tissue Therapies WA, Royal Perth Hospital), Euan Wallace and Rebecca Lim (Monash).

We also collaborated with Tom Petersen (United Therapeutics, North Carolina), Shaf Keshavjee, Tereza Martinu and Marcello Cypel (Toronto) and Daniel Weiss (University of Vermont).





# University of Queensland Thoracic Research Centre (UQTRC), Department of Thoracic Medicine, The Prince Charles Hospital (TPCH)

## INVESTIGATORS

Professor Kwun Fong,  
Associate Professor  
Rayleen Bowman,  
Professor Ian Yang,  
Dr Susanna Doyle,  
Dr Felicia Goh,  
Dr Henry Marshall,  
Dr Marissa Daniels

The UQ Thoracic Research Centre (UQTRC) conducts clinical, translational and scientific research to improve the health of people at risk or affected by lung conditions. We aim to help prevent, diagnose and treat lung diseases including lung cancer, mesothelioma and chronic lung diseases such as asthma and COPD. We focus on lung diseases that are linked to smoking and the environment (e.g. air pollution), with a view to prevent or detect diseases at the earliest possible stage, to improve health outcomes.

With our research we hope to develop cost-effective,

innovative health technologies to address the increasing costs of health care, and provide a strong education and training program. We undertake to report on and present our findings in peer-reviewed journals and conferences.

Another focus of the UQTRC is to contribute in high quality training of the next generation of researchers and scientists, including students from high school, undergraduate, postgraduate and junior faculty levels (such as Honours, MPhil and PhD students), in laboratory, clinical and translational research, including guidelines and

evidence based medicine.

The priority areas of the UQTRC research include basic science coupled to clinical and translational research for the prevention, early detection, screening, diagnosis, and innovations in treatment for:

- Lung and thoracic cancer including: genomics, epigenomics and biomarkers, personalised treatment, diagnostic health techniques (including Digital Tomosynthesis (DT); Computed Tomography (CT) screening; Volatile Organic Compounds (VOCs) and Bronchoscopy, telehealth) and liquid biopsies.
- Mesothelioma, including: genomics and biomarkers, and personalised treatment
- Chronic lung and airways disease including: Asthma, COPD, respiratory diseases linked to environment exposure studying genomics and biomarkers of susceptibility and personalised treatments.

Research findings and outcomes are used as evidence to support the development of evidence based clinical pathways, guidelines, diagnostic methods and therapies for use within the daily clinical practice at The Prince Charles Hospital (TPCH), and to support recommendations made across the thoracic medicine field.

Research at the UQTRC focuses on lung cancer, mesothelioma and airways diseases such as asthma, chronic obstructive pulmonary disease (COPD) and response to air pollution. Our research program focuses on investigating improved methods for:

- Disease prevention (such as lifestyle management & smoking cessation).
- Developing technological innovations in early detection, screening diagnostic techniques using Digital Tomosynthesis, • Computed Tomography screening; identifying biomarkers of lung disease from Volatile Organic Compounds, liquid biopsies & innovative Bronchoscopy techniques.
- Involving genomics, epigenomics & biomarkers, to support the discovery of personalised treatments to enable the right test and the right treatment for the right patient at the right time.
- Finding new tests and treatment strategies for lung disease, so we can provide more effective and cost effective health care.

The UQTRC is also developing improved strategies in population-based respiratory health, improving service delivery, and encouraging consumer participation in respiratory medicine and research.

Our research aims to find better ways to diagnose lung cancer & other respiratory diseases, as early as possible. Early diagnosis can often result in a broader range of treatment options, improved prognosis, and overall health outcomes for individual patients. The mortality rate for lung cancer for example, is very high because by the time a tumour can be detected on the lung using current technology, the available treatment options are very poor. It is vital therefore that the disease is detected very early, a goal we are trying to achieve by researching highly advanced and sensitive screening methods.

Our biomarker research program aims to identify biomarkers in the human genome that may lead to personalised targeted treatments that are better able to combat diseases. Trials of new diagnostic techniques aim to find less invasive, more comfortable diagnostic tests for patients, such as investigating if we can replace expensive procedures or surgery with a simple blood test.

Our research is embedded into clinical programs, ensuring our research questions are highly relevant. We can also rapidly translate what we find in the laboratory into improved outcomes for patients. Bringing consumers, clinicians and scientists together benefits everyone, invigorates our clinical program, and ensures that



Queenslanders will always have access to world-class care.

### HIGHLIGHTS

We have received two large grants this year; a five year NHMRC project grant of \$3,032,884 to conduct an international lung cancer screening trial using Low Dose Computed Tomography (LDCT), now called the International Lung Screen Trial (ILST); and an equipment and infrastructure grant for \$1 million through the Australian Cancer Research Foundation (ACRF) to establish the ACRF Centre for Lung Cancer Early Detection at TPCF. This Centre also received co-funding from the UQ of \$250,000.

We have been fortunate enough to have contributed several clinical and research peer reviewed publications in respiratory medicine and sciences, specifically relating to lung cancer, mesothelioma, COPD, asthma, air pollution and other conditions.

The group was in collaboration with national and international partners for the ILST (including a consortium from Canada, USA, Sydney, Melbourne and Perth), a similar range of partners for the establishment of the ACRF Centre and an ongoing participation in The Cancer Genome Atlas Study with the NIH. The data included massively parallel sequencing

molecular profiling of lung cancers. Collaborations are ongoing for COPD, asthma and air pollution research.

Other highlights were the additional new research grants from competitive schemes including one TPCF Foundation project grant and four equipment grants. We also supervised PhD, MPhil and Honours (MBBS & BSc) students, and our staff and students continue to deliver presentations at national and international meetings.

The Lung Tissue Biobank at TPCF continues to collect fresh frozen lung cancer resections (over 1500), blood samples (over 800) and bronchoscopy samples (over 240) from patients for us to better understand the clinical role of state-of-the-art navigation bronchoscopy systems for the evaluation of lung lesions.

### GRANTS

In 2015 we received \$170,000 in research funding from a number of granting agencies including TPCF Foundation, NHMRC, ACRF, UQ and the Australian Respiratory Council (Harry Windsor Grant).

### AWARDS

Professor Ian Yang received the Ann Woolcock Research award from the Asian Pacific Society of Respiriology.

Fong was privileged to speak

at the Thoracic Society of Australia and New Zealand Annual Scientific Meeting, the Indonesian National Cancer Center, Lung Health Patient Education Day, World Conference on Lung Cancer, Asian Pacific Society of Respiriology Congress, and the Brisbane Cancer Conference.

Yang spoke at the Thoracic Society of Australia and New Zealand Annual Scientific Meeting, the Lung Foundation Australia Forum, the Improvement Foundation Webinar on COPD, the Novartis Respiratory Symposium, the Asian Pacific Society of Respiriology session at the American Thoracic Society International Conference, the Asian Pacific Region Conference (for the International Union Against Tuberculosis and Lung Disease) and the Asian Pacific Society of Respiriology Congress.

### STUDENTS

The UQTRC supervised fifteen higher degree students in 2015, from the University of Queensland and the Australian Catholic University. This included 8 PhD students, three MPhil students and four Honours students.

### RESEARCH COLLABORATIONS

We had a number of collaborating partners locally and state-wide, including Asthma Research Centre (Royal Children's Hospital);

RBWH; Queensland Institute of Medical Research Berghofer; International Air Quality Laboratory, QUT; Lung & Allergy Research Centre UQ & Princess Alexandra Hospital, Australian Centre for Ecogenomics, UQ; Mater Medical Research Institute; UQ Diamantina Institute. Nationally our formal collaborating partners included Fiona Stanley Hospital and Sir Charles Gairdner Hospital, Perth; John Hunter Hospital; Children's

Maria Martins, Scientist and Lab Manager & Kelly Chee, Research student



Cancer Institute Australia; Lung Foundation Australia; Royal Adelaide Hospital; University of Melbourne; Royal Melbourne Hospital, and St Vincent's Hospital, Sydney; and CSIRO, Canberra.

We also had several international collaborations that included Brock Uni, Canada; University of British Columbia; British Columbia Cancer Agency (BCCA); University of Hong Kong;

Asthma Genetics Laboratory, University of Southampton, UK; University of Texas Southwestern Medical Centre; Howard Hughes Medical Institute; The Cancer Genome Atlas Project (NIH NCI USA).





## Research Groups & Feature Stories



# Cardiology



Adult Congenital Heart Unit	56
Cardiology Clinical Research Centre	59
Advanced Heart Failure and Cardiac Transplantation Unit	62
InVitro Human Heart Research Group	63
Going Global: Mending Broken Hearts, From Africa to Australia to the World, Professor Darren Walters	66
Critical Care Research Group	72
Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB)	76
Cardiothoracic Surgery Research Unit (CTSRU)	79
Feature: Award Winner Dr Shaun Gregory	82





# Adult Congenital Heart Unit

## RESEARCH HEAD

Associate Professor  
Dorothy Radford

In the Adult Congenital Heart Unit we aim to gain new knowledge to provide the best possible care for our unique group of patients, who are survivors of multiple heart operations in childhood.

These patients often have problems which will impact on their lives in the long term. These include heart rhythm disturbances, the need for further surgery, a failing heart muscle and difficulty carrying a pregnancy. Our research looks at appropriate medical therapy and interventions to achieve the best heart function possible. The patients' psychological health

and coping mechanisms are also given high priority.

Our research with the Australian and New Zealand cooperative Fontan Registry, has shown better long term survival in complex congenital heart patients than originally expected, and has highlighted the best type of surgery to achieve this survival. We have also analysed the relevant medical therapies to prevent and treat complications.

Another project, the READY psychological program (Resilience for Adults Everyday), has given patients practical techniques for coping with

problems in their lives. Our young adults were enthusiastic about learning and using these systems. This research has helped to improve the quality of life of young Adult Congenital Heart patients at TPCH.

## HIGHLIGHTS

Aspects of the Fontan cooperative study have been presented and published internationally. Also the Fontan group has been able to host an annual patient day to inform, involve and help those with such complex heart problems.

## GRANTS

The Adult Congenital Heart Unit in conjunction with the Fontan Registry was awarded over \$1.2 million over 5 years to support

research into the most complex congenital heart conditions.

## PUBLICATIONS AND PRESENTATIONS

Associate Professor Dorothy Radford presented at the Port Douglas Heart meeting, speaking on the topic of Genetics of Adult Congenital Heart Disease. She also lectured at the Convention Centre on Rheumatic Heart Disease in Pregnancy.

A variety of publications from our unit and with our cooperatives are listed in this report.

## RESEARCH STUDENTS

The Adult Congenital Heart Unit supervised one PhD

student from the University of Queensland.

## RESEARCH COLLABORATIONS

The Adult Congenital Heart Unit works locally within MNHHS, and the team includes Theresa Malpas, Dr Vishva Wijsekera, Dr Mugur Nicolae, Dr Chris Whight and Dr Dorothy Radford.

Further collaborations locally and nationally were with the University of Queensland, the Paediatric and Adult Congenital Heart Services in Melbourne, Sydney, Perth and Adelaide as well as the Congenital Heart Service in Auckland (NZ).





# Cardiology Clinical Research Centre

**RESEARCH HEAD**  
Professor Darren Walters

Cardiology Clinical Research Centre aims to coordinate and conduct clinical trials and investigator initiated research whilst upholding the principles of the Declaration of Helsinki in accordance with the guidelines for International Conference of Harmonisation and Good Clinical Practice. The Centre also complies with the International Organisation for Standardisation (ISO) 14155 for Medical Device Trials.

The Centre is engaged in various phases of multi-centred, international and national clinical trials including investigator initiated studies

that investigate the treatment, management and follow up care of patients with a range of chronic and acute cardiac conditions and diseases. The clinical trials undertaken at this centre include retrospective/prospective observational, randomised, controlled, unblinded and double blinded studies. The centre is also involved in comparative medication/device studies and Registries. The Centre also provides support to investigators in obtaining necessary regulatory approval as a Single Site or a Lead Site in Multicentre Research.



All patients within the Cardiology Program are considered potential participants for current research being undertaken by the Research Centre. Current studies include treatment and prevention of aortic stenosis, mitral regurgitation, uncontrolled hypertension, acute coronary syndrome, heart failure and conduction disturbances. The Centre also undertakes studies on Diagnostic Medical and Cardiac Catheter Imaging modalities such as Intravascular Ultrasound, Optical Coherence Tomography and Magnetic Resonance Imaging (MRI) and software applications. In addition, various Registries on Transcatheter Aortic Valve Implantation (TAVI) and Acute Coronary Syndrome (ACS) are also being maintained.

Majority of the research that is undertaken in the centre are clinical trials on new structural cases devices and procedures such as the Transcatheter Aortic Valve Implantation (TAVI). Patients who are at high risk for open heart surgery to treat severe aortic stenosis can have this minimally invasive procedure through the groin instead of having their sternum cut open. This means a lower risk procedure and a decreased hospital stay for the patients; 2 to 3 days as opposed to 5 to 7 days. We have a multidisciplinary heart

team approach towards patient selection, procedural planning, and device implantation that has been refined and optimized such that clinical outcomes are generally predictable and reproducible.

Another device being trialled is the Inter-atrial Shunt Device (IASD). Around 30 to 50 percent of patients diagnosed with diastolic heart failure pass away within three years of diagnosis. The Inter-atrial Shunt Device (IASD) potentially will provide the first effective treatment option for patients with this type of heart failure which accounts for half of the heart failure cases seen in hospital. The patient will have a 1-2 night hospital stay and quick recovery, instead of the prolonged hospital stay currently experienced by patients in heart failure. The procedure will have a positive impact on readmission rates for heart failure patients.

#### HIGHLIGHTS

The research conducted at TPCH has contributed to the worldwide bank of knowledge and rapid evolution of technology Transcatheter Aortic Valve Implantation (TAVI), Percutaneous Mitral Valve Replacement and Interatrial Septal Device (IASD) Trials.

TAVI is fast becoming the new standard of care to treat patients with severe aortic

stenosis. Early generation TAVI valves were not able to be repositioned or retrieved. Clinical outcomes for the various valves have recently been published with promising results in terms of paravalvular regurgitation and accurate valve positioning.

Open-heart surgery remains the gold standard for the treatment of severe mitral valve disease. The modern challenge facing surgeon is to provide a safe intervention for the rising population of high-risk patients presenting for either primary or redo surgery, this has led to the development of novel percutaneous approaches to the mitral valve. Transapical Transcatheter mitral valve replacement may provide an alternative strategy to deal with the increasing rise of high-risk patients presenting for primary and reoperative mitral valve surgery. Our initial experience with this approach has demonstrated its early feasibility in select patients.

Until now, there has been no substantial treatment for patients with diastolic heart failure. The heart becomes "stiff" and normal filling of the heart is impaired. Around 15,000 new cases of heart failure with preserved ejection fraction are diagnosed in Australia each year. Patients suffer from breathlessness, fatigue, and swelling of

the abdomen and ankles. Medication has a limited effectiveness and often leaves patients with persistent symptoms and poor quality of life. The IASD procedure is minimally invasive procedure that takes around one hour. The device is implanted by a cardiologist into the person's inter-atrial septum, the fibrous wall between the left and right top chambers of the heart, using a catheter delivery system inserted through a vein in the leg. The procedure will improve patient health outcomes, decrease heart failure hospitalization rates, and reduce the overall cost burden of managing heart failure patients.

#### GRANTS

The Cardiology Clinical Research Centre had \$675,000 in funding in 2015, with a large portion of this funding being commercially sponsored clinical trials for new cardiology treatments. There was also a collaborative research grant from the Investigator Initiated Registry for our CONCORDANCE project.

#### RESEARCH COLLABORATIONS

Formal national collaborations for our group include Northern Health, Concord Hospital, SAHMRI and George Institute. We also had a number of international collaborations including Abbott Vascular, Edwards Lifesciences,

Medtronic, St. Jude Medical, REVA Medical, Imperial College London, Bayer Healthcare, Janssen-Cilag, AMGEN, Global Genomics, ECRI/Cardiolysis, Biosense Webster, Glaxo SmithKline, Sanofi-Aventis, Boehringer Ingelheim, Corvia, REVA Medical, Tendyne and Boston Scientific.





# Advanced Heart Failure & Cardiac Transplant Unit

## RESEARCH HEAD

Dr Scott McKenzie

The Advanced Heart Failure and Cardiac Transplant unit aims to advance the utilisation and management of mechanical circulatory support, improve the care of cardiac transplants and the management of heart failure.

Heart failure is a disease of increasing prevalence in the community, and is the single biggest cause (and cost) of rehospitalisation in Australia. Further knowledge into this field will help to enhance the management of advanced heart failure, mechanical

circulatory support and cardiac transplantation.

This will lead to higher quality therapies, early access to novel investigational therapies and procedures, and higher quality patient care.

### HIGHLIGHTS

In 2015, the Advanced Heart Failure and Cardiac Transplant Unit were an equal top recruiter for REDUCE-LAP; an international, multi-centre study for a novel HFpEF device. We also received a \$50,000 grant from Genzyme

for a Fabrys disease fellowship to assist in our research.

### GRANTS

We received a grant of \$10,000 from The Prince Charles Hospital Foundation, for a New Investigator grant awarded to Jason Hwang.

### RESEARCH COLLABORATIONS

Our major collaborating partners were the Critical Care Research Group at The Prince Charles Hospital, and the University of Queensland School of Medicine.

# InVitro Human Heart Research Group

## RESEARCH HEAD

Associate Professor  
Peter Molenaar

The InVitro Human Heart Research Group aims to identify novel drug targets for heart disease. We are carrying out drug discovery to identify new targets of medicines for patients with heart disease. Unacceptably, 30-50% of heart failure patients will die of sudden cardiac death caused by a ventricular arrhythmia. Heart failure remains one of the most common causes of hospital admission and General Practitioner consultation in people aged 70 and older. Whilst research has resulted in the implementation of medicines which increased survival outcomes and reduced

morbidity of patients with heart failure, heart failure still remains progressive and has a poor prognosis. The absolute mortality rate is approximately 50% within 5 years of diagnosis. Therefore it is imperative that research continues to identify new targets for medicines that will provide better survival outcomes.

Research carried out by the InVitro Human Heart Research Group directly addresses heart disease by identifying new targets for medicines. The outcomes of research will be expected to benefit patients by reducing the burden of



heart failure and arrhythmias associated with heart failure. The program carries out basic, fundamental research, offering hope for the emergence of novel medicines. The research program questions current paradigms of clinical treatment which are current best evidence based practice, but do not reverse heart disease.

The research program carried out by the InVitro Human Heart Research Group is expected to contribute knowledge which will lead to better outcomes for patients with heart disease. Basic research to identify new, novel drug targets offer the only real hope to patients with heart disease. Approximately 30-50% of patients with heart failure will die of sudden death, presumably a fatal arrhythmia. Medicines to reduce the incidence of sudden death will ultimately lead to a better quality of life.

#### HIGHLIGHTS

The InVitro Human Heart Laboratory was joined by Miss Weilan Mo from China in August 2015 who commenced a PhD. She was awarded a New Investigator grant from The Prince Charles Hospital Foundation to commence studies on the role that phosphodiesterases have in controlling arrhythmias in the human heart. The laboratory received crucial grants to continue important work on the identification of novel

targets for treatment of heart disease. Research findings were presented to the British Pharmacological Society for the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists Award, Australia Chinese Association for Biomedical Sciences (Invited), The Australian Physiological Society and The Australian Society of Biophysicists.

#### GRANTS

We received \$127,000 of funding from The Prince Charles Hospital Foundation in 2015 for research into various drugs that affect arrhythmias in the heart; this included an equipment grant for an Oroboros Oxygraph to assist with studies.

#### AWARDS

Associate Professor Peter Molenaar received two awards in 2015; the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT) Prize Lecture and the ASCEPT Achievement Award.

#### PRESENTATIONS & PUBLICATIONS

Associate Professor Peter Molenaar made presentations at the British Pharmacology Society in London, the 5th Australia-Chinese Biomedical Research Conference, the Australian Physiological Society and the Australian Society of Biophysicists in 2015. At all four

conferences he presented his work on Beta-blocker control of human ventricular arrhythmias in patients with heart failure through phosphodiesterases.

He was also the Associate Editor for the Pharmacology & Therapeutics Journal, and the Editor for the Naunyn-Schmiedeberg's Archives of Pharmacology.

#### STUDENTS

Miss Weilan Mo commenced her PhD with the InVitro Human Heart Research Group in 2015, supported by QUT and supervised by Associate Professor Peter Molenaar.

#### RESEARCH COLLABORATIONS

We collaborated closely with the Heart Surgery Program, the Heart Failure Program, Dr Haris Haqqani, Professor John Fraser, the CCRG, Professor Walter Thomas, Dr Simon Foster and the University of Queensland. Our national collaborations in 2015 included A/Prof Derek Laver (Newcastle University), A/Prof Nikki Beard (Canberra University) and Professor Dianne Fatkin (Victor Chang Research Institute). Internationally we worked with Professor Alberto Kaumann from the University of Murcia in Spain.





## Express delivery mends broken hearts



GLENN HUNT

Heart and lung transplant recipient Kate Phillips with professor John Fraser of the Prince Charles Hospital in Brisbane

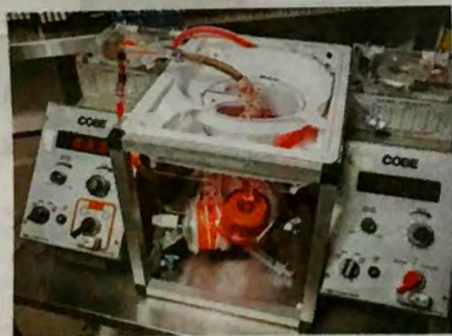
### EXCLUSIVE

TRENT DALTON

This Valentine's Day, as romantics across the world share kisses and candy hearts, a team of Australian surgeons and engineers will begin a groundbreaking project giving the kiss of life to dead human hearts, revolutionising the national viability of donor hearts.

Some 381 hearts were available in Australia for organ transplantation last year, but only 81 heart transplants were performed because of the viability of donor hearts that deteriorate rapidly while being transported vast distances across the country in backyard iceboxes.

Equal parts forefront science and Frankenstein fantasy, the



The ex vivo machine to transport hearts costs \$250,000 compared with the old \$100 icebox

joint research effort by Brisbane's Prince Charles, Sydney's St Vincent's and Melbourne's Alfred hospitals, in collaboration with Swedish engineers, will see deceased hearts placed in a transportable device called an ex vivo

machine, worth \$250,000, that uses a "physiologically composed medical fluid" to "reboot" the dead organ with a constant supply of oxygen for up to 24 hours, increasing the number of viable transplant hearts by up to 40 per cent.



tions of minerals, nutrients and the right balance of salt. We're still transporting it in a box but the box is perfused, there's a continuous flow of liquid within it, and that blood and that solution is being continually oxygenated, feeding all the right stuff, the right Gatorade, to the heart."

To use a more timely analogy, Professor Fraser said, "feeding the roses so they can stay alive and make it to your house on Valentine's Day".

Three years ago, Kate Phillips, 30, spent three months in hospital on a national emergency register before receiving a heart and double lung transplant.

"You're in that situation and you're deteriorating, but you want to live so bad," she said. "You realise very quickly just what an

## Mending Broken Hearts

Organ donation rates in Australia continue to be an issue. The waiting list never seems to reduce. The problem however is not only that there are many people who have not registered to be organ donors, or that perhaps their loved one's don't allow the donation to take place possibly due to the distressed state they are in.

The other major problem—and one that the public probably don't understand—is that not all donors' organs are able to be used, for a variety of reasons. One critical issue is the fact that donated organs only have a limited time to get from the donor to a recipient. In such a large country, the tyranny of distance can be the barrier.

One can only imagine the anxiety of the patients who so desperately need help. Equally it is an absolute travesty that someone who wishes to give the greatest gift of life cannot

leave such a legacy because of time and distance.

The Critical Care Research Group received international attention this year, including front page of our national newspaper The Australian, when they shared their ambition to allow heart transplants to occur over longer periods of time, potentially beyond 12 hours, and to increase the availability of donated hearts by an estimated 20%.

The research project working with technology originating from Europe has the potential to maintain the heart for longer periods, and recondition the organ prior to transplant. Through collaboration across Australia, Asia, America and Europe the team is working on developing this technology, while also supporting research into artificial devices to keep dying hearts alive, stem cell therapy to regrow hearts and

also to convalesce hearts that require time to recover in patients.

This project is supported through the community by The Alfred Foundation and The Prince Charles Hospital Foundation.

This is not just about saving lives and improving the quality of life but significantly it allows generous organ donors to have their wishes fulfilled.



# From Africa to Australia to the World

## Discovery May Change World Health Organisation Standards

For over 10 years in Kenya studies were undertaken to help justify why children suffering from infection and shock (a life-threatening complication of infection leaving the pulse very weak and thready and limbs cold to touch) should be treated with bolus fluid (a large dose of fluid infused rapidly), which is routine practice in hospitals in the western world. Until then this was considered an essential saving lives treatment – but had never been tested in clinical trials worldwide.

Professor Kathryn Maitland of the Imperial College of London, based in Kenya through support of the Medical Research Council, UK undertook the FEAST trial in 3200 children across 6 hospitals across East Africa anticipating that fluid bolus therapy would save the

lives of children critically-ill with sepsis.

The study however proved the opposite. Compared to children who did not receive fluid bolus therapy children receiving fluid bolus therapy had an increased risk of death in the first two days of admission. As anticipated fluid boluses therapy rapidly reversed the shock but what was not anticipated was that the children health deteriorated quickly – slipping into lethal septic shock (meaning that all vital organs (brain, heart and lungs) were not receiving enough blood flow to sustain life).

This finding in Africa poses a challenge for the World Health Organisation's (WHO) current protocols –and shock treatment protocols worldwide but needed further studies to provide important new evidence to validate the mechanism(s) underpinning these unintended

consequences of fluid bolus therapy. This is where The Prince Charles Hospital and the Critical Care Research Group (CCRG) comes in.

Prof John Fraser is spearheading an international collaboration of world leaders in the field of sepsis to test and model this condition through ovine (sheep) testing. Dr Nchafatso Obonyo from Prof Maitland's Kenyan based team has relocated to this hospital to investigate new mechanisms that will point to better treatments and outcomes, and it is hoped that this could inform new WHO guidelines to save the lives of millions of children.

It is mind-boggling to think that this study could change the world – very soon.





# Heart disease – our patients help us beat it, for the common good

"We believe we have an obligation not just to treat the patient in front of us but to use that experience every day to develop new and better ways to save the lives of the patients who have life-threatening heart disease. By doing this we have the capacity to improve therapies for hundreds of thousands of people around the world".

This is the motivation for Professor Darren Walters and his team at The Prince Charles Hospital who have gained international recognition for their work in finding creative solutions to complex cardiac conditions including valvular heart disease, coronary artery disease, congestive cardiac failure and congenital heart conditions in adult.

Over the past decade the team has fundamentally changed how aortic stenosis, the most common valvular disorders, is being managed globally.

A major open heart procedure is for many, now a procedure

performed through a small catheter in the groin, much like a coronary stent.

In the past year Professor Walters has been at the forefront of the first-in-man studies to develop a new percutaneous mitral valve implantation which received national recognition in mainstream media. Trialled on 12 patients it is expected that this innovation could become the preferred method for heart valve replacement, reducing the need for open heart surgery, something that impacts on around 11,000 Australians annually.

"Our team is recognised as experts in complex cardiac surgery and intervention due to the volume and complexity of patients we treat. When this is combined with our translational research experience we are able to integrate new technologies at the earliest stages of development. This means improved patient outcomes by helping to shape new therapies. This continues to reduce the risks of treating common cardiac

problems with more effective and less invasive treatments. Most importantly the quality of life of patients is improved".

Through the collaborations into the US and across Europe the team at The Prince Charles Hospital is not only at the cutting edge of new technology they are leading the way, and this is only possible through the determination and passion of the staff who are on a relentless quest to continually lift the bar.

The impacts globally are also reflected through the extensive education and training into Australia, New Zealand and in countries in our region such as India, the heart disease capital of the world. A number of live satellite broadcasts into India of patient procedures is helping to improve the capacity and capabilities into a nation which has an estimated 45 million people who have heart disease.



Professor Darren Walters



# Critical Care Research Group

## RESEARCH HEAD

Professor John Fraser

The Critical Care Research Group (CCRG) is a multidisciplinary research program that aims to translate learned knowledge about critical illness into new or improved treatment modalities. To enhance the quality and significance of our research, we strive to become a nationally and internationally recognised research centre, and facilitate inter-departmental collaboration between all specialties involved in acute care medicine.

We aim to educate and inform health professionals of the results of our research through publications in peer reviewed medical and professional

journals, by presenting our work at professional meetings and conferences, and through the development of high quality in-house education tools (including high-end simulation, animal models and video productions). Through this work, we will achieve better outcome in patients with acute illness – whether medical or surgical in origin.

The CCRG research addresses the diverse healthcare needs of critically ill patients; these patients are entirely dependent on the advanced understanding of relevant technologies and diseases, and how we can apply





this knowledge clinically. We can only achieve advanced understanding and improvement with input from a silo free, multidisciplinary team.

Our group is seen as one of the world leading critical care research groups with collaborations throughout Queensland, across Australia and in almost every continent of the world. While our work is predominantly based in Australia, our results are far reaching and benefit even the poorest of poor in developing nations. We translate ideas into research and back to clinical practice which results in improved outcomes for critically ill patients across the world.

The CCRG is a world leader in the field of biomedical engineering and critical care research, and the clinical benefits of the research undertaken by the group are varied and wide-reaching. We are committed to finding world-first, innovative solutions that will lead to healthier living, improved quality of life and less hospitalisation. Our group mirrors the large multidisciplinary team clinical team who cares for the sickest of the sick.

The CCRG team is comprised of clinicians, scientists, engineers, nurses, allied health professionals and statisticians, who are all committed to bridging the gap between bench

and bedside. Our extensive, worldwide collaborations mean that patients at The Prince Charles Hospital (TPCH) have access to the best and brightest researchers, cutting edge clinical research, and evidence based findings from around the world. Current CCRG research priorities include cardiovascular and respiratory disease, sepsis, blood transfusion and improving function and practice of mechanical assist devices (MADs). These priorities are highly relevant to intensive care practice and our group continues to see clinical benefits in each of these areas.

The primary focus of the CCRG is to bring tomorrow's healthcare to patients today. While there have been substantial advances in conventional medicine this progress has not yet been mirrored in the most critically ill cohort. Morbidity and mortality rates in critically ill patients are still unacceptably high and this group of patients have more severe disease and need significantly better, longer term treatments. Through cutting-edge research we aim to develop and deliver world-class healthcare to these patients, reduce the healthcare burden of cardiovascular and respiratory disease, improve the outcomes and increase the life expectancy of patients with critical illness and end stage cardiothoracic disease.

### HIGHLIGHTS

After 12 years operating under the Adult Intensive Care Services banner, the CCRG was established as its own organisational unit within The Prince Charles Hospital (TPCH). The establishment of the CCRG supports the alignment of research practices across TPCH, and will enable the growth and development of research across the facility and across Metro North Hospital and Health Service District (MNHHS).

The CCRG Centre for Research Excellence in Advanced Cardio-respiratory Therapies Improving OrgaN Support (CRE ACTIONS) continued to evolve in a multi-national collaborative with new collaborations across Taiwan, Singapore, Japan, Malaysia, Germany, France and Sweden. These collaborations are attracting the best and brightest staff and students from around the world to Queensland.

We also published more than fifty peer reviewed journal articles, presented close to thirty lectures and key note presentations across the world, delivered more than thirty abstract presentations at a range of clinical, scientific and engineering conferences and supervised eighteen research higher degree students.

### GRANTS

The CCRG received nearly \$3.27 million in funding for

various research projects in 2015. This included grants awarded by The Prince Charles Hospital Foundation, the Heart Foundation, The Metro North Hospital and Health Service Executive Group, the Queensland Emergency Medicine Research Foundation, and the NHMRC.

### AWARDS

CCRG was given two awards in 2015; the MNHHS Staff Excellence Award for the Fostering Innovation Category, and the Award for Excellence in Clinical Research at the TPCH Health Discoveries Forum.

Anna-Liisa Sutt was awarded the Best Novice Presentation in Clinical & Basic Science Research, and Dr Shaun Gregory was awarded the Best Translational Research Project at the TPCH Health Discoveries Forum. Professor John Fraser was awarded with the title Wesley Medical Research 2015 Uniting Care Health Researcher of the Year.

### PRESENTATIONS & PUBLICATIONS

The group gave fifty-nine presentations on topics of critical care research across the world. These forums included the EuroELSO 2015 International Congress, the 23rd Congress of the International Society for Rotary Blood Pumps and the 12th Congress of the World Fed of Society of Intensive and

Critical Care Medicine, as well as other notable national and international conferences.

### STUDENTS

The group supervised 21 higher degree and student placements in 2015, including 12 PhD students, 7 MPhil students and 2 Masters students from the University of Queensland, Australian National University, the University of NSW and Aachen University in Germany.



# Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB)

## RESEARCH HEAD

Dr Shaun Gregory

Cardiovascular diseases are the leading cause of death in the developed world. The ICETLAB ([www.icetlab.com](http://www.icetlab.com)) is the largest cardiovascular engineering research laboratory in Australia and focuses on the diagnosis, surgical intervention and treatment of cardiovascular disease including long-term mechanical circulatory and respiratory support.

The ICETLAB is an innovative group of researchers that aim to combat cardiovascular disease by connecting the engineering department and clinicians. By bridging these two disciplines we're able to develop novel

solutions for diagnosis, surgical intervention and treatment of cardiovascular disease, as well as translate new knowledge about cardiovascular disease into new or improved treatment modalities.

Our team hopes to educate and inform medical, engineering and other health professionals of the results of their research through publication in peer reviewed medical and other professional journals, presentations at professional meetings and conferences, and development of high quality in-house education tools, including high-end simulation models. The

group also wants to enhance the quality and significance of our research to become a nationally and internationally recognised research centre.

The ICETLAB focuses on reducing postoperative complications with mechanical circulatory and respiratory support. We're doing this through:

- Improving the clinical understanding of the operation and control of ventricular assist devices
- Development of a low-cost device to support patients with heart failure in low-income countries
- Characterisation of the operating characteristics when using a left ventricular assist device to support the right ventricle
- Development of new skin-crossing driveline coatings to reduce infection
- Investigating the mechanisms of right heart failure after left ventricular assist device implantation
- Evaluation of flow dynamics in the native circulatory system and the interaction with mechanical circulatory and respiratory support
- Improving our understanding of the blood-device interaction with mechanical circulatory and respiratory support to reduce postoperative complications
- Optimising mechanical circulatory and respiratory

support implantation by developing novel devices and techniques for simple, rapid implantation without the need for cardiopulmonary bypass

- Validating clinically available techniques of measuring cardiac output.

## HIGHLIGHTS

In 2015 the ICETLAB was awarded 9 grants, totalling over \$1.1 million in research funding.

The group had 18 conference and invited presentations, and hosted the 5th annual ICETLAB Symposium, bringing together experts in mechanical circulatory and respiratory support from around Australia and Asia to discuss research progress and future plans.

The group also grew to over 25 researchers in 2015, ranging from undergraduates through to postdoctoral research fellows.

## GRANTS

The ICETLAB received \$1.1 million in funding for the 2015 period, including grants from TPCH Foundation, and Griffith University.

## AWARDS

Dr Shaun Gregory from the ICETLAB was awarded the Best Expert Presentation (Basic/translational research category) at the 2015 Prince Charles Hospital Health Discoveries forum.

## PRESENTATIONS AND PUBLICATIONS

Our team had 18 presentations in 2015, including both national and international appearances. These included presentations at the Cook Medical Research Presentation, The Prince Charles Hospital Health Discoveries Forum, the Metro North Nursing Research Seminar, the Queensland University of Technology Biofluids Seminar, the Princess Alexandra Cardiac Research Forum, the Matlab Conference and the Medical Engineering Research Facility Conference all based in Brisbane. There were also six presentations at the International Society for Rotary Blood Pumps in Croatia.

## RESEARCH STUDENTS

The ICETLAB supervised 27 higher degree and student placements in 2015, alongside QUT, University of Malaya, Griffith University, University of Queensland, Universite De Frenche-Comte, Universitat Regensburg, University of Sydney, Universiti Teknologi Malaysia and the RWTH Aachen. These researchers included three completing their Masters, sixteen completing Honours, four PhD students and four postdoctoral researchers.

## RESEARCH COLLABORATIONS

The ICETLAB had many formal collaborating partners locally and nationally, including the Critical Care Research Group,





Queensland Griffith University, Queensland University of Technology (QUT), University of Queensland (UQ), Nambour Hospital, CSIRO, National UNSW, Alfred Hospital and St Vincent's Hospital.

They also expanded their international collaborations, which included Applied Medical Engineering at the Helmholtz Institute (Germany), Texas Heart

Institute (USA), Ibaraki University (Japan), University of Malay (Malaysia), Shibaura Institute of Technology (Japan), Universita Degli Studi Di Roma La Sapienza (Italy), University of Dammam (Saudi Arabia), University of Franche-Comte (France) and the University of Applied Sciences (Germany).

# Cardiothoracic Surgery Research Unit (CTSRU)

## RESEARCH HEAD

Dr Rishendren Naidoo

The Cardiothoracic Surgery Research Unit (CTSRU) aims to develop a Cardiothoracic Surgery Research Program that supports focused interdisciplinary collaborative research projects. Taking advantage of our service scope, maturity, volume, and high quality outcomes we hope to provide the evidence-based advice necessary to address the more complex cardiothoracic surgical patients and be the expert/leader in cardiothoracic surgical services in Queensland.

We also aim to pilot, develop and implement new technologies that improve

important patient outcomes and stimulate change in practice, as well as support, mentor and foster a research culture in all levels of program staff and especially junior clinicians. Our group hope to continue to develop research partnerships with related clinical groups including Critical Care, Cardiology, Transplant and Heart Failure, Thoracic Medicine, Nursing and Allied Health services, and through this develop academic and industry partnerships that stimulate research and mobilise funding opportunities. By developing broader collaborations with cardiothoracic surgery research



across institutions we can consolidate and build TPCH cardiothoracic surgery research reputation.

The group address key health issues such as how to effectively manage more complex or rare and unique cardiac surgical disease aetiologies including aortic pathologies, multiple valve disease, redo valve pathologies, end-stage cardiac failure, adult congenital disease and infective aetiology, and how to effectively manage more high risk patients (including older, frailer, with higher comorbidities such as obesity, diabetes and emergent status). Another major health issue we look at is developing better strategies of detecting lung cancers earlier with improved surgical management outcomes.

Clinically the research is highly relevant, as we are able to identify and understand risks which are likely to compromise patient desired outcomes and improve overall outcomes to patients. Through our research we can improve the ability of clinicians to make evidence-based choices for and with patients, and develop better ways to assist the high risk groups of patients as The Prince Charles Hospital is a referral centre for these patients in Queensland.

The CTSRU takes a multi-disciplinary approach, with

interaction with cardiology, thoracic medicine, anaesthesia, critical care and Allied Health that streamlines patient management and facilitates earlier intervention resulting in better outcomes. By identifying and testing new technologies this can lead to less post-operative morbidity in a holistic approach. We aim to develop techniques to include Quality of Life and Patient Reported Outcomes as part of post-operative assessment of procedures and to improve quality of care.

#### HIGHLIGHTS

Achievements for the group in 2015 included the establishment of Registrar Research Studies and Research Unit meetings involving registrars, a significant increase in recruitment to Rapidly Deployed AVR trial and a surgeon training session for Rapid Deployment valves.

We also had great engagement with Red Cross Blood Bank for the Transfusion Modulated Immunomodulation study and with the QUT mathematics department for statistical consulting and growing collaboration with QUT Psychology department to investigate psychosocial outcomes. The CTSRU was able to take on board two medical students for their research studies.

Other highlights included the

development of a prototype cardiac surgery psychosocial health app, as well as the development and submission of several research grants applications. We were able to contribute to QH Health & Medical Research Unit Researcher Reference group to streamline Research legislation, and took part in the Anaesthetics Blood Management Analysis and Sternal Instability Analysis for Physiotherapy.

#### PUBLICATIONS AND PRESENTATIONS

The CTSRU presented six abstracts at two different conferences; the Annual Scientific Meeting by the Australia and New Zealand Society of Cardio-Thoracic Surgeons, and the Royal Australian College of Surgeons 84th Annual Scientific Congress.

#### RESEARCH STUDENTS

The CTSRU supervised two MD students in 2015 alongside the University of Queensland.

#### RESEARCH COLLABORATIONS

Research collaborations for the CTSRU included internal collaborations such as TPCH Critical Care, Cardiology, Transplant and Heart Failure, Thoracic Medicine, Nursing and Allied Health services. There were also collaborations with the QUT School of Psychology and the CSIRO Australian eHealth Research Centre.







# Michael Ray Best Basic / Translational Research Project 2015

## Award Winner Dr Shaun Gregory

Measuring the cardiac output of patients is something that is crucial to many facets of clinical care. Until recently, there had been no standardised way of this procedure being carried out, and there were concerns that inaccuracies were arising due to this. A study looking to identify the factors that affected this precision was last year recognised with the prestigious Michael Ray Best Science award at The Prince Charles Hospital Annual Health & Discoveries Forum.

Led by Dr Shaun Gregory from the Innovative Cardiovascular Engineering and Technology

Laboratory (ICETLAB), the research project aimed to identify the key factors that could result in incorrect cardiac output results. Using innovative technology, Dr Gregory and the team tested for the biggest influences in the variances of this procedure, and were able to identify the key issue.

This project has led to further training opportunities for the clinicians that work alongside these critically ill patients. The Michael Ray Best Basic Science Award is given to the project that best translates to clinical care and better patient outputs.



Grants

Project Title	Chief Investigator	TPCH Investi-gator	Granting Agency	Total Funding Awarded	Funding received for 2015-16	Years of Funding	Grant Type
Giving an adult life after Fontan surgery to those with the most severe congenital heart conditions.	Yves d'Udekem	Dorothy Radford	NHMRC	\$1,250,181		2013-2018	Partnership Grant
Airborne transmission of microorganisms among person with cystic fibrosis	Scott Bell	Scott Bell	CF Foundation (USA)	USD216,000	USD108,000	2015-2017	Project Grant
Airborne transmission of microorganisms in lung disease	Scott Bell	Scott Bell	Perpetual Philanthropy	\$47,000	\$47,000	2015-2018	Scholarship
Aerosols in chronic lung infection: their extent and how to prevent?	Scott Bell	Scott Bell	TPCH Founda-tion	\$99,576	\$99,576	2015-2016	Project Grant
Abnormal lung iron homeos-tasis in cystic fibrosis	David Reid	David Reid, Scott Bell	NHMRC	\$629,661		2015-2018	Project Grant
Predicting who is at risk of worsening lung disease in Cystic Fibrosis	Peter Wark	Scott Bell	Hunter Medi-cal Research Institute	\$20,000	\$20,000	2015-2016	Project Grant
Genomic analysis of two prevalent Pseudomonas aeruginosa strains in patients with cystic fibrosis in Queensland	Scott Bell	Scott Bell	UQ-QIMR Berg-hofer (AID Grant Initiative)	\$50,000	\$50,000	2015-2017	Project Grant
Evaluation of the utilization of an allied health assistant within an adult Cystic Fibrosis Centre: their role and scope of practice and benefits to improved patient related physiotherapy outcomes	Kathleen Hall	Kathleen Hall, Robyn Cobb, Scott Bell	Health Practi-tioner Rese-arch Scheme, Queensland Health	\$68,612	\$68,612	2015-2016	Project Grant
Strategies to limit Pseudom-onas aeruginosa acquisition and antimicrobial resistance in patients with CF	Scott Bell	Scott Bell	TPCH Founda-tion	\$98,000	\$98,000	2015-2017	Project Grant
The emerging problem of non-tuberculous mycobac-teria infection: understand-ing aetiology, geospatial epidemiology and develop-ing interventions	Scott Bell	Scott Bell	NHMRC	\$988,791	\$988,791	2015-2020	Project Grant
Innate T lymphocytes as key players and candidate biomarkers during exacer-bations of COPD	Daniel Smith	Daniel Smith	QIMR Berghofer Clinician Rese-arch Collaborati-on Grant	\$40,000	\$40,000	2015-2016	Project Grant
Mucosal associated inva-riant T-cell numbers and activation in exacerbations of chronic pulmonary con-ditions	Abella Nurray	David Reid, Daniel Smith	TPCH Founda-tion	\$8,300	\$8,300	2015-2016	Project Grant
Hypothermic ex vivo perfu-sion study with neurohorm-one substudy	John Fraser	Louise See Hoe, Wendy Chan, Jason Hwang, David Platts, Peter Molenaar	TPCH Founda-tion	\$10,000	\$10,000	2015-2016	New Investiga-tor awarded to Jason Hwang, mentor Dr Wendy Chan

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Establishing Diabetic Foot Australia (Phase 1)	Lazzarini PA	Lazzarini PA, Kinnear EM	Wound CRC	\$324,217	\$324,217	2015-2016	Program Grant
Diabetic Foot Clinical Link-ages	Lazzarini PA	Lazzarini PA	Wound CRC	\$103,074	\$103,074	2015-2016	Program Grant
Diabetic Quantitative Ultra-sound Foot Tissue Scanner.	Wearing S	Lazzarini PA	Wound CRC	\$134,760	\$134,760	2015-2016	Project Grant
2POC-D: A Two part Phase II Open Label study of De-nosumab for acute Diabetic Charcot Neuroarthropathy.	Lau N	Lazzarini PA	Diabetes Austr-alia Research Program	\$58,898	\$58,898	2015-2016	Project Grant
Towards an improved under-standing of the effect of a speaking valve on lung volu-mes and communication in the critically ill tracheosto-mised patient	Sutt, A-L.	Fraser, J., Cornwell, PL., Dunster, K., Caruana, L., & Mullany, D.	TPCH Founda-tion	\$76,176	\$25,392	2014-2017	PhD Scho-larship
Measuring ICU delirium using a newly developed electronic tool	Wells, H.	Wells, H., Eales, E., Sutt, A-L, Kirwan, K.	TPCH Founda-tion	\$10,000	\$10,000	2015-2016	Project Grant
Profiling the communication impairment arising from right hemisphere stroke: a preliminary investigation of linguistic, extra-linguistic and neurocognitive corre-lates.	Cornwell, PL.	Shum, D., He-wetson, R.	TPCH Founda-tion	\$52,980	\$52,980	2015-2016	Project Grant
Tracheostomy outcomes in 2013-2014	Sutt, A-L.	Fraser, J.	CAHRLI, MNHHS	\$5,000	\$5,000	2015	Project Grant
More-2-Eat: Nutrition care pathway and optimized protein supplementation for mal-nourished elderly patients.	Keller, H	Bell, J.	TVN, Canada	\$899,963		2015-2017	Industry spon-sored
Impact of malnutrition on 12-month mortality follo-wing acute hip fracture	Bell, J	Pulle, RC., Crouch, A., Ferrier, R.	AHRC Research Grant	\$2,051	\$2,051	2015	Project Grant
"The link between osteoarthritis and metabolic syndrome."	Crawford, R	Bell, J.	TPCH Founda-tion	\$549,547		2015-2018	Program Grant
PREDICT study (PREdictive equations for estimating resting energy Demand In Critically ill patientS)	Marshall, A	Robins, E.	Gold Coast Hospital Private Practice Trust Fund	\$50,000		2014-2015	Project Grant
Hospital to Home Outreach for Malnourished Elders (HHOME) - A Cost Effectiveness Analysis	Demedio, K.	Whiting, E.	TPCH Founda-tion	\$9,817		2014-2015	Project Grant
Analysis of long term functional cognitive and economic outcomes of adult ECMO patients: Roll M, Mul-lany D, Kuys S, Walsh J	Roll, M.	Mullan, D.: Walsh, J.	AHRC Research Grant	\$4,870	\$4,870	2015	Project Grant
A comparison of the effects of manual hyperinflation and ventilator hyperinflation on restoring end-expiratory lung volume after airway suctioning	Linnane, M.	Walsh, J.	TPCH Founda-tion	\$9,794	\$9,794	2015-2016	Project Grant



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When is it safe to exercise mechanically ventilated patients in intensive care?	Boyd, J.	Walsh, J.	TPCH Founda- tion	\$8,214	\$8,214	2015-2016	Project Grant
Does percutaneous neuro-muscular electrical stimulation application to the quadriceps muscle in critically ill patients undergoing extra corporeal membrane oxygenation (ECMO) via femoral cannulation potentially affect vascular viability of the foot?	McCormack, P.	Walsh, J.	TPCH Founda- tion	\$6,949	\$6,949	2015-2016	Project Grant
Evaluation of the utilization of an allied health assistant within an adult Cystic Fibrosis Centre: their role and scope of practice and benefits to improved patient related physiotherapy outcomes.	Hall, K.		Allied Health Professionals Of- fice of Queens- land	\$70,000	\$35,000	2015-2016	Project Grant
Effects of pre-operative inspiratory muscle and physical exercise training on cardiac surgical outcomes in high risk elders.	Mahoney, A.		TPCH Founda- tion	\$9,803	\$9,803	2015-2016	Project Grant
Exercise Training in Pulmonary Hypertension (ExTra_PH): A Randomised Controlled Trial of Exercise Training in Pulmonary Hy- pertension	Morris, N.		Office of Health & Medical Rese- arch	\$247,000	\$123,000	2015-2017	Project Grant
DizPhys 2: Streamlining Referrals of Dizzy Patients to the Vestibular Physiotherapy Service	Steward, V.	Low Choy, N.	Allied Health Professionals Of- fice of Queens- land	\$25,000	\$12,500	2014-2015	Project Grant
The impact of MiStrEnGTH on community participation after stroke	Gustafsson, L.	Cornwell, PL	Stroke Foundati- on, Australia	\$49,997	\$24,500	2015-2016	Project Grant
Optimising acute transition- al care for culturally and linguistically diverse stroke survivors	Siyambalapitiya, S.	Cornwell, PL	Stroke Foundati- on, Australia	\$19,304		2015-2016	Project Grant
Evaluation of the imple- mentation of the Calderdale Framework in Queensland Health.	Kuipers, P.	Cornwell, PL	Allied Health Professionals Of- fice of Queens- land	\$52,252	\$52,252	2015-2016	Project Grant
Evaluation of a clinical service model for hand therapy via telehealth	Worboys, T.	Cornwell, PL	Allied Health Professionals Of- fice of Queens- land	\$21,854	\$21,854	2015-2016	Project Grant
Can an allied health as- sistant deliver the Subjective Global Assessment with the same reliability and confidence as an accredited practising dietitian?	Newman, C.	Cornwell, PL	Allied Health Professionals Of- fice of Queens- land	\$22,900	\$22,900	2015-2016	Project Grant
Scoping phase of the evaluation of the Calderdale Framework Implementation in Queensland Health	Kuipers, P.	Cornwell, PL	Allied Health Professionals Of- fice of Queens- land	\$11,371	\$11,371	2015	Project Grant

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Improving health outcomes for bilingual and culturally and linguistically diverse stroke patients through better speech pathology and interpreter interprofes- sional care	Siyambalapitiya, S.	Cornwell, PL	Griffith University	\$7,000	\$7,000	2015-2016	Project Grant
Improving the recovery outcomes for people with Mild Stroke: Enhancing and Guiding Transition Home	Cornwell, PL.	Thompson, L., Maguire, A.	Allied Health Professionals Of- fice of Queens- land	\$105,679	\$69,000	2015-2017	Project Grant
Chart Audit of Current Practices and Outcomes for Upper Limb Management after Stroke and Staff Survey	Bailey, C	Low Choy, N.	Queensland Physiotherapy Rehabilitation Network	\$2,000	\$2,000	2015	Project Grant
Use of preoperative ROTEM assays to detect postopera- tive thrombotic complica- tions following total hip and knee arthroplasty in over- weight and obese patients: a pilot study	Lisa Stanton	Usha Gurus- nathan, Nina Raju, Scott Mckenzie	TPCH Founda- tion	\$9,926	\$9,926	2015	New Investi- gator Project Grant
Beta-blocker control of hu- man ventricular arrhythmias in patients with heart failure though phosphodiesterases	Peter Molenaar	Peter Mole- naar	TPCH Founda- tion	\$77,735	\$77,735	2015-2016	Project Grant
Oroboros Oxygraph-zK	Peter Molenaar	Peter Mole- naar	TPCH Founda- tion	\$40,150	\$40,150	2015	Equipment Grant
Phosphodiesterase (PDE) protection against ventri- cular arrhythmias in heart failure patients	Weilan Mo	Weilan Mo	TPCH Founda- tion	\$10,000	\$10,000	2015-2016	New Investi- gator Project Grant
Desktop Water Jet: support material removal system	Eric Wu	Eric Wu	TPCH Founda- tion	\$2,811		2015	Small Equip- ment Grant
X6323A Universal Radial Milling Machine	Brian Chuang	Brian Chuang	TPCH Founda- tion	\$4,975		2015	Small Equip- ment Grant
Dantec Dynamics PIV control system	Shaun Gregory	Shaun Gregory	TPCH Founda- tion	\$5,000		2015	Small Equip- ment Grant
Optimising patient and staff safety when performing passive patient repositioning and lateral transfers in the intensive care unit	Craig Elliott	Dan Mullany	TPCH Founda- tion	\$9,095		2015	New Investi- gator Project Grant
Gastrointestinal and hepatic function during extracorpor- eal membrane oxygenation in adults and association with feeding intolerance	Rozanne Visva- lingam	Tony Rahman	TPCH Founda- tion	\$9,108		2015	New Investi- gator Project Grant
An international survey of circuit access practices re- garding infection prevention in extra corporeal membra- ne oxygenation	Rebecca Taylor	Amanda Corley	TPCH Founda- tion	\$9,519		2015	New Investi- gator Project Grant
Determining the pressure relieving properties of selec- ted commercial and custom made products to reduce the incidence of pressure injury development on the head	Kirstin Kirwan	Amanda Corley	TPCH Founda- tion	\$9,616		2015	New Investi- gator Project Grant



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Evaluation of a Quick-Connect System to Reduce Ventricular Assist Device Implantation Time and Complexity	Lisa Obermaier	Shaun Gregory	TPCH Founda- tion	\$9,779		2015	New Investi- gator Project Grant
Improving our understand- ing of pressure injuries in critical care patients: Tissue perfusion and patient severe- ity of illness	Jake Nowicki	Amanda Corley	TPCH Founda- tion	\$9,814		2015	New Investi- gator Project Grant
Low Drift Fibre Bragg Grating Pressure Transducer for use with Physiological Controllers	Andrew Stephens	Shaun Gregory	TPCH Founda- tion	\$9,951		2015	New Investi- gator Project Grant
Quantitative assessment of resuscitated hearts follo- wing circulatory death for heart transplantation	Louise See Hoe	Peter Mole- naar	TPCH Founda- tion	\$9,966		2015	New Investi- gator Project Grant
Changes in myocardial func- tion and microcirculation under different resuscitation strategies in a sepsis ovine model	Brook Tang	John Fraser	TPCH Founda- tion	\$9,969		2015	New Investi- gator Project Grant
Characterisation of neuro- hormonal patterns in a model of ovine cardiac transplantation - Compari- son of current vs. novel donor heart storage methods	Joseph Hwang	Wendy Chan	TPCH Founda- tion	\$9,973		2015	New Investi- gator Project Grant
Design and validation of a mock circulation loop for particle image velocimetry evaluation of prosthetic heart valves	Arianna Di Nucci	Shaun Gregory	TPCH Founda- tion	\$9,989		2015	New Investi- gator Project Grant
In-Vitro Optimization of Inflow Cannula Impact to Improve Blood Compatibility	Stefan Jentsch	Shaun Gregory	TPCH Founda- tion	\$9,997		2015	New Investi- gator Project Grant
Functional and morpholo- gical changes occurring in the left and right ventricles following chronic left ventri- cular assist device implanta- tion in an ovine model.	Nicole Bartnikow- ski	Shaun Gregory	TPCH Founda- tion	\$9,999		2015	New Investi- gator Project Grant
Millipore MAGPIX xPONENT 4.2 Analyser	Kavita Bisht	Kavita Bisht	TPCH Founda- tion	\$16,000		2015	Large Equip- ment Grant
OROBOROS Oxygraph-2k	Peter Molenaar	Peter Mole- naar	TPCH Founda- tion	\$40,150		2015	Large Equip- ment Grant
A Saliva Test To Identify High Risk Heart Failure Patients.	Chamindie Puny- adeera	John Fraser	Heart Founda- tion	\$75,000		2015	Project Grant
Using a bioengineering approach to develop an in- fection-resistance ventricu- lar assisted device driveline coating.	Shaun Gregory	John Fraser	TPCH Founda- tion	\$93,447		2015	Experienced Researcher Grant
Reducing pressure injuries to improve patient out- comes and reduce health- care costs	John Fraser	Amy Spooner Amanda Corley	The Metro North Hospital and Health Service Executive Group	\$124,090		2015	SEED Funding
The Breathe Easy Early Study	John Fraser		Queensland Emergency Me- dicine Research Foundation - Project	\$159,173		2015	Project Grant

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High flow cannula therapy in bronchiolitis, a randomised controlled trial	Andreas Schibler	John Fraser	National Health and Medical Re- search Council (Project Grant)	\$1,242,929		2015-2017	Project Grant
Transfusion Triggers in Car- diac Surgery Australia trial (TRICS-III)	Alistair Royse	John Fraser	National Health and Medical Re- search Council (Project Grant)	\$1,379,436		2015-2018	Project Grant
Assessing risk in sepsis using tissue oxygen saturati- on (ARISTOS)	Pham H	Kinnear F	TPCH Founda- tion	\$9,950	\$9,950	2015-2016	New Investi- gator Project Grant
Implementation & evalu- ation of new method of obtaining a urine specimen in non toilet-trained children in the ED	Probyn J	Fulbrook P	TPCH Founda- tion	\$3,189	\$3,189	2016-2017	New Investi- gator Project Grant
High Flow Nasal Cannula (HFNC) therapy in bronchi- olitis	Davison M	Fulbrook P	TPCH Founda- tion	\$6,497	\$6,497	2016	New Investi- gator Project Grant
REFRESH (minimal volume sepsis study)	Keijzers G	Kinnear F	QEMRF	\$54 125	\$19,000	2016	Project grant
CREDIT	Cullen, L	Kinnear F	QEMRF	\$80 000			Project grant
Ambulance Retrieval Decisi- on Making Framework	Fulbrook P	Kinnear F	SEED Innovation	\$87,790	\$87,790	2016	Project grant
Reducing ED demand	Morel D	Kinnear F	QEMRF	\$227 682			Project grant
Coeliac Disease and Hooook- worm	Prof John Croese	Prof Tony Rahman	NHMRC, TPCJHF	\$750,000		2015-2018	Program Grant
Hepatic Enecphalopathy	Prof Tony Rahman		TPCH Foundati- on, QIMR	\$125,000	\$100,000	2015-2016	Project Grant
HCV delivery - Models of Care	Prof Tony Rahman		MN	\$400,000	\$200,000	2016-2018	Project Grant
A fully implantable self-powered extra aortic counterpulsation device for translational development in hypertensive heart failure	McLachlan	Shaun Gregory	NHMRC	\$869,436	\$869,436	2015-2016	Project Grant
Dantec Dynamics PIV con- trol system	Shaun Gregory	Shaun Gregory	TPCH Founda- tion	\$5,000	\$5,000	2015-2016	Small equip- ment
Evaluation of a quick-con- nect system to reduce ventricular assist device implantation time and complexity	Lisa Obermeier	Shaun Gregory	TPCH Founda- tion	\$9,779	\$9,779	2015-2016	New Investi- gator Project Grant
Erythrocyte responses to mechanical trauma follo- wing exposure to oxidative stress	Michael Sim- monds	Shaun Gregory, John Fraser	Griffith University	\$10,000	\$10,000	2015-2016	Project Grant
Efficient wireless power transfer system for ventricu- lar assist devices (VADs)	Mahinda Vilathga- muwa	Shaun Gregory, John Fraser	TPCH Founda- tion	\$87,770	\$87,770	2015-2016	Project Grant
Using a bioengineering approach to develop an in- fection-resistance ventricu- lar assisted device driveline coating	Shaun Gregory	Shaun Gregory, John Fraser	TPCH Founda- tion	\$93,447	\$93,447	2015-2016	Project Grant



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Functional and morphological changes occurring in the left and right ventricles following chronic left ventricular assist device implantation in an ovine model	Nicole Bartnikowski	Shaun Gregory	TPCH Foundation	\$9,999	\$9,999	2015-2016	New Investigator Project Grant
Low drift fibre bragg grating pressure transducer for use with physiological controllers	Andrew Stephens	Shaun Gregory	TPCH Foundation	\$9,951	\$9,951	2015-2016	New Investigator Project Grant
In-vitro optimization of inflow cannula impact to improve blood compatibility	Stephen Jentsch	Shaun Gregory	TPCH Foundation	\$9,997	\$9,997	2015-2016	New Investigator Project Grant
More-2-Eat: Nutrition care pathway and optimized protein supplementation for mal-nourished elderly patients.	Dr Heather Keller	Dr Jack Bell	TVN, Canada	\$899,963		2015-2017	Government & industry sponsored
Impact of malnutrition on 12-month mortality following acute hip fracture	Dr J. Bell	Dr Jack Bell Dr C. Pulle Dr A. Crouch R. Ferrier	Allied Health Research Collaborative	\$2,051		2015	AHRC sponsored project grant
"The link between osteoarthritis and metabolic syndrome."	Prof Ross Crawford	Dr Jack Bell Prof Ross Crawford	TPCH Foundation	\$549,547		2015-2018	Program Grant
		Emily Gordon, Shannaen Gilbert, Keren Harvey, Wendy Austin and the Memory Clinic Team	IMS Research Committee Bursary	\$1,000		2015-2016	IMS Grant
GP Rapid Access to Consultative Expertise (GRACE)		Jeffrey Rowland, Julie Bunting, Jodie Huntely-Forde	MN HHS	\$49,920		2015-2016	MN HHS LINK Funding
Improving the recovery outcomes for people with Mild Stroke: Enhancing and Guiding Transition Home (MiSTRENGHT)		Petrea Cornwell, Leah Thompson, Andrew Wong, Louise Gustaffson, Angela Maguire, Suzanne Kuys	Health Practitioner Research Scheme 2015	\$69,146		2015-2016	
Right Hemisphere Strokes	Petrea Cornwell	Petrea Cornwell	TPCH Foundation	\$53,000		2015-2017	Project Grant
Factors impacting on patient and operator radiation dose during percutaneous cardiac intervention in the modern era.	James Crowhurst	James Crowhurst Michael Savage Dale Murdoch Mark Whitby Darren Walters Chris Raffel	Australian Institute of Radiography	\$10,000		2015-2016	Scholarship
Ambulance retrieval: What factors are involved in the decision to transport an emergency patient to hospital.	Fulbrook, P.	Kinnear, F., Jessup, M.	Queensland Health Seed Grant	\$87,790	\$87,790	2016-2017	Project Grant

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High flow nasal cannula (HFNC) treatment for viral bronchiolitis: a randomised control trial to investigate the effect on carbon dioxide (CO2) levels.	Davison, M.	Fulbrook, P.	TPCH Foundation	\$6,494	\$6,494	2016	Project Grant
Implementation and evaluation of new method of obtaining a urine specimen in non toilet-trained children in the emergency department.	Probyn, J.	Fulbrook, P.	TPCH Foundation	\$3,190	\$3,190	2016-2017	Project Grant
Is waiting time in the emergency department associated with hospital acquired pressure injury.	Fitzpatrick, E.	Fulbrook, P.	TPCH Foundation	\$9,162	\$9,162	2016	Project Grant
Prophylactic nutrition support in high risk patients prior to treatment for head and neck cancer	Teresa Brown	Brett Hughes	RBWH Foundation	\$30,000	\$30,000	2015	Project Grant
Disease tolerance and transplant tolerance – two sides of the same coin?	Chambers D,	Chambers D, Yerkovich S,	Australian Respiratory Council	\$47,743	\$47,743	2014-2015	Project Grant
Identification of Progressive Disease in Idiopathic Pulmonary	Corte T	Hopkins P	NHMRC	\$655,210		2014-2016	Project Grant
Combining immune monitoring and immunotherapy to tackle cytomegalovirus infections in solid organ transplant patients	Khanna R	Chambers D	NHMRC	\$778,168		2014-2016	Project Grant
Optimising organ function during ex-vivo lung perfusion – role of the endothelial glycocalyx	Chambers D,		University of Queensland (Academic Title Holder Research Fund)	\$37,078	\$18,539	2014-2015	Project Grant
Protracted bacterial bronchitis: long term outcomes, systemic and airway predictors of recurrence.	Chang, A	Yerkovich, ST	NHMRC	\$777,377		2013-2016	Project Grant
Health Research Fellowship	Chambers D		Queensland Health (Office of Health and Medical Research)	\$750,000	\$125,000	2011-2015	Fellowship
Cognitive Behavioural Therapy (CBT) for patients with chronic lung disease undergoing pulmonary rehabilitation	Marsus Pumar	Marsus Pumar, Ian Yang, James Walsh, Tricia Rolls	Queensland Health - SEED Innovation Program 2014	\$15,710		2014-2015	Project Grant
Pulmonary Rehabilitation in Chronic Obstructive Pulmonary Disease: the relationship between anxiety and depression and physical activity	Peasey M	Peasey M, Morris N, Walsh J	TPCH Foundation	\$9,742		2014-2016	Project Grant
Protecting the endothelial glycocalyx to improve transplant rates and outcomes	Chambers D,	Hopkins P, Yerkovich ST, Sladden T	NHMRC	\$725,180		2016-2018	Project Grant
Conquering the final frontier in lung transplantation - Mesenchymal stromal cell therapy for chronic lung allograft dysfunction	Chambers D	Hopkins P	NHMRC	\$1,887,790		2016-2020	Project Grant



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Fixing broken lungs: Next generation ex-vivo lung perfusion	Chambers D	Yerkovich ST, Hopkins P, Sladden T	TPCH Founda- tion	\$98,557		2016	Project Grant
Idiopathic Pulmonary Fibrosis - A disease of stem cell dysfunction?	Chambers D	Yerkovich ST, Sinclair K, Hopkins P	TPCH Founda- tion	\$94,561		2015	Project Grant
Tackling Pulmonary Antibody-Mediated Rejection by Targeting Circulating Donor Specific B Cells (DSB)	Chambers	Yerkovich S	TPCH Founda- tion	\$99,524		2015	Project Grant
Equipment grant - for a range of studies. Microscope, slide scanner, Safety cabinet, tissue microarrayer, etc 20% to cover balance for Q*UQ/NHMRC application	Fong	Fong	TPCH Founda- tion	\$14,160	\$14,160	2015	Equipment Grant
Equipment grant - for a range of studies. QIAcube accessories - QIAvac 24 Plus & QIAvac connecting system	Fong	Fong	TPCH Founda- tion	\$2,258	\$2,258	2015	Equipment Grant
Equipment grant for a range of studies: BIXOLON TX400 TT LAN PTR barcode label printer and BARTENDER AUTO 3 PNTR V10.1 (windows based labelling software)	Fong	Fong	TPCH Founda- tion	\$1,462	\$1,462	2015	Equipment Grant
Equipment grant - Exhaled breath collection and storage equipment	Dent	Dent	TPCH Founda- tion	\$4,075	\$4,075	2015	Equipment Grant
Project - Optimising Screening for lung cancer	Fong	Fong, Bowman, Marshall, AI Yang	NHMRC	\$3,032,884		2016-2021	Project Grant
Equipment and Infrastructure	Fong	Fong, Bowman, Marshall, Yang	ACRF	\$1,000,000	\$1,000,000	2016	Equipment and infrastructure
Equipment and Infrastructure	Fong	Fong, Bowman, Marshall, Yang	UQ co-funding to support ACRF grant above	\$250,000		2016-2021	Equipent and infrastructure
Mobile health for COPD	Yang	Yang, Bowman, Fong	TPCH Founda- tion	\$99,540	\$99,540	2016	Project Grant
National Clinical Centre of Research Excellence in Severe Asthma	Gibson	Yang (AI)	NHMRC CRE	\$2,498,171		2016	CRE
Using the lung microbiome to predict response to continuous antibiotics in COPD	Yang	Yang, Reid, Krause	Australian Respiratory Council Harry Windsor Grant	\$49,457	\$49,457	2016	Project Grant
ABSORB IV: A Clinical Evaluation of Absorb™ BVS, the Everolimus Eluting Bioresorbable Vascular Scaffold in the Treatment of Subjects with de novo Native Coronary Artery Lesions	Prof Darren Walters	Dr. Niranjan Gaikwad, Dr. Brendan Bell, Dr. Karl Poon, Dr. Dale Murdoch	Abbott Vascular	\$ 9,175.00 per patient	\$16,025.00	2015-2023	Commercially Sponsored
CAAN-AF: Cardiac Resynchronisation Therapy (CRT) And AV Node ablation trial in AF	Dr Haris Haqqani	Dr. Russell Denman, Dr. Adam Lee	Investigator Initiated	\$922.00 per patient		2013-2017	Commercially Sponsored

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CENTERA: Safety and Performance Study of the Edwards CENTERA Self-Expanding Transcatheter Heart Valve	Prof Darren Walters	Dr. Andrew Clarke, Dr. Niranjan Gaikwad, Dr. Christopher Raffel, Dr. Karl Poon	Edwards Lifesci- ences	\$5,150.00 per patient	\$10,760.00	2015-2021	Commercially Sponsored
CONCORDANCE: Cooperative National Registry of Acute Coronary Care Guideline Adherence and Clinical Events	Prof Darren Walters	Dr. Niranjan Gaikwad	Investigator Initiated Registry	\$230.00 per patient	\$10,980.00	2009-2016	Collaborative Research/Project Grant
COREVALVE: An Investigator Initiated Clinical Trial using Percutaneous Aortic Valve Replacement (PAVR) with the CoreValve ReValving™ System and CoreValve International ReValving™ Registry:	Prof Darren Walters	Dr. Andrew Clarke, Dr. Niranjan Gaikwad, Dr. Christopher Raffel, Dr. Karl Poon	Medtronic	\$3,500.00 per patient	\$5,478.00	2008-2016	Commercially Sponsored
ENHANCE: Efficacy of the PreseNce of Right Ventricular Apical Pacing Induced Ventricular DyssyncHrony as a Guiding PArameter for BiveNtricular PaCing in PatiEnts with Bradycardia and Normal Ejection Fraction	Dr Haris Haqqani	Dr. Russell Denman	St Jude Medical	\$2,447.00 per patient		2013-2016	Commercially Sponsored
ENLIGHTN II: IntErna-tional non-randomized, single-arm, long-term follow-up study of patients with uncontrolled Hyper-Tension	Prof Darren Walters	Dr. Matthew Pincus, Dr. Niranjan Gaikwad	St Jude Medical	\$5,055.00 per patient	\$12,376.50	2013-2018	Commercially Sponsored
EVOLVE: A Prospective Randomized Multicenter Single-blind Non-inferiority Trial to Assess the Safety and Performance of the Evolution Everolimus-Eluting Monorail Coronary Stent System for the Treatment of a De Novo Atherosclerotic Lesion	Prof Darren Walters	Dr. Christopher Raffel, Dr. Karl Poon, Dr. Niranjan Gaikwad	Boston Scientific	\$8,958.00 per patient		2010-2015	Commercially Sponsored
EVOLVE II: A Prospective Multicenter Trial to Assess the Safety and Effectiveness of the SYNERGY™ Everolimus-Eluting Platinum Chromium Coronary Stent System (SYNERGY™ Stent System) for the Treatment of Atherosclerotic Lesion(s)	Prof Darren Walters	Dr Christopher Raffel, Dr Karl Poon, Dr Brendan Bell, Dr Dale Murdoch, Dr Niranjan Gaikwad	Boston Scientific	\$4,108.00 per patient	\$4,163.00	2013-2018	Commercially Sponsored
EVOLVE II QCA: A Prospective, Multicenter Trial to Assess the SYNERGY™ Everolimus-Eluting Platinum Chromium Coronary Stent System (SYNERGY™ Stent System) for the Treatment of Atherosclerotic Lesion(s)	Prof Darren Walters	Dr Christopher Raffel, Dr Matthew Pincus, Dr Karl Poon, Dr Brendan Bell, Dr Dale Murdoch,	Boston Scientific	\$10,062.00 per patient	\$6,990.00	2013-2015	Commercially Sponsored



Project Title	Chief Investigator	TPCH Inves- tigator	Granting Agency	Total Funding Awarded	Funding received for 2015-16	Years of Funding	Grant Type
FANTOM II: Safety & Performance Study of the FANTOM Sirolimus-Eluting Bioresorbable Coronary Scaffold	Prof Darren Walters	Dr Christoph-her Raffel, Dr Niranjan Gaikwad, Dr Dale Murdoch, Dr Matthew Pincus, Dr Akshay Mishra	Reva Medical Inc	\$13,148.00 per patient	\$9,000.00	2015-2020	Commercially Sponsored
FLAIR: Prospective, multi-center, double blind, randomised study to test the safety of deferral of stenting in physiological non-significant lesions in a clinical population of intermediate stenoses using iFR and FFR	Prof Darren Walters	Dr Matthew Pincus, Dr Niranjan Gaikwad, Dr Anthony Putrino, Dr Akshay Mishra, Dr Ryan Markham, Dr Brendan Bell, Dr Chris Raffel, Dr Dale Murdoch, Dr Karl Poon	Imperial College London	\$900,00.00 per patient	\$39,000.00	2014-2020	Collaborative Research/Project Grant
GADACAD 2: Multicenter open-label study to evaluate efficacy of gadobutrol-enhanced cardiac magnetic resonance imaging (CMRI) for detection of significant coronary artery disease (CAD) in subjects with known or suspected CAD by a blinded image analysis	Dr Christian Hamilton-Craig	Prof Darren Walters, Dr Joseph Lee	Bayer Healthcare	\$4,555.00 per patient	\$21,998.00	2013-2016	Commercially Sponsored
GEMINI: A Randomized, Double-Blind, Double-Dummy, Active-controlled, Parallel-group, Multicenter Study to Compare the Safety of Rivaroxaban versus Acetylsalicylic Acid in Addition to Either Clopidogrel or Ticagrelor Therapy in Subjects with Acute Coronary Syndrome	Prof Darren Walters	Dr Niranjan Giakwad	Janssen-Cilag	\$6,761.00 per patient	\$8,167.00	2015-2017	Commercially Sponsored
GLAGOV: A Randomized, Multi-center, Placebo-controlled, Parallel-group Study to Determine the Effects of AMG 145 Treatment on Atherosclerotic Disease Burden as Measured by Intravascular Ultrasound in Subjects Undergoing Coronary Catheterization	Prof Darren Walters	Dr Christopher Raffel	AMGEN		\$18,844.33	2013-2016	Commercially Sponsored
GLAGOV OPEN LABEL EXTENSION: A Multicenter, Open-label Extension (OLE) Study to Assess the Long-term Safety and Efficacy of Evolocumab	Prof Darren Walters	Dr Christopher Raffel, Dr Dale Murdoch, Dr Niranjan Gaikwad	AMGEN		\$3,000.00	2015-2019	Commercially Sponsored

Project Title	Chief Investigator	TPCH Inves- tigator	Granting Agency	Total Funding Awarded	Funding received for 2015-16	Years of Funding	Grant Type
GLOBAL LEADERS: COMPARATIVE EFFECTIVENESS OF 1 MONTH OF TICAGRELOR PLUS ASPIRIN FOLLOWED BY TICAGRELOR MONOTHERAPY VERSUS A CURRENT-DAY INTENSIVE DUAL ANTIPLATELET THERAPY IN ALL-COMERS PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION WITH BIVALIRUDIN AND BIOMATRIX FAMILY DRUG-ELUTING STENT USE.	Dr Chris Raffel	Prof Darren Walters, Dr Brendan Bell, Dr Matthew Pincus, Dr Dale Murdoch, Dr Karl Poon, Dr Akshay Mishra, Dr Ryan Markham, Dr Robert Gluer, Dr Niranjan Gaikwad	ECRI/Cardiolysis		\$4,934.38	2015-2019	Commercially Sponsored
IIS 141: Ventricular Electrophysiologic and Electroanatomic Characteristics in Idiopathic Ventricular Tachycardia	Dr. Harris Haqqani	Dr. Russell Denman, Dr. Adam Lee, Dr Christian Hamilton-Craig	Biosense Webster		\$6,000.00	2012-2016	Commercially Sponsored
INGEVITY: Active Fixation and Passive Fixation Pace/Sense Lead Clinical Study	Dr Russell Denman	Dr. Harris Haqqani	Boston Scientific		\$682.00	2013-2019	Commercially Sponsored
LATITUDE: Phase III trial comparing losmapimod vs placebo x 12 weeks on the incidence of MACE in subjects with ACS (NSTEMI and STEMI)	Dr Chris Raffel	Prof Darren Walters, Dr Dale Murdoch, Dr Karl Poon, Dr Robert Gluer	GlaxoSmithKline		\$51,720.00	2014-2018	Commercially Sponsored
LEADERS FREE: A PROSPECTIVE RANDOMIZED COMPARISON OF THE BIOFREEDOMTM BIOLIMUS AgTM DRUG COATED STENT VERSUS THE GAZELLE™ BARE METAL STENT IN PATIENTS AT HIGH RISK FOR BLEEDING	Prof Darren Walters	Dr Niranjan, Gaikwad, Dr Dale Murdoch, Dr Christopher Raffel	Biosensors Europe		\$9,964.00	2013-2016	Commercially Sponsored
ODYSSEY: A Randomized, Double-Blind, Placebo-Controlled, Parallel-Group Study to Evaluate the Effect of SAR236553/REGN727 on the Occurrence of Cardiovascular Events in Patients Who Have Recently Experienced an Acute Coronary Syndrome	Dr Chris Raffel	Prof Darren Walters, Dr Dale Murdoch, Dr Karl Poon, Dr Matthew Pincus, Dr Niranjan Gaikwad	Sanofi Aventis		\$26,445.00	2013-2021	Commercially Sponsored
PIIONEER: An Open-label, Randomized, Controlled, Multicenter Study Exploring Two Treatment Strategies of Rivaroxaban and a Dose-Adjusted Oral Vitamin K Antagonist Treatment Strategy in Subjects With Atrial Fibrillation Who Undergo Percutaneous Coronary Intervention	Prof Darren Walters	Dr Christopher Raffel, Dr Niranjan Gaikwad	Janssen-Cilag		\$26,201.00	2014-2016	Commercially Sponsored
PORTICO I: International long-term follow-up study of patients implanted with a PORTICO™ valve	Prof Darren Walters	Dr Andrew Clarke, Dr Peter Tesar, Dr Christopher Raffel, Dr Robert Gluer, Dr Niranjan Gaikwad	St Jude Medical		\$14,660.00	2014-2021	Commercially Sponsored



Project Title	Chief Investigator	TPCH Investigator	Granting Agency	Total Funding Awarded	Funding received for 2015-16	Years of Funding	Grant Type
REDUAL PCI: A prospective randomised, open label, blinded endpoint (PROBE) study to evaluate dual antithrombotic therapy with dabigatran etexilate (110mg and 150mg b.i.d.) plus clopidogrel or ticagrelor vs. triple therapy strategy with warfarin (INR 2.0 – 3.0) plus clopidogrel or ticagrelor with or without aspirin in patients with non valvular atrial fibrillation (NVAf) that have undergone a percutaneous coronary intervention (PCI) with stenting	Prof Darren Walters	Dr Christopher Raffel, Dr Niranjan Gaikwad	Boehringer Ingelheim		\$14,270.00	2014-2017	Commercially Sponsored
REDUCE LAP-HF: A study to evaluate the DC Devices, Inc. IASD™ System II to REDUCE Elevated Left Atrial Pressure in Patients with Heart Failure	Dr Scott McKenzie	Dr. George Javorsky, Dr. Darren Walters, Dr. Yee Weng Wong, Dr. Wandy Chan, Dr. David Platts	Corviva/ DC Devices		\$201,190.47	2014-2018	Commercially Sponsored
REDUCE-HTN: Treatment of resistant hypertension using a radiofrequency percutaneous transluminal angioplasty Catheter	Prof Darren Walters	Dr Matthew Pincus, Dr Christopher Raffel, Dr Akshay Mishra, Dr Nick Bett, Prof Malcolm West, Dr Brendan Bell, Dr Dale Murdoch	Boston Scientific/Vessix		\$4,690.00	2012-2015	Commercially Sponsored
REPRISE II: Repositionable Percutaneous Replacement of Stenotic Aortic Valve through Implantation of Lotus™ Valve System – Evaluation of Safety and Performance	Prof Darren Walters	Dr Andrew Clarke, Dr Peter Tesar, Dr Christopher Raffel, Dr Robert Gluer, Dr Niranjan Gaikwad, Dr Con Aroney	Boston Scientific		\$17,424.00	2012-2019	Commercially Sponsored
REPRISE III: Repositionable Percutaneous Replacement of Stenotic Aortic Valve through Implantation of Lotus™ Valve System – Randomized Clinical Evaluation	Prof Darren Walters	Dr Andrew Clarke, Dr Peter Tesar, Dr Christopher Raffel, Dr Karl Poon, Dr Niranjan Gaikwad, Dr Anthony Putrino, Dr Dale Murdoch, Dr Ryan Markham	Boston Scientific		\$8,500.00	2015-2020	Commercially Sponsored
REPRISE NG DS: Repositionable Percutaneous Replacement of Stenotic Aortic Valve through Implantation of Lotus™ Valve with the Next Generation Delivery System	Prof Darren Walters	Dr Andrew Clarke, Dr Christopher Raffel, Dr Karl Poon, Dr Dale Murdoch, Dr Niranjan Gaikwad, Dr Anthony Putrino	Boston Scientific		\$60,740.00	2014-2017	Commercially Sponsored

Project Title	Chief Investigator	TPCH Investigator	Granting Agency	Total Funding Awarded	Funding received for 2015-16	Years of Funding	Grant Type
RESTORE II: ReZolve2™ Sirolimus-Eluting Bioresorbable Coronary Scaffold	Prof Darren Walters	Dr Christopher Raffel, Dr Dale Murdoch, Dr Karl Poon, Dr Brendan Bell	Reva Medical Inc		\$15,900.00	2013-2019	Commercially Sponsored
REVEAL LINQ: The Reveal LINQ™ Usability Study will assess the functionality of the Reveal LINQ™ device by assessing sensing performance and data transmission with the aim to support the market launch of the device	Dr Russell Denman	Dr. Harris Haqqani	Medtronic		\$1,700.00	2013-2016	Commercially Sponsored
REVELUTION: A Clinical Evaluation of the Medtronic Polymer-Free Drug-Eluting Coronary Stent System in De Novo Native Coronary Artery Lesions (Polymer-free DES Trial)	Prof Darren Walters	Dr Christopher Raffel, Dr Dale Murdoch, Dr Niranjan Gaikwad, Dr Brendan Bell, Dr Matthew Pincus, Dr Ryan Markham, Dr Karl Poon, Dr Akshay Mishra	Medtronic		\$3,760.00	2015-2021	Commercially Sponsored
SOLACE-AU: A Multicentre, Non-Randomised Controlled Study of the Safety, Performance, Quality of Life and Cost Effectiveness Outcomes of the Edwards SAPIEN XT™ Transcatheter Heart Valve in an Australian Population (Transfemoral Approach)	Prof Darren Walters	Dr Con Aroney, Dr Chris Raffel, Dr Andrew Clarke, Dr Peter Tesar, Dr Robert Gluer, Dr Niranjan Gaikwad, Dr Karl Poon, Dr Dale Murdoch	Edwards Lifesciences	\$5,000.00 per patient	\$19,300.00	1012-2018	Commercially Sponsored
TENDYNE: Expanded Clinical Study of the Tendyne Mitral Valve System	Prof Darren Walters	Dr Christopher Raffel, Dr Andrew Clarke, Dr Peter Tesar, Dr Dale Murdoch, Dr Ryan Markham, Dr Robert Gluer, Dr Greg Scallia, Dr Niranjan Gaikwad, Dr Anthony Putrino	Tendyne	\$11,468.00 per patient	\$8,260.00	2015-2019	Commercially Sponsored
TEXTMEDS: Text Messages to improve medication adherence and secondary prevention	Dr Christian Hamilton-Craig	Prof Darren Walters, Dr Ryan Markham, Dr Robert Gluer	George Institute	\$400.00 per patient	\$12,200.00	2014-2017	Collaborative Research





### Graeme Neilson Best Published Paper Award

Dr Graeme Neilson was the founding Director of Cardiology at The Prince Charles Hospital, performing the first cardiac catheter study at the hospital on the 4th October 1960. His research interests were varied and included Indigenous Health and Rheumatic Fever endocarditis, Q fever and Eisenmenger's Syndrome and pregnancy. His research resulted in the publication

of influential papers in these areas. He was a powerful force in Queensland cardiology and was progressive in dealing with the changing dynamics of modern cardiology.

**2015 recipient:** Zetao Chen et al. for 'Osteogenic differentiation of bone marrow MSCs by -tricalcium phosphate stimulating macrophages via BMP2 signalling pathway.'



### Michael Ray Best Basic / Translational Research Project

Dr Michael Ray recently retired from his role at TPCH where he was an active member of the research community, initially working in the Haematology Laboratory and most recently within the Clinical Cardiology Research Group. Working as a laboratory scientist at TPCH for over 30 years, Dr Ray demonstrated a tireless research-minded work ethos that led to many significant findings which improved the lives of patients at this hospital.

2015 recipient: Dr Shaun Gregory (see page 82)



### Richard Slaughter Best Clinical Research Project

Dr Richard Slaughter retired in November 2011 following 37 years of exemplary service at TPCH where he was known for his contribution to the advancement of cardiothoracic imaging and improved clinical outcomes for cardiovascular and thoracic patients. He had a long-standing interest in congenital heart disease, initially in paediatric diagnostic cardiac imaging and more recently in the adult congenital heart disease population.

2015 recipient: Dr James Walsh (see page 20)

## TPCH Research Awards



# Higher Research Degree Students

Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Ms Bronwyn Steele	PhD	A preliminary evaluation of the READY program for adult congenital heart disease patients	University of Queensland	Dr James Kirby	Dr Dorothy Radford & Dr Tricia Rolls
Dr Daniel Smith	PhD	The effect of defective iron handling on immune function and Pseudomonas aeruginosa in the Cystic Fibrosis lung	University of Queensland	David Reid	Scott Bell
Dr Anna Tai	PhD	Molecular mechanism of carbapenem resistance in Pseudomonas aeruginosa from patients with cysitic fibrosis	University of Queensland	Scott Bell	
Ms Kay Ramsay	PhD	Phenotypic and genotypic characterisation of Pseudomonas aeruginosa to determine the differences between adaptation, adherence and transmission amongst strains isolated from the environment and patients with cystic fibrosis	University of Queensland	Scott Bell	
Ms Kate Myslinski	MPhil	Physical Activity and Inflammatory markers in people with CF post hospitalisation	University of Queensland	David Reid	
Ms Michelle Wood	MPhil	Infectious airborne transport in individuals with cystic fibrosis	University of Queensland	Scott Bell	
Dr Champa Ratnatunga	PhD	Deconstructing the immunopathogenesis of non-tuberculous mycobacterial lung disease	University of Queensland	John Miles	Scott Bell
Ms Abella Murray	BSc (hons, first class)	Determining changes in T-lymphocyte profiles during acute exacerbations of Chronic Obstructive Pulmonary Disease (COPD) and Cystic Fibrosis	University of Queensland	David Reid	Kuys SS
Mr Peter Lazzarini	PhD	Foot disease in inpatients study	Queensland University of Technology	Reed L	Lazzarini PA
Mr Malindu Fernando	PhD	Diabetic foot ulcer biomechanical study	James Cook University	Golledge J	Lazzarini PA
Mr Adrian Singh	MRes	Social determinants of diabetic foto disease study	Queensland University of Technology	Turrel G	Lazzarini PA; Cornwell PC
Mr Damien Clark	MRes	Diabetic foot ulcer mobile phone study	Queensland University of Technology	Reed L	Lazzarini PA
Ms Ainslie Davies	PhD	Risk factors for diabetic peripheral neuropathy study	Queensland University of Technology	Reed L	Lazzarini PA
Ms Ann Alverado	MRes	Biofilm in diabetic foot ulcers study	Queensland University of Technology	Huygens F	
Ms Ronelle Hewetson	PhD	Social participation following right hemisphere stroke: Facilitators and barriers to communication-based participation.	Griffith University	Cornwell, PL.	Cornwell, PL.
Ms Anna-Liisa Sutt	PhD	Towards improved understanding of the effect of speaking valve on lung volumes and communication in the critically ill	The University of Queensland	Fraser, J.	
Ms Bronwyn Steele	Professional Doctorate	A Preliminary Evaluation of the READY Program for Adult Congenital Heart Disease Patients	The University of Queensland	Pakenham, K.	

Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Ms Ellie Newman	Professional Doctorate	An Exploration of Adjustment in Adult Congenital Heart Disease	Queensland University of Technology	Strodl, E.	
Ms Ann Finnimore	MPhil	PD Check - In: Supporting people with Parkinson's Disease in self-managed maintenance of communication following intensive speech treatment.	The University of Queensland	Theodoros, D.	Cornwell, PL.
Ms Tenelle Hodson	PhD	Investigating the transition to home experience for people with mild stroke: A comparison of standard care vs. MiSTRENGTH (MiId STROke: ENhancing and Guiding Transition Home)	The University of Queensland	Gustafsson, L.	
Ms Simone Howells	PhD	Exploring the experiences of adults with dysphagia living at home and their caregivers	Griffith University	Cornwell, PL.	Cornwell, PL.
Ms Frances Cochrane	PhD	Speech pathology services for Aboriginal and Torres Strait Islander adults with acquired neurogenic communication disorders: Perspectives from key stakeholders	Griffith University	Siyambalapitiya, S.	Cornwell, PL.
Ms Christy Hogan	PhD	Determining the Nature and Extent of Prospective Memory Impairment After Stroke	Griffith University	Shum, D.	Cornwell, PL.
Ms Lee Pryor	PhD	Critical care interventions in speech pathology practice: Implications for communication, swallowing and tracheostomy management	The University of Queensland	Ward, E.C.	Walsh, J.
Mrs Maureen Peasey	MPhil	Pulmonary Rehabilitation and Physical Activity in Chronic Obstructive Pulmonary Disease: predictors, determinants and responsiveness to change.	Griffith University	Morris, N.	Walsh, J.
Mrs Rebecca Kelly	MPhil	What factors predict daily physical activity levels post heart transplantation?	Griffith University	Morris, N.	
Mrs Rebecca Ferrier	PhD		Australian Catholic University	Low Choy, N.	
Ms Marina Tan	MD	Determinants of survival and morbidity following redo aortic valve surgery	UQ SOM	Dr Naidoo	
Mr Andy Lu	MD	Outcomes Following Management Of Moderate Ischaemic Mitral Regurgitation – Comparison Of Surgical Revascularisation Alone Versus Concomitant Repair Or Replacement	UQ SOM	Dr Naidoo	
Ms Weilan Mo	PhD	b-adrenoceptor mediated contractility in human heart:- control by phosphodiesterases	Queensland University of Technology	Peter Molenaar	
Dr Liam Byrne	PhD	Fluid resuscitation in septic shock.	Australian National University		?????, John Fraser
Miss Lizanne Dagleish	MPhil	Microvascular integumentary perfusion levels in post operative cardiac patients, the undiscovered cause of skin breakdown.	The University of Queensland	Roy Kimble	John Fraser
Dr Jayesh Dhanani	PhD	Study of dispoisition of inhaled antibiotics	The University of Queensland	Jason Roberts	John Fraser
Dr James Edelman	PhD	Inflammation and cardiac surgery.	The University of New South Wales	Michael Vallely	John Fraser
Mr Kai Gromann	Masters	Development of a less invasive cannulation system for RVADs	Aachen University	Ulrich Steinseifer	Shaun Gregory
Mr Matthias Kleinheyer	PhD	Investigation and improvement of inherent pump design characteristics to enhance physiologic pulsatility with rapid rotary blood pump speed modulation.	Griffith University	Geoff Tansley	John Fraser
Mr Charles McDonald	PhD	Trace elements, oxidative stress and the cardiac patient	The University of Queensland	John Fraser	



Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Miss Natasha Van Zyl	MPhil		The University of Queensland	Michael Reade	John Fraser
Mr Eric Wu	PhD	Development of a pump management system for rotary ventricular assist devices to promote myocardial regeneration whilst preventing post-operative complications.	The University of Queensland	John Fraser	Shaun Gregory
Dr Judith Bellapart-Rubrio	PhD	Cerebral microcirculation after head injury in ovine models.	The University of Queensland	John Fraser	
Dr Jonathon Fanning	PhD	Characterisation of neurological injury in cardiovascular interventions.	The University of Queensland	John Fraser	Darren Walters David Platts
Mrs Donna Franklin	PhD	High flow nasal cannula respiratory support in infants.	The University of Queensland	John Fraser	John Fraser
Dr Rylan Hayes	MPhil	Does hyperoxaemia in a extracorporeal membrane oxygenation circuit activate platelets and increase thrombotic risks?	The University of Queensland	John Fraser	John Fraser
Dr Daniel Kilburn	Mphil	An investigation into kidney injury induce by extracorporeal membrane oxygenation.	The University of Queensland	John Fraser	Kiran Shekar
Mr Johan Lipman	Masters	Development and evaluation of a novel drug delivery system	The University of Queensland	John Fraser	John Fraser, Shaun Gregory
Dr Monica Ng	PhD	The effects of blood storage duration at the blood-endothelial interface	The University of Queensland	John Fraser	John-Paul Tung
Miss Anna-Liisa Sutt	PhD	Towards and improved understanding of the effect of a speaking valve on lung volumes and communication in the critically ill tracheostomised patient.	The University of Queensland	John Fraser	Petrea Cornwall
Dr Matthew Tunbridge	MPhil	A longitudinal study of the triggers for transfusion at The Prince Charles Hospital	The University of Queensland	John Fraser	
Dr Kiran Shekar	PhD	Characterisation of Pharmacokinetics of Commonly Used Sedatives, Analgesics, Broad Spectrum Antibiotics and their Clinically Relevant Metabolites During ECMO Using Simulated Circuits, Clinical Studies and an Ovine Model.	The University of Queensland	John Fraser	
Dr Ryan Watts	MPhil	The Implications of brain death in donor lung injury: Investigation and blockade of the endothelin axis.	The University of Queensland	John Fraser	
Dr Paul Wiemers	MPhil	Cardiac surgery in indigenous Australians: How wide is the gap?	The University of Queensland	John Fraser	
Ms Alison Peeler	PhD	Evaluation of a paediatric emergency department.	Australian Catholic University	Fulbrook, P.	Kinnear F
Ms Kodchnipa Phonpruk	PhD	Discharge information provided to parents whose child has attended the paediatric emergency department.	Australian Catholic University	Flowers, K.	Fulbrook P
Ms Nina Mauris	Hons	Rapid response physiological control systems for rotary blood pumps	Universite De Frenche-Comte	Shaun Gregory	
Mr Corentin Lefort	Hons	Hydraulic design of a novel biventricular assist devices	Universite De Frenche-Comte	Shaun Gregory	
Ms Kristy Garrick	Hons	Development of an novel RVAD inflow cannula	Queensland University of Technology	Shaun Gregory	
Mr Brian Chuang	Hons	Implantable biventricular heart development	Queensland University of Technology	Shaun Gregory	

Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Ms Maureen Ross	Hons	Transcatheter aortic valve intervention: in-vitro phantom study of paravalvular leaks	Queensland University of Technology	Shaun Gregory	
Mr Joseph Huxley	Hons	Passive control of left ventricular assist devices using compliant inflow cannulae	Queensland University of Technology	Shaun Gregory	
Mr Mahdi Mansouri	PhD	Physiological control of left ventricular assist devices	University of Malaya	Einly Lim	Shaun Gregory
Mr Jo Pauls	PhD	Passive control system development for rotary ventricular assist devices	Griffith University	Geoff Tansley	Shaun Gregory
Mr Lee Flueckiger	Hons	Particle image velocimetry of rotary blood pumps	Griffith University	Shaun Gregory	
Mr Angus Martens	Hons	A shaft driven artificial heart prototype	The University of Queensland	Shaun Gregory	
Mr Adrian Singer	Hons	Improvement of a mock circulation loop for evaluation of artificial hearts	Universitat Regensburg	Shaun Gregory	
Ms Lisa Obermeier	Hons	A quick-connect system for ventricular assist device implantation	Universitat Regensburg	Shaun Gregory	
Mr Tom Burgess	Hons	Evaluation of an adrenalin delivery device	Griffith University	Shaun Gregory	
Ms Julie Nging	Hons	Statistical analysis of human cardiac response times to changes in patient state	Universite De Frenche-Comte	Shaun Gregory	
Mr Sam Liao	PhD	Tissue integration and flow dynamics of a suture-less inflow cannula	Queensland University of Technology	Mia Woodruff	Shaun Gregory
Ms Chanel Grahame	Hons	Tensile testing of the cannula-myocardial interface	Queensland University of Technology	Shaun Gregory	
Mr Thien Dinh	Hons	Particle image velocimetry of left ventricular assist device inflow cannulae	Queensland University of Technology	Shaun Gregory	
Dr Yunhui Chen	Postdoc	Characterising the shear force with rotary blood pump design	The University of Queensland	Shaun Gregory	
Dr Michael Stevens	Postdoc	In-vitro and in-vivo evaluation of physiological control systems	The University of Queensland	Shaun Gregory	
Dr Nicole Bartnikowski	Postdoc	Right heart failure after LVAD implantation – an in-vivo study	Queensland University of Technology	Shaun Gregory	
Mr Scott Bowden	Hons	A mock circulatory loop for evaluation of vascular stents	The University of Queensland	Shaun Gregory	
Mr Andrew Stephens	Hons	Development of a non-drift pressure sensor for physiological control of RBPs	Griffith University	Shaun Gregory	
Dr Deepika Nandakumar	Postdoc	Investigation of platelet function with rotary blood pumps	Usyd	Shaun Gregory	
Mr Nofrizal Idris	PhD	Particle image velocimetry of a spiral flow arterial bypass cannula	Universiti Teknologi Malaysia	Zahran Khudzari	Shaun Gregory
Ms Eleonore Bolle	Masters	Development and evaluation of an infection-resistant driveline for RBPs	RWTH Aachen	Shaun Gregory	
Mr Stefan Jentsch	Masters	Evaluation of ventricular flow dynamics with various RBP inflow cannula designs	RWTH Aachen	Shaun Gregory	
Mr Eric Wu	Masters	A physiological control system relating ventricular and pump work	The University of Queensland	Surya Singh	Shaun Gregory



Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Dr Katrina Hopcraft	M MagResonTech	Measurement of Pulmonary Artery Pulsatility Index in Patients with Pulmonary Hypertension by Cardiac magnetic Resonance Imaging with Correlation to Patient Mortality Data	The University of Queensland	Dr Christian Hamilton-Craig	
Dr Aaron Lin	PhD	Evaluation of Right Ventricular Contractile Reserve and the Impact of Exercise Training in Pulmonary Arterial Hypertension using Novel Ultra-fast Cardiac Magnetic Resonance Imaging Acquisition	Griffith University	Prof Norman Morris	Wendy Strugnell Christian Hamilton-Craig
Mr Keith Smith	Hons	Radiation dose and contrast use in adult diagnostic coronary angiography: A retrospective cohort study comparing single-plane and bi-plane systems in a tertiary Queensland hospital.	Queensland University of Technology	Debbie Starkey	Jim Crowhurst
Ms Sandra Miles	PhD	Able-Bodies Children: Development and Education	Australian Catholic University	Fulbrook, P.	
Ms Petra Lawrence	PhD	A randomised controlled trial of a brief intervention for emergency department attendees with moderate psychological distress: a pilot study	Australian Catholic University	Fulbrook, P.	
Ms Vainess Mbuzi	PhD	Indigenous peoples' experience of acute cardiac care.	Australian Catholic University	Fulbrook, P.	
Ms Alison Peeler	PhD	Evaluation of a paediatric emergency department.	Australian Catholic University	Fulbrook, P.	
Ms Kodchnipa Phonpruk	PhD	Discharge information provided to parents whose child has attended the paediatric emergency department.	Australian Catholic University	Flowers, K.	Fulbrook, P
Ms Stephanie Gettens	MPhil	Psychosocial implications of sustaining a fall while in hospital.	Australian Catholic University	Fulbrook, P.	
Ms Cathy Saxon	Mres	Patients with chronic respiratory disease: experiences of bronchoscopy	Australian Catholic University	Fulbrook, P.	
Mr Kenneth Sinclair	PhD	Mesenchymal stromal cells and the lung	The University of Queensland	Daniel Chambers	Stephanie Yerkovich
Dr Timothy Sladden	PhD	The role of endothelial glycocalyx breakdown in human lung transplantation and the establishment of a porcine model to study mechanisms and evaluate therapeutic interventions	The University of Queensland	Daniel Chambers	Stephanie Yerkovich
Mr Ricky Nelles	MBBS Hons	Does microbiome concordance and M2 macrophage predominance reduce the risk of chronic lung transplant rejection?	The University of Queensland	Daniel Chambers	Stephanie Yerkovich
Mrs Maureen Peasey	MPhil	Physical activity and pulmonary rehabilitation in COPD: the impact of individualisation and function	Griffith University	Norm Morris	James Walsh
Mrs Rebecca Kelly	MPhil	What factors predict daily physical activity levels post heart transplantation?	Griffith University	Norm Morris	James Walsh
Ms Kelly Chee	PhD	Next generation sequencing analysis of thoracic malignancies - optimisation of bioinformatics for somatic variant identification and validation strategies towards personalised therapy	UQ SOM	A/Prof Bowman; with Prof Fong; Prof Yang	
Ms Eloise Shaw	PhD	Tissue microarrays for lung cancer	UQ SOM	Prof Fong; with Prof Yang; A/Prof Rayleen Bowman; Sunil Lakhani	
Ms Catherine Saxon	PhD	Patient care during bronchoscopy	Australian Catholic University	QUT supervisors	Prof Fong

Name	Higher Degree	Research Project Title	University affiliation	Primary Supervisor	TPCH Supervisor/s (if different)
Ms Barbara Page	MPhil	Rural journey for lung cancer patients	UQ SOM	Prof Fong; with Prof Yang; A/Prof Rayleen Bowman	
Ms Annette Dent	PhD	Lung cancer; Diagnostic potential of VOCs in respiratory disease; Exhaled breath volatile organic compounds in lung disease.	UQ SOM	Prof Yang; with Prof Fong; A/Prof Rayleen Bowman; Sunil Lakhani	
Ms Janet Shaw	PhD	Lung microbiome in COPD	UQ SOM	Prof Fong; with Prof Yang; A/Prof Rayleen Bowman; Sunil Lakhani	
Dr Marissa Daniels	PhD	Lung cancer; Molecular diagnosis and characterisation of lung cancer (Genomic and epigenomic changes in lung malignancy); Genomic and epigenomic changes in lung malignancy	UQ SOM	Prof Fong; with Prof Yang; A/Prof Rayleen Bowman; Sunil Lakhani	
Ms Annalicia Vaughan	PhD	Diesel exposure to bronchial epithelial cells	UQ SOM	Prof Yang, Prof Fong, A/Prof Bowman	
Dr Jeffery Overington	MPhil	Electronic snapshot for COPD	UQ SOM	Prof Yang; with Prof Fong; A/Prof Bowman	
Dr Marsus Pumar	MPhil	Treatment of anxiety and depression in patients with respiratory disease	UQ SOM	Prof Yang; with Prof Fong; A/Prof Rayleen Bowman; Sunil Lakhani	
Ms Brielle Parris	BSC Honours	Detection of clinically relevant mutations in non-small cell lung cancer	UQ SOM	Prof Fong; with Prof Yang; A/Prof Rayleen Bowman	
Ms Catherine Saxon	PhD	Patient care during bronchoscopy	Australian Catholic University	KF	
Ms Hannah O'Farrell	Honours	Changes in the lung microbiome during acute exacerbations of COPD	UQ SOM	IY, RB, KF	
Mr Yao Huang	Honours	Diagnosis of chronic dyspnoea	UQ SOM	IY, RB, KF	
Mr Henry Zhao	Honours	Digital tomosynthesis	UQ SOM	SL, KF,	



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# Journal Editorial Positions

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## PROFESSOR IAN YANG

Reviewer for Chest, Clinical and Experimental Allergy, Cochrane Collaboration (Airways Group Environment International, European Respiratory Journal, International Journal of COPD, Expert Opinion on Pharmacotherapy, Medical Journal of Australia, Respirology and Thorax.

Deputy Editor, Respirology; Editorial Board Member for Respirology and Annals of the American Thoracic Society; Editor, Cochrane Collaboration

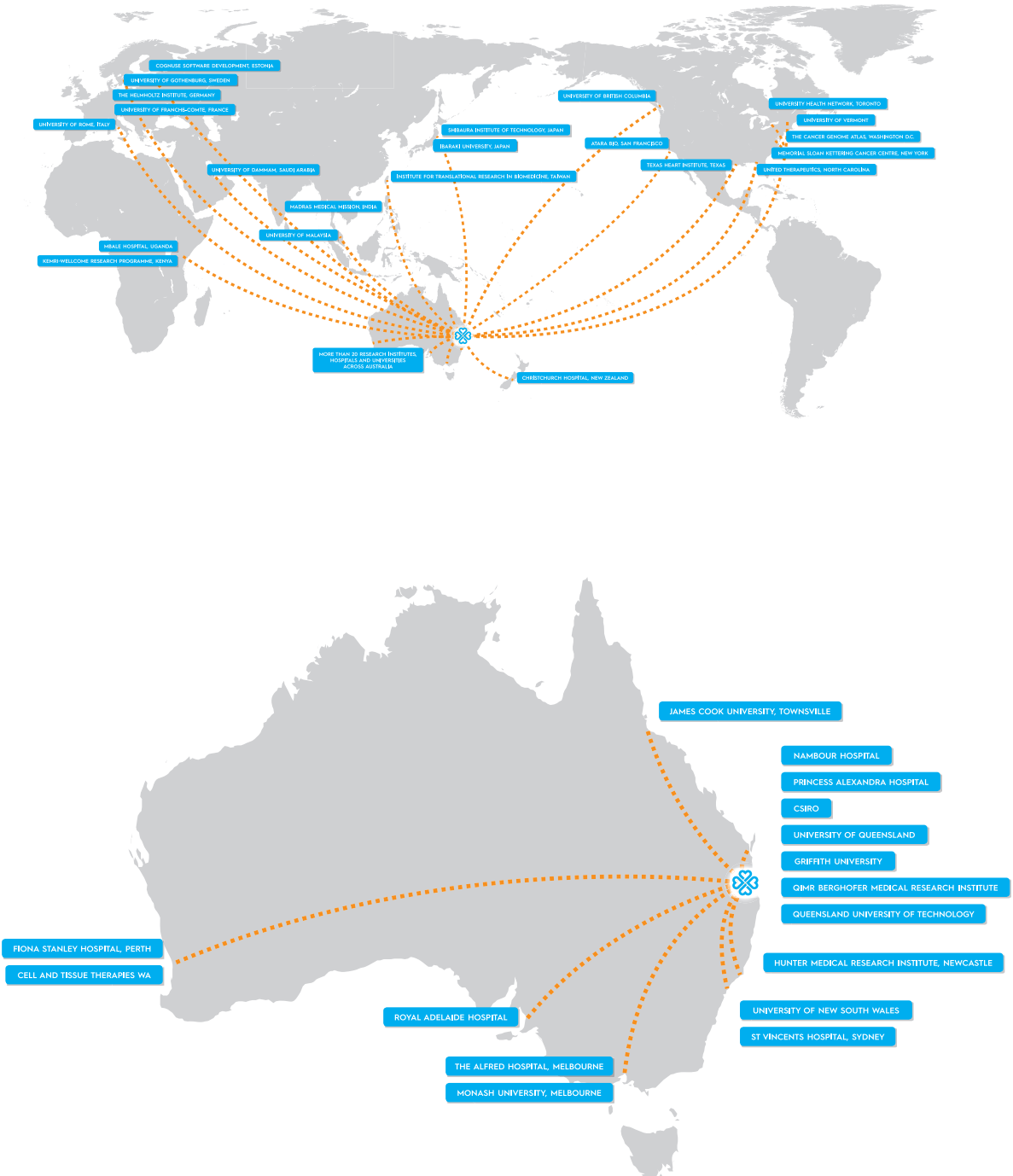
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