

2015

RBWH Research Report





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Design and Typesetting

Clinical Multimedia
Level 8, Block 8
Royal Brisbane and Women's Hospital
Butterfield St, Herston Q 4029

Phone: +61 7 3646 8111

Web: www.health.qld.gov.au/rbwh

Editor
Dr Merrilyn Banks

Photography
Clinical Multimedia
RBWH Communications and Engagement
The University of Queensland
Queensland University of Technology
QIMR

Produced by
CPX Printing and Logistics
Unit 4, 81 Bishop Street
Kelvin Grove Q 4059
Ph: +61 7 3221 1221
E: sales@cpx.com.au

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RBWH
Royal Brisbane and
Women's Hospital

Main Entrance

Executive Director's Report



Dr Amanda Dines
Executive Director
RBWH

At Royal Brisbane and Women's Hospital (RBWH) research is the basis of excellence in clinical care. We are proud of the multidisciplinary research undertaken at RBWH with medical, nursing and allied health clinicians all contributing to an expansive body of work. In 2015, research by clinicians from over 42 RBWH departments was published in 728 articles in peer review journals and 44 book chapters.

Last year alone more than \$62 million in grant funding was awarded to RBWH clinicians to support clinical research activities on this campus. In the highly competitive research grant application process, this is an excellent reflection of the capability and expertise at our hospital.

Our research outcomes and achievements have been highlighted nationally and internationally with 748 presentations made at conferences and symposia around the world. Research undertaken at the hospital was also showcased at the 24th RBWH Healthcare Symposium; this annual event was established to provide our researchers an opportunity to share their knowledge and learn from others.

RBWH is among the largest research campuses in Australia. Our shared commitment and strong partnerships with other Metro North Hospital and Health Service providers, Queensland Institute of Medical Research Berghofer (QIMR Berghofer), The University of Queensland (UQ) and Queensland University of Technology (QUT) shape the Herston campus as a centre of excellence for research. The strategic alliance of our partners in developing the Herston Imaging Research Facility (HIRF) places Queensland at the forefront of human imaging for clinical and scientific research.

This strong research culture enables continuous service improvement and the delivery of evidence-based care leading to significant improvements in the quality of our health services.

I thank all staff who contributed to our research success in 2015 and acknowledge the RBWH Director of Research, Professor Lawrie Powell AC, and his team for the leadership role they have played in this achievement.

As our best and brightest researchers continue to engage in work that will benefit patient care as well as globally improve human health, I look forward to another year of research innovation at RBWH.

RBWH Research Director Report 2015



Professor Lawrie Powell
Director
Research



Associate Professor Janet Davies
Senior Manager Research Strategy
and Performance
RBWH and MNHHS

In 2015 RBWH consolidated its impressive clinical research activity and broadened its research impact across the Herston campus as well as on the national and international stage. This year we continue to highlight the excellent research achievements of our clinical researchers and importantly, to consider how these research outcomes can be implemented into practice to improve patient care at RBWH.

We are pleased to be part of an increasing commitment to and growing recognition of the importance and benefits of embedding research as a core activity and key priority for clinical service within RBWH. This commitment to clinical research is facilitated by strong support of the RBWH Private Practice Trust Fund (PPTF) and the RBWH Foundation, which together allocated \$2.1 million in 2015 for peer-reviewed research including \$1,463,000 for clinical research project grants and \$437,000 in support of clinical research higher degree student scholarships. We congratulate the success of our RBWH researchers who contributed to applications that attracted over \$44 million dollars in funding for research. This included over \$19 million in funds for 2015 from prestigious nationally competitive schemes; one Australian Research Council Discovery Project and 42 grants from the National Health and Medical Research Council comprised of Fellowships, Projects and Centres for Research Excellence.

We are proud to share that the productivity of our RBWH researchers has been outstanding in 2015 with 1045 academic journal publications, 29 book chapters and five books reported. RBWH research was communicated via 672 conference presentations serving to showcase our latest research at local, national and international forums. We applaud the excellence of our clinical researchers who co-authored a significant body of work in high impact international journals including five publications in Nature, nine in Nature associated journals, three in The New England Journal of Medicine, nine in The Lancet and 10 in the broader Lancet family of journals.

The increasing focus on health service innovation and implementing research into clinical practice, is evident by multiple contributions to Cochrane systematic reviews of clinical research evidence and preparation of clinical guidelines that extend our reach beyond the RBWH. Teams of RBWH clinicians from within Allied Health, Critical Care and Clinical Support Services, Kidney Health Service, Metro North Mental Health and Women and Newborn Services prepared 11 clinical guidelines. Nursing and Midwifery contributed to 15 current Cochrane Collaborations.

RBWH offered education and training for clinical research including the introduction of the interactive research workshop format that provided a forum for gauging and improving the culture for clinical research at RBWH in conjunction with researchers at other Metro North Facilities and our academic partners. Currently, 211 postgraduate students supervised at RBWH are undertaking masters or doctoral level studies (PhD, Clinical Doctorate) via enrolments at our university partners; UQ, QUT and Griffith University, or interstate universities such as Monash University and University of New South Wales.

The annual RBWH Healthcare Symposium remained the major showcase for the hospital's clinical, educational and research activities with more than 1000 attendees and more than 100 staff, students and adjudicators in its planning and execution with statewide, national and international speakers.

The value RBWH places on research collaboration is evident by the breath of partnerships on this campus; The University of Queensland Faculties of Medical and Biomedical Sciences and Health and Behavioural Sciences; the Health Sciences building; UQCCR; QIMR Berghofer; and QUT. These partnerships encompass the Herston Imaging Research Facility (HIRF), the Australian Centre for Health Services Innovation (AushSI) and the Centre for Palliative Care Research and Education (CPCRE). RBWH has strengthened its engagement with the Brisbane Diamantina Health Partnership (BDHP). Indeed the RBWH continues to strongly support the establishment of BDHP as an Academic Health Research Training Centre with excellence in clinical care, teaching and research. It is widely recognised that such centres attract staff with enquiring minds, tenacity and a pursuit of excellence. Such staff themselves attract students and others of like mind. The end result is a higher quality of health care at a sustainable cost.

RBWH Human Research Ethics Committee



Dr Conor Brophy
Chair
Human Research Ethics Committee
RBWH

The RBWH Human Research Ethics Committee (HREC) has the important duty of reviewing proposed research before it begins, in order to gauge whether the work will, to coin a phrase, 'do what it says on the box', and conforms to established ethical principles for research conduct. All research has a written plan detailing aims, how those aims will be achieved, and usually a plain language statement for participants so they can understand and decide for themselves whether they wish to take part in the work. The RBWH HREC itself follows strict rules of engagement and is made up of volunteers in categories specified in the Australian research ethics guidance document: the National Statement on Ethical Conduct in Human Research. Each month a group of scientists, practising health workers, lawyers, people with a pastoral care role in the community, and men and women who can be considered to represent the broader community come together to review submitted research. Each person must be prepared to leave their other affiliations at the door and instead consider each project in relation to four ethical principles: the merit of the research; possible harms and benefits to participants; the fairness of the research and the burden on participants and others; and respect for participant's values, beliefs, privacy, autonomy, and community.

The RBWH HREC is a busy committee, and the number of research studies reviewed increased to an all-time high of 227 in 2015, an approximately 30% increase from any previous year. Despite this the HREC and its secretariat maintained prompt review and approval times of 22 days for high risk research and 13 days for low risk studies: well within the national benchmark of 60 days. The types of research seen by the HREC have also expanded in recent years. In the past, we reviewed mainly studies on new drugs and medical devices. More recently, studies on health service processes and systems, patient quality of life, and life-style choices have been increasingly submitted. This change reflects recognition that people's well-being and care is dependent on a range of contributors which interact; that good health prior to disease has bearing on response to treatment; and also how critical the management of our health services is to health outcomes and efficient use of resources. I commend both the work of the HREC and also the research highlighted in this report as having increasing relevance to good health and the delivery of excellent health care to all.

RBWH and RBWH Foundation Research Advisory Committee



Professor Gerard Byrne
Chair
Research Advisory Committee

The Research Advisory Committee (RAC) is responsible for adjudicating applications for research Scholarship and Grant funding by the RBWH and by the RBWH Foundation. The RAC has a diverse membership of senior researchers and clinicians representing the medical, nursing and allied health streams. RAC members provide their services on an honorary basis.

In 2015 the RBWH Private Practice Trust Fund provided \$1,500,000 for competitive Scholarships and research Grants and the RBWH Foundation provided \$329,000 for competitive research Grants for the calendar year 2016. The RAC gives priority to Scholarships over Grants, and those postgraduate research students who obtain competitive external support (e.g. from NHMRC or ARC) are eligible for top-up funds.

The RAC received 19 applications for postgraduate Scholarships, of which 15 were successful (79% success rate). Scholarships were awarded to both MPhil and PhD students. Four of the 15 scholars were enrolled part-time. Students were enrolled at the UQ, QUT and Griffith University. Their clinical disciplines included nursing, allied health and medicine. The total value of Scholarships was \$402,766.

In addition, the RAC received 124 applications for research Grants, of which 36 were successful (29% success rate). Nine research Grants were supported by funds from the RBWH Foundation and 27 research Grants were supported by funds from the RBWH Private Practice Trust Fund. The total value of research Grants was \$1,363,817. The disciplines represented among successful grantees included medicine, surgery, psychiatry, imaging, nursing, allied health and technical support.

I thank the RBWH Private Practice Trust Fund and the RBWH Foundation for their continuing support of research on campus.

I thank Prof Lawrie Powell AC for his tireless work as Director of Research and for his essential contributions to the RAC over many years. In addition, I thank retiring RAC members Dr Peter Roeser and Prof Ronald Dickinson. Finally, I would like to thank Anitha Dinesh, Maxine Goulston and Jacqueline Robinson for the excellent support they have provided to the RAC.

2015 RAC Membership:

Dr Roger Allison MBBS, D Obst, MRCP, FRCR, FRACR, FACHPM
Director of Oncology
Cancer Care Services, RBWH

Ms Kaelah Bosanquet BBus, Grad Cert (Bus Admin)
CFO
RBWH Foundation

Professor Gerard Byrne MBBS, BSc (Med), PhD, FRANZCP
Head, Academic Discipline of Psychiatry
UQ and Director of Geriatric Psychiatry
RBWH

Adjunct Associate Professor Ian Coombes
BPharm, MSc, PhD
Director of Pharmacy
RBWH

Associate Professor Janet Davies BSc, PhD
QUT Institute of Health and Biomedical Innovation

Professor Ronald Dickinson BSc, PhD
Professorial Research Fellow and Director
Centre for Studies in Drug Disposition, UQ

Adjunct Associate Professor Robyn Fox
RN, RM, BEd, MNL, PhD, FACN
Nursing and Midwifery Director of Education
RBWH

Professor Murray Mitchell DPhil DSc, FRSNZ
Director
UQ Centre for Clinical Research

Professor Lawrie Powell AC, MD, PhD, DUniv (Griff), FRACP,
FRCP (London), FRCPT
Director of Research
RBWH

Professor Grant Ramm BSc, PhD
Group Leader
Hepatic Fibrosis Laboratory, QIMR Berghofer

Professor Claire Rickard
RN, BN, GradDip (CritCare), PhD, FAAHMS, FACN
NHMRC Centre of Research Excellence in Nursing Interventions
Griffith Health Institute Centre for Health Practice
Innovation

Dr Peter Roeser MD, FRACP, FRCP
Retired Physician, RBWH

Professor Jenny Strong PhD, MOccThy, BOccThy
Former Head of the Department of Occupational Therapy
UQ and Professor Emeritus UQ

Professor Robert Tindle BSc, PhD
Retired Director
Sir Albert Sakzewski Virus Research Centre
RCH and Clinical Medical Virology and Professor Emeritus
UQ

Mr Peter Treseder AM, KSJ, CCEO, FAICD, FAIM, FIIDM, CFRE, MBA
CEO
RBWH Foundation

Dr Jacobus Ungerer MBChB, MMed (Chem. Path.), MBL, FRCPA
Director
Chemical Pathology, Pathology Queensland

Professor Joan Webster RN, RM, BA, PhD
Director of Nursing Research
RBWH

Dr Ian Wilkey MBBS, BSc, LLB, FRCPA, FAFPHM
Former Medical Superintendent
RBWH

Ms Julie Wright
Finance Manager
RBWH Foundation

Brisbane Diamantina Health Partners



Ms Areti Gavrilidis
General Manager
Brisbane Diamantina Health Partners

Brisbane Diamantina Health Partners is unique in Queensland. It is an academic health science system, which is a partnership between universities, research institutions and healthcare providers that focuses on research, clinical care, and education.

We have eight partners, all of them leading hospital and health services, universities and research institutes based in south-east Queensland. Our aim is to integrate innovative research, training and clinical practice to deliver the highest quality healthcare to our community.

The Brisbane Diamantina Health Partner members are Metro North Hospital and Health Service, Metro South Hospital and Health Service, Children's Health Queensland Hospital and Health Service, Mater Health Services, UQ, QUT, Translational Research Institute, and QIMR Berghofer.

As part of Metro North Hospital and Health Service, the RBWH plays an important role in Brisbane Diamantina Health Partners. The hospital is providing quality research that is contributing to the strategic objectives of the partnership.

Brisbane Diamantina Health Partners has seven key focus areas where the translation of innovative research into clinical practice is leading to better healthcare for Queenslanders. These areas are:

- Brain and mental health
- Immunity, inflammation, infection
- Trauma, critical care and recovery
- Chronic disease and ageing
- Maternal and child health
- Cancer
- Evidence and innovation in clinical care.

BDHP General Manager Areti Gavrilidis said RBWH, together with the BDHP member organisations, were searching for solutions to health issues affecting up to 3 million Queenslanders.

"Our focus is on bringing innovative research from the laboratory to patients as efficiently and effectively as possible," she said.

Researchers and clinicians from RBWH were among those awarded grants under BDHP's inaugural Strategic Initiative Grant Scheme to facilitate collaboration on projects that will lead to better health outcomes.

Griffith University



Professor Sheena Reilly
Director
Menzies Health Institute Queensland
Griffith University

Over the past year Griffith University has continued to work closely with the RBWH through clinical trial collaborations, research partnerships and staff placements.

Griffith's Menzies Health Institute Queensland (HIQ) currently has two joint appointments with many more MenziesHIQ researchers and PhD candidates working in collaboration with medical professionals and clinicians at RBWH. A number of Griffith University MenziesHIQ researchers hold Visiting Fellow appointments with RBWH fostering close ties and partnerships with clinical staff at the hospital.

The continued collaboration between MenziesHIQ and RBWH provides an ideal environment for research contributing to genuine positive impacts on health outcomes. This is clearly demonstrated in the work being undertaken by Professor Claire Rickard and colleagues in the Alliance for Vascular Access Teaching And Research (AVATAR) group. The work of this group aims to eliminate ineffective vascular access practices and replace them with innovative solutions, providing patients with a better healthcare experience, and saving global healthcare providers substantial funds.

The AVATAR group is a multidisciplinary group containing pathologists, nurses, health economists, microbiologists, haematologists, anaesthetists, and infectious disease physicians. The team includes a joint appointment between RBWH and MenziesHIQ for Nicole Marsh, a nurse researcher with 25 years' experience and specialist qualifications in Neurosurgical Nursing.

Since 2007, Nicole has been a Project Manager on a number of single and multi-centre clinical trials. In this role, Nicole has helped to formulate collaborative research partnerships in hospitals across three Australian States. Nicole is currently enrolled in her PhD at Griffith University with a research focus on preventing peripheral intravenous catheter complications.

Other collaborations between RBWH and MenziesHIQ include the joint appointment of Professor Jenny Paratz as a Principal Research Fellow. Professor Paratz is an internationally renowned researcher in intensive care and burns research. The recipient of an RBWH scholarship, Kate Murphy, working under the supervision of Prof Amanda Wheeler, is undertaking a PhD entitled *"Clozapine and concomitant medications: Assessing the completeness and accuracy of medication records for people prescribed clozapine under shared care arrangements"*.

The MenziesHIQ at Griffith University is committed to working in partnership with the RBWH to develop healthy communities through exceptional health and medical research to contribute to improved health outcomes for patients.

Pathology Queensland



Dr Jacobus Ungerer
Director
Chemical Pathology
Pathology Queensland

The Pathology Queensland Chemical Pathology Research and Development Unit is involved with both laboratory and clinical research through its Chemical Pathology Central Laboratory and the Conjoint Internal Medicine Laboratory (CIML) located at QIMR Berghofer. The Unit aims to establish collaborative scientific and research activities that will benefit patient healthcare and advance laboratory medicine.

The Chemical Pathology Laboratory located on site at RBWH has many years of experience in testing, data acquisition and specimen banking facilities as well as the development of new methodology including mass spectrometry assays for a range of biomarkers. At the same time innovative, contemporary translational and investigative research is undertaken in the Chemical Pathology's CIML facility by researchers currently in the fields of kidney, gastrointestinal and endocrine disease.

Through a collaborative process we continue to develop new laboratory and clinical collaborations with different groups including:

- Clinical staff at RBWH, The Prince Charles Hospital (TPCH) and PAH
- Researchers in Australia and overseas
- Industry (diagnostic manufacturers)

In 2015 Chemical Pathology collaborated closely with the RBWH Intensive Care Services (Dr Jeff Lipman), Emergency Medicine (Dr Louise Cullen) and Cardiology (Dr William Parsonage) on several clinical projects.

Clinicians directly involved with the CIML are Dr Michael D'Emden (Endocrinology), Dr Barbara Leggett (Gastroenterology), and Dr Helen Healy (Renal Medicine). These research units were awarded research grants in 2015 to continue with their investigative work within Chemical Pathology. Current areas of research include:

- Uptake of serum hormone binding proteins and effects on intracellular hormone metabolism and action
- Novel strategies for precision medicine in colorectal cancer
- Identifying molecular drivers of colorectal tumorigenesis
- Risk factors for serrated neoplasia
- Urinary exosomes as biomarkers of proximal tubular dysfunction.

Chemical Pathology, through its Central and CIML laboratories, continued to publish both laboratory- and clinically-focused papers in high-profile, peer-reviewed journals.

QIMR Berghofer Medical Research Institute



Professor Frank Gannon
Director and Chief Executive Officer
QIMR Berghofer
Medical Research Institute

These are exciting times for the Herston Precinct. With the RBWH at its core, the neighborhood also includes multiple activities from UQ and QUT, QIMR Berghofer and HIRF, in which all four partners are working in an alliance.

Plans for the development of Herston have evolved rapidly in the past year and we are very pleased to be a core component of them. When realized, we are sure that Herston will be an extremely strong health precinct. The question marks over the future of the former Children's Hospital and related areas (known as the Herston Quarter) will be clarified in the next months, and then a fully integrated plan can be put in place.

Our engagement with the RBWH is stronger and more significant every year. The leaders of three of our four research programs are active clinicians, and other key researchers here also engage in the delivery of services at RBWH. This, in turn, informs our research activities such that our work is directly relevant towards addressing the clinical needs of the community. QGen Cell Therapeutics, the GMP cell manufacture facility at QIMR Berghofer continues to generate increasing numbers of cellular products for clinical use. This now includes gene modified T cells that are being utilized in the bone marrow transplant program at RBWH.

It has been an important year for the Herston community to have the HIRF fully functioning and generating exciting data. This will facilitate new research and clinical approaches with those on the Herston precinct being best placed to benefit from them. While focusing on the Herston precinct, we are very aware of our engagement and commitment to the Brisbane-wide community through the Brisbane Diamantina Health Partners (BDHP). The activities of the BDHP are increasing rapidly and with greater inter-institutional cooperation becoming apparent. When one combines the new strength and dynamism of the RBWH and Metro North with the greater commitment to collaboration, it should ensure that health outcomes improve constantly. This is the aim of QIMR Berghofer, and we will continue with our engagement and commitment to our neighbors, in particular, to delivering this goal.

Queensland University of Technology



Professor Ross Young
Executive Dean
Faculty of Health
QUT

QUT has continued to build on a long standing partnership with the RBWH in 2015. QUT's involvement is largely through our Faculty of Health, the Science and Engineering Faculty and the Institute of Health and Biomedical Innovation (IHBI) and is based on active collaboration.

The new HIRF opened at the end of 2015. HIRF is a joint venture between UQ, Metro North Hospital and Health Service through the RBWH, QUT and QIMR Berghofer. QUT is progressing new appointments, including joint appointments, to build our strength in imaging, and researchers are using the technology to facilitate our understanding in the diagnosis and treatment of cancers, psychological disorders, cardiovascular disease, neurological disease and injury.

Two NHMRC Centres of Research Excellence bring together QUT and RBWH researchers. The QUT based CRE in End-of-Life Care is helping Australians engage in vitally important discussions about our clinical, humanitarian and workforce issues in this vital but often neglected area. The project is being delivered across three key programs and outputs included publications in highly ranked journals including, *"Journal of Medical Ethics"* and *"Palliative Medicine"*. Commencing in 2015, the Chronic Kidney Disease CRE involves investigators and collaborators from across Australia and is led by UQ with QUT, Queensland Health, RBWH and James Cook University the other key state partners. The project team was also successful in securing grant funding through the Australian Centre for Health Services Innovation (AusHSI). Early research outcomes have featured in the *"Renal Society of Australasia Journal"*.

AusHSI is a collaboration between QUT, UQ and MNHHS and the Department of Health. The Centre continued to be at the forefront of health services research, training and advisory services. In 2015, the centre awarded Implementation grants to Queensland-based health services groups to support clinician-led research teams evaluating quality of care, and provided training courses to researchers, students, clinicians and health managers on cost-effectiveness analysis, statistical analysis and research translation and implementation. A tailored Clinical Redesign Workshop was delivered for the Clinical Operations Strategic Implementation (COSI) unit. AusHSI senior academics also provided methodological guidance and protocol development for a number of significant clinical innovations at the RBWH, including the 24/7 project, and the REACH project (Reviewing Equitable Access to Care outside of Hours).

Several longstanding partnerships and collaborations in nursing research and training continued in 2015. The QUT/RBWH Cancer Nursing Professorial Precinct team secured an RBWH Foundation Grant to develop and evaluate a telehealth nurse-led intervention to improve the outcomes of patients who completed treatment for lymphoma. Researchers from QUT and RBWH collaborated on new grants in the areas of cancer, chronic kidney disease, infection control, child health and aged care. Publications continue to demonstrate productive links between academic staff, clinicians and students in the emergency medicine, health services, palliative care, nursing practice, renal health, nutrition and exercise and cancer. Outputs in international journals, such as *'Emergency Medicine Journal'* and *'European Journal of Oncology Nursing'* show the worldwide significance of our joint research.

We have also begun exploring the opportunities offered by other areas of strength at QUT, including regenerative medicine which focuses on the development of artificial tissues, body structures or organs. QUT looks forward to continuing its strong relationship with the RBWH and furthering accomplishments in health-related research, education and training.

RBWH Foundation



Mr Peter Treseder
Chief Executive Officer
RBWH Foundation

As the charity arm of RBWH, we are in the privileged position of not only working directly with many researchers across the campus to help them achieve their goals, but we have the responsibility of engaging with the corporate and general community in order to raise both awareness for the outstanding work undertaken at RBWH as well as the funds needed to make the research possible.

In the 2015/16 financial year, the support we received through donations, sponsorships, bequests and participation at our various events, enabled RBWH Foundation to distribute \$4.5 million to a range of different research and patient care initiatives at the hospital.

Through our annual Research Grant program, we provide 'seed funding' to a number of researchers as recommended by the Research Advisory Committee. Our mission is to provide the funds needed for fledgling projects so preliminary data can be gathered that will substantiate the value of the project when applying for more significant grants from larger funding bodies, most notably the NHMRC.

We are very proud that two projects which received such 'seed funding' from RBWH Foundation were successful in obtaining significant grants from NHMRC in November 2015.

Professor Jason Roberts received over \$2 million for his study into antibiotic resistance. Professor Roberts' first grant, funded by RBWH Foundation, allowed him to buy catheters in order to determine the most effective way to administer antibiotics to seriously-ill patients in RBWH's Intensive Care Unit. From this small beginning, Professor Roberts is now leading a multi-million dollar program of research at the hospital-based Burns, Trauma and Critical Care Centre.

Grants from RBWH Foundation in 2014 and 2015 also enabled RBWH Nephrologist Dr Andrew Mallett to obtain preliminary data and recruit families for an investigation into inherited kidney disease. Dr Mallett is now one of the Chief Investigators on a multi-centre research team that received over \$1.2 million from NHMRC.

RBWH Foundation is also an official administering institute of NHMRC, the only official administering body for the hospital. This means the Foundation can manage any grants received from NHMRC on the researcher's behalf, for a zero to minimal administrative fee. As part of this service, you would receive full financial support, monthly reporting on request and full visibility of your account.

A similar service is also provided for a number of 'tied' funds managed by the Foundation on behalf of researchers. These tied funds are typically comprised of donations instigated by the particular department that established the fund as well as proceeds from fundraising events, bequests or other activities. These 'tied' funds are simply administered by the Foundation with the department having access to the money when required.

RBWH Foundation's support for researchers at the hospital is therefore not just monetary. We also strive to assist in the journey of discovery by enabling them to focus on what they do best without having to worry about the financial reporting and other administrative details.

Our Foundation may be small when compared to other national charities; however, our cause is great. We are committed to continuing to build awareness for the incredible work done by researchers and clinical staff at RBWH and, of course, continuing to grow our support.

The University of Queensland



Professor Melissa Brown
Deputy Executive Dean and
Associate Dean (Research)
Faculty of Medicine and Biomedical Sciences
UQ

The UQ Health Faculties, Medicine and Biomedical Sciences (M+BS) and Health and Behavioural Sciences (HaBS), highly value hospital-university partnerships and have a strong engagement with RBWH on the Herston campus, involving collaboration across research, teaching and clinical service delivery.

The Schools of Medicine, Dentistry, and Public Health, and UQCCR have a presence on the Herston campus, including a number of UQ-RBWH collaborative research centres: the Burns, Trauma and Critical Care Research Centre (BTCCRC), directed by Professor Jeffrey Lipman; the Perinatal Research Centre led by Professor Paul Colditz; and the Centre for Youth Substance Abuse Research (CYSAR), funded by philanthropy from the Graeme Wood Foundation and directed by Professor Wayne Hall.

Exciting changes for UQ on the Herston Campus over the past year include the co-location of the Brisbane Dental Hospital with the UQ School of Dentistry in the purpose-built UQ Oral Health Centre, and the identification of UQ as an academic partner with Metro North in the development of a Specialised Rehabilitation and Ambulatory Care Centre. We were delighted to welcome a new Director, Professor Mick Sullivan, to the Recovery Injury Research Centre (previously the Centre of National Research on Disability and Rehabilitation Medicine (CONROD)), who brings exciting innovations in physical and psychological rehabilitation from his previous positions in Canada. We also welcomed Professor Hayden Homer to UQCCR, as the inaugural Christopher Chen Chair of Reproductive Medicine, from the generous support (\$10.5M) of a distinguished UQ alumnus and renowned clinician-researcher, Professor Christopher Chen. We were also pleased to celebrate the success of the UQ-RBWH collaborative research program 'Redefining Antimicrobial Use to Reduce Resistance (REDUCE)', led by Professor Jason Roberts (M+BS-HaBS joint appointee), which was awarded a \$2.5M NHMRC Centre for Research Excellence.

UQ is excited to be one of the partners of HIRF, which was opened by the Premier Anastacia Palacszuk, joined by three State Ministers, in December 2015. We are also pleased to continue working collaboratively with RBWH in the city-wide Brisbane Diamantina Health Partners.

The University looks forward to continuing to strengthen its relationship with RBWH, with the aspiration of working collaboratively with the hospital to achieve improved healthcare delivery for the benefit of Queensland patients.



Professor Christina Lee
Associate Dean (Research)
Faculty of Health and Behavioural Sciences
UQ

The University of Queensland Centre for Clinical Research



Professor Gregory Rice
Acting Director
UQCCR

In 2015, Professor David Paterson was appointed Acting Director of UQCCR and continued the great work of his predecessor Professor Murray Mitchell. The ongoing research collaboration with RBWH remains one of the most significant drivers of UQCCR clinical research translation activities. Further enabled by the opening of the Herston Imaging Research Facility and the restructuring of the School of Medicine, it is anticipated that the UQCCR-RBWH clinical research enterprise will continue to increase rapidly in future years.

UQCCR was established on the RBWH campus to achieve improvements in patient care and healthcare delivery, derived through the clinical application of biomedical innovations. It is a purpose-built translational research facility that achieves its objectives through healthcare practitioners, research scientists and students working collaboratively to deliver changes in healthcare practice and policy and new clinical applications that target patient and community needs. A feature that uniquely positions UQCCR as a translational hub is that it already bridges a gap between university and end-users (both healthcare providers and industry) in that research and development activities comply with international industry standards and are accredited by NATA (as exemplified by the UQCCR Centres: Centre for Integrated Preclinical Drug Development, and Centre for Clinical Diagnostics).

Consistent with this mission, UQCCR's four thematic clinical research programs are co-led by RBWH-based clinicians and UQ scientists. This structure has not only effectively informed the Centre's research priorities but has also resulted in significant achievements and advancement in healthcare. Since commencing operations, 124 members of UQCCR have published > 2300 peer-reviewed research manuscripts that have received > 49,800 citations. In our publications, RBWH remains the Centre's most frequent national collaborating organisation.

In 2015 and through the efforts of our research teams, the Centre attracted support from new and existing collaboration partners in Australia and around the world. This includes funding of more than \$15.6 million from the National Health and Medical Research Council and other funding bodies. This includes more than \$300,000 from the RBWH Foundation has enabled important collaborative research projects to advance. In 2015, 25 of our Research Higher Degree students completed their degrees, within a cohort of 115 students working in the Centre.

The Centre's researchers continue to strive for research excellence and translation and have received the highest levels of peer recognition for their efforts, including: Professor Sunil Lakhani being awarded a Distinguished Pathologist Award at the Asia Pacific International Academy of Pathology Congress; Professor Pam McCombe receiving an ANZAN medal from the Australian and New Zealand Association of Neurologists; Professor Murray Mitchell receiving a Fellow of the Royal College of Obstetricians and Gynaecologists ad eundem; Dr Peter Simpson being awarded a Fellow of the Faculty of Science by the Royal College of Pathologists of Australasia; Professor David Paterson being honoured on the 2015 Thomson Reuters Highly Cited Researcher list and Dr Minyon Avent being credentialed as an Advanced Practice Pharmacist by the Australian Pharmacy Council (APC).

As the current Acting Director of UQCCR, I thank and acknowledge Professor Paterson for his leadership of the Centre in 2015 and am pleased that David continues his research activities within the Centre. I thank and acknowledge the work of our clinicians, healthcare practitioners, scientists and students in striving for excellence in research and their commitment to improving community health and well-being. The Centre looks forward to further expanding the collaborative clinical research engagement with RBWH, the continued development of evidence-based practice and the training of a new generation clinical researchers.

PhD experiences at RBWH



Dr Matthew Hyett

I was fortunate to conduct a large proportion of my PhD research in the Systems Neuroscience Group at QIMR Berghofer under Professor Michael Breakspear. Professor Breakspear currently holds the position of Chair of Research (Mental Health) at RBWH/QIMR Berghofer. The group's affiliation with RBWH hence provides a unique opportunity for enhancing translation of research to the clinical environment. Prior to arriving in Brisbane, Professor Breakspear and I worked at the Black Dog Institute, a research centre affiliated with the School of Psychiatry at the University of New South Wales. Whilst there I coordinated a large study – on which Professor Breakspear was an investigator – examining neurobiological changes across different depressive disorders (i.e., melancholic and non-melancholic depression – the former long-thought to be more ‘biological’ in origin). Data collection for this study ended in 2012, by which time Professor Breakspear had taken up the position of Group Leader at QIMR Berghofer. I made the decision to move to QIMR Berghofer in April 2012, and was immediately enamoured with “computational psychiatry” (i.e., seeking to understand mental disorders by applying computational models over multiple levels of analysis, such as cognitive/neurobiological function). My colleagues included physicists, mathematicians, engineers, computer scientists, psychiatrists, and psychologists – all of whom were aiming to address questions about the nature of the brain in health and illness. The group, and indeed the wider research and clinical community at RBWH, were unbelievably supportive, and their combined knowledge was unparalleled.

My PhD investigated cognitive mechanisms and brain connectivity disturbances underlying deficits in attention in depression. Previous research had shown that a particular type of attention was disrupted in melancholia (namely, the ability to effectively redirect attention), but research to date had not clarified its cognitive and neural mechanisms. I hypothesised that this may be a function of persistent focus on dysphoric internal states, and hence undertook three analyses to test this theory. The first was a cognitive study that showed those with melancholia had difficulty in distinguishing between different emotional stimuli; the second revealed that brain networks underlying interoception (the awareness of internal states) and attention were ‘disconnected’ at rest in melancholia; and finally, the third indicated that a sub-network of such brain regions increased in connectivity strength in melancholia when shifting from resting state to viewing emotional movies, potentially indicating deficits in neuronal adaptation during attentional shifts to emotional information in this disorder. The findings of my PhD ultimately assisted in helping clarify the pathophysiology of subtypes of depression, which has been a goal in psychiatry for several decades. The second study was published in the leading journal *JAMA Psychiatry*.¹ Other studies from the group have since showed a range of other brain regions may also underpin melancholia. Together, these findings may help emerging efforts that aim to diagnose mental disorders with pathophysiological signs. I returned to Sydney in 2015, and then relocated to Perth in February 2016 where I am currently a Research Fellow in the School of Psychology at Curtin University.

¹Hyett MP, Breakspear MJ, Friston KJ, Guo CC, Parker GB. Disrupted effective connectivity of cortical systems supporting attention and interoception in melancholia. *JAMA Psychiatry* 2015; 72: 350–58



Dr Nicole Andrews

My PhD project focused on understanding the relationship between activity, daily function and pain in individuals suffering from chronic pain and improving interventions aimed at modulating an individual's activity level. My research has provided the first body of evidence that supports overactivity (i.e. activity engagement that severely exacerbates pain) as a legitimate construct in chronic pain and value of activity pacing as an intervention. When I look back at my PhD experience there was a mix of highs and lows but I have no regrets. I am still amazed every time I discover how someone on the other side of the world has changed or improved their clinical practice based on my PhD findings. Being able to facilitate change at a global level is a pretty incredible feeling. I am very excited to be working on developing a mobile health platform with CSIRO in 2017 that is being supported through the Metro North Hospital and Health Service LINK funding scheme. The mobile health platform will allow remote monitoring and integration of objective activity data (from a fitbit like device), pain ratings and self-reported activity engagement. This will then enable clinicians to provide feedback to individuals with chronic pain concerning what activities have contributed to a severe pain aggravation and how they could pace their daily activities more effectively. It is expected that this technology will assist individuals to engage in more valued activities, increase their productivity levels and improve their quality of life. I would like to thank everyone who has assisted me on my PhD journey, especially the individuals with chronic pain who gave up their time to help others even though they themselves are suffering. Every contribution towards research, no matter how small, can make a difference.

