

RESEARCH report

2013

re-search [ree-surch]

Noun 1. diligent and systematic inquiry or investigation into a subject in order to discover or revise facts, theories, applications, etc.: *recent research in medicine*.
2. a particular instance or piece of research.

re-port [ri-pawrt]

Noun 1. an account or statement describing in detail an event, situation, or the like, usually as the result of observation, inquiry, etc.: *a report on the peace conference; a medical report on the patient*.
2. a statement or announcement.



The Institute

basil hetzel institute for translational health research

TRANSLATIONAL HEALTH RESEARCH



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RESEARCH report 2013

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LEADERSHIP

lead·er·ship [lee-der-ship]

Noun the position or function of a leader

To **lead** [leed]

to show the way to (an individual or a group) by going with or ahead

MENTORING

men·tor·ing [men-twar-ing]

Noun (in business) the practice of assigning a junior member of staff to the care of a more experienced person who assists him in his career

men·tor [men-twar]

a wise or trusted adviser or guide

COLLABORATION

col·lab·o·ra·tion [kuh-lab-uh-rey-shuh]

Noun the act or process of collaborating.

Verb To **col·lab·o·rate** [kuh-lab-uh-reyt]
to work, one with another; cooperate, as on a literary work:

CONTENTS

7	2013 TQEH DIRECTOR OF RESEARCH REPORT	44	GYNAECOLOGY, Department of	82	RHEUMATOLOGY UNIT
14	2013 FIRST AUTHOR STUDENT PUBLICATIONS	46	HAEMATOLOGY AND MEDICAL ONCOLOGY, The combined Departments of	86	SURGERY, University of Adelaide Discipline of
17	2013 FIRST AUTHOR STUDENT PRESENTATIONS	52	INTENSIVE CARE UNIT	94	THERAPEUTICS RESEARCH CENTRE, University of South Australia
20	2013 RESEARCH PUBLICATIONS IN THE SPOTLIGHT	58	MEDICINE, University of Adelaide Discipline of	96	PUBLICATIONS
23	AGED AND EXTENDED CARE SERVICES	64	NUCLEAR MEDICINE UNIT	116	INVITED PRESENTATIONS
28	ANAESTHESIA, Department of	66	NEUROLOGY UNIT	128	RESEARCH SUPPORT STRUCTURES
31	CARDIOLOGY	72	OTOLARYNGOLOGY, HEAD AND NECK SURGERY, Department of	131	HUMAN RESEARCH ETHICS REPORT
36	CLINICAL PHARMACOLOGY UNIT	76	PSYCHIATRY	132	AWARDS
40	ENDOCRINOLOGY UNIT	78	RESPIRATORY MEDICINE AND CLINICAL PRACTICE UNIT	134	ACKNOWLEDGEMENTS
42	GASTROENTEROLOGY AND HEPATOLOGY Department of			136	THE HOSPITAL RESEARCH FOUNDATION



The Institute

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TQEH DIRECTOR OF RESEARCH REPORT



2013 has been a challenging year for research at the Basil Hetzel Institute (BHI). The groups that are well established continue to publish and produce impressive outputs with respect to the science being undertaken within the Institute and associated closely with the activities of The Queen Elizabeth Hospital.

December 2013 saw the opening of SAHMRI on North Terrace which is expected to provide further impetus and support for medical research within the State, and already close and substantial links have been developed with many of the activities currently occurring within the BHI. As always, funding remains a considerable pressure for the activities, however important strategic pieces of shared equipment have been purchased over the last year. The work in upgrading the animal experimentation facility continues to go forward and the enthusiasm and engagement of young researchers has never been better.

South Australia generally had a very poor result in the recent awards of National Health and Medical Research Council grants and the BHI similarly had a disappointing result. This has been on the back of very successful recent years; however it is absolutely vital that we focus on improving performance in this very competitive but important area of Category 1 research funding.

With the opening of SAHMRI and the winding down of the old Royal Adelaide Hospital site, the BHI is well positioned to attract groups that wish to be closely linked to major hospital facilities and at the same time require outstanding state-of-the-art facilities in which to work. The potential for significant growth and development over the next twelve months is enormous, however it will require support and effort from the University of Adelaide, University of South Australia and SAHMRI as well as the clinicians and researchers based on Woodville Road.

Guy Maddern
Director of Research
The Basil Hetzel Institute for Translational Health Research
The Queen Elizabeth Hospital

LEADERSHIP

ASSOCIATE PROFESSOR CATHERINE HILL

RHEUMATOLOGY UNIT

MBBS (Adelaide), MD (Adel), MSc (Boston University), FRACP

Associate Professor Catherine Hill is a clinical rheumatologist and epidemiologist. She currently works in clinical rheumatology, clinical research and undertakes drug regulatory work for the Commonwealth and State Governments as well as locally. Associate Professor Hill has research expertise in osteoarthritis, randomised clinical trials, vasculitis and population epidemiology. She graduated with a doctorate of medicine from the University of Adelaide in 1989 and went on to complete rheumatology advanced training in 1995, whilst developing an interest in clinical epidemiology.

Associate Professor Hill was awarded the AFA-Heald Fellowship to study at Boston University Arthritis Center from 1998-2000. She was awarded the degree of MSc in Epidemiology from Boston University in May 2000 and was admitted to Delta Omega Society (Alpha Beta Chapter) for high achievement in the Masters program. This comprised 50% coursework and 50% research thesis, with substantive work of the thesis published in the Lancet. This work defined the association of specific cancer types with dermatomyositis, allowing targeted screening for cancer in patients with this form of inflammatory muscle disease. Whilst in Boston, she also undertook studies on the quality and methodology of rheumatology randomised clinical trials (RCTs) and was an investigator on the Boston Osteoarthritis of the Knee Study (BOKS). The BOKS study was a landmark study of MRI findings in knee osteoarthritis, which was the first to demonstrate the association of bone marrow lesions with pain and progression of knee Osteoarthritis. Bone marrow lesions have since emerged as targets for disease modifying therapy in Osteoarthritis. In 2009, she was awarded the degree of Doctor of Medicine related to MRI findings in knee Osteoarthritis. Since the birth of her first child in 1995, she has worked part-time.

As Chief Investigator of the North West Adelaide Health Study (NWAHS) Associate Professor Hill was instrumental in adding the musculoskeletal data collection to this study in 2004. Most recently work from this study has been published as part of the Global Burden of Disease study published in the Lancet (2012).

Previous Osteoarthritis research Associate Professor Hill lead a multicentre NHMRC-funded project grant to study the effects of fish oil supplementation on symptoms and structural progression over two years in knee osteoarthritis in a multicentre RCT using MRI (CIA, 2007-2011). Subsequent collaborations have resulted in two further NHMRC-funded multicentre Osteoarthritis trials into the role of statins and zoledronic acid in knee Osteoarthritis. Together with Dr Tiffany Gill NHMRC Postdoctoral Fellow, she recently completed an Arthritis Australia-funded study to determine causes of shoulder pain in the elderly, using MRI.



RESEARCH FUNDING

In the past five years Associate Professor Catherine Hill has been awarded more than \$3 million in competitive research funding from the NHMRC (Project Grants), as well as a variety of other sources, including Arthritis Australia and The Hospital Research Foundation.

Associate Professor Hill's most recent research interest is in Giant Cell Arteritis, the most common vasculitis in the elderly that can lead to blindness and stroke. She established the South Australian Giant Cell Arteritis Registry in 2009 which has resulted in further knowledge about this condition in Australia for the first time. It has resulted in both national and international collaborations, including the recent award of NHRMC project grant to explore the genetic associations of this condition. She also recently co-authored a chapter on vasculitis with Professor Rob Fitzridge Discipline of Medicine for the Oxford Textbook of Vascular Surgery.

Drug regulation work has been a key focus. Since 2004, Associate Professor Hill has been a member of the Australian Committee for Prescription Medicines (ACPM) of the Therapeutic Goods Administration. This body advises the Health Minister on registration of new drugs for the Australian Market. She was appointed inaugural Chair of

the South Australian Medicines Evaluation Panel (SAMEP) in 2011, which evaluates high cost drugs for the South Australian Department of Health. Associate Professor Hill is the previous Chair of the TQEH Drug Committee and a current member of the Scientific Advisory Subcommittee of Human Research Ethics Committee (TQEH-LMH-MH). She is Medical Advisor to the Adelaide Evaluation Group of the Department of Public Health, University of Adelaide which evaluates drugs for Pharmaceutical Benefits Advisory Committee.

In the past five years Associate Professor Hill has received more than \$3 million in competitive research funding from the NHMRC (Project Grants), as well as a variety of other sources including Arthritis Australia and The Hospital Research Foundation. She has been on the Grant Review Panel for Arthritis Australia (2006-2009, 2013) and a Project Grant reviewer and member of NHMRC Grant Review Panel in 2011 and 2013.



LEADERSHIP

PROFESSOR JOHN BELTRAME

MEDICINE, UNIVERSITY OF ADELAIDE DISCIPLINE OF

BSc BMBS PhD FRACP FESC, FACC, FAHA, FCSANZ

John Beltrame is a cardiologist and the Michell Professor of Medicine at The Queen Elizabeth Hospital campus of the University of Adelaide. He is also the Cardiology Academic Lead for the Central Adelaide Local Health Network and the Deputy Head of the University of Adelaide Discipline of Medicine.

Professor Beltrame's primary research focus is on coronary heart disease. The coronary blood vessels supply blood to the heart muscle and when this is disrupted it may result in chest pain (angina) or even a heart attack. By adopting a research philosophy of translational research and patient-centred outcomes, he has been able to characterise new heart conditions as well as improve the treatment of many heart patients. This is achieved by utilising an extensive range of scientific approaches, including basic laboratory studies, clinical therapeutic trials and clinical practice implementation studies.

His research success is a product of his local and international training. His medical training was undertaken at Flinders University, his cardiology training at The Queen Elizabeth Hospital and his BSc / PhD studies at the University of Adelaide, under the mentorship of the late Professor Ivan de la Lande and Professor John Horowitz. He has also been mentored by several outstanding international researchers including Professor Attilio Maseri (Catholic University of the Sacred Heart, Rome), Professor Shigetake Sasayama (Kyoto University, Japan), and Professor Peter Ganz (Harvard University, USA).

As the acknowledged international expert in the Coronary Slow Flow condition, Professor Beltrame's research studies have identified potential mechanisms and treatments for this disabling disorder. He is credited with translating the coronary slow flow phenomenon (a disorder involving the microscopic blood vessels of the heart) from an 'angiographic curiosity' to a bona-fide coronary microvascular disorder. This research work has meant that patients who previously had no explanation for their pain, now have an identifiable cause and potential treatment. His ongoing studies are focussed on discovering more effective treatments for the frequent angina these patients experience.

Although coronary artery spasm of coronary blood vessels has been recognised for many years, Professor Beltrame is leading a renaissance in researching the importance of this condition in causing angina and heart attacks. In a pivotal international study he demonstrated that Japanese patients were more likely to develop coronary spasm than their Italian counterparts. More recently, he co-convened the inaugural Coronary Vasomotor Summit held in Amsterdam (September 2013), which has resulted in the formulation of a seminal consensus statement in this field.



RESEARCH FUNDING

Over the past five years, Professor Beltrame has been awarded over \$6.6 million in research funding, including several prestigious grants from the NHMRC, the National Heart Foundation, the South Australian Cardiovascular Development Research Program and The Hospital Research Foundation.

As a modern-day cardiologist, Professor Beltrame's research focuses on 'patient-centred outcomes', that is, directing treatments towards improving patient symptoms and quality of life rather than surrogate health measures. Consequently, with support of a National Heart Foundation/SA Government grant, he has established the state-wide Coronary Angiogram Database of South Australia (CADOSA) registry. This examines the outcomes of patients undergoing coronary angiography, balloon angioplasty and/or stenting. By understanding how this procedure impacts on patient symptoms and lifestyle, the CADOSA researchers hope to improve the use of this procedure and thus the delivery of cardiac care in South Australia. Furthermore, CADOSA provides the opportunity to compare clinical practice with other countries. Indeed it attracted international acclaim, when for the first time Australian coronary angiographic practices were compared with those of the United States during a simultaneous video-link between the Heart Foundation Conference and the American Heart Association Quality of Care Outcome Research Conference.

Professor Beltrame's international expertise in coronary heart disease is evidenced by invitations to contribute to authoritative medical texts including Harrison's Principles of Internal Medicine, Braunwald's Heart Disease, and the frequently utilised UpTo Date on-line resource. He also has been made a fellow of the American College of Cardiology, American Heart Association, European Society of Cardiology, and the Cardiac Society of Australia & New Zealand. In addition he serves on several international committees including the American Heart Association Quality Care Outcomes and Research Council (International representative for the Leadership Committee), the International Consortium for Health Outcome Measurement (Coronary Artery Disease Working Group Member), Working Group on Coronary Pathophysiology and Microcirculation of the European Society of Cardiology, and the American College of Physicians - Physicians' Information & Education Resource (Consulting Editor).

Professor Beltrame is strongly committed to local research activities including research organisations and teaching. He has served on NHMRC and Heart Foundation peer review committees for over 10 years and is a board member of The Hospital Research Foundation.

Post-graduate research teaching remains a high priority for him as he has supervised the successful completion of thirteen Honours (11 First Class) and ten PhD (3 awarded Dean's commendations) students. Currently he is the primary supervisor for one Honours and five PhD students, as well as co-supervisor roles in a further one Honours and five PhD students. He is particularly proud of the achievements of his students, who have received more than 30 competitive research prizes over the years, including awards at The Queen Elizabeth Hospital Research Day, the Cardiac Society of Australia & New Zealand, the International Society for Heart Research, and the American College of Cardiology conferences.

MENTORING

MICHAEL COLLINS MBChB FRACP PhD

PHD CANDIDATE – BASIL HETZEL INSTITUTE
TQEH RENAL UNIT



“I have been very fortunate to have had the opportunity to work at the BHI during my PhD at the University of Adelaide. The close relationship between the Institute and The Queen Elizabeth Hospital has enabled me to undertake a combination of clinical and basic science research over the four years I have been here, and has contributed significantly to the success of both of these major projects.”

Doctor Michael Collins studied Medicine at the University of Auckland, New Zealand and subsequently completed advanced training as a specialist physician in Nephrology and Transplantation in Auckland and Adelaide. In 2007 he originally planned to join the Renal Unit at The Queen Elizabeth Hospital (TQEH) for one year; but this led onto another year in a newly created role as a Nephrology Research Fellow, and ultimately a PhD in Medicine in the Transplantation Immunology laboratory at the Basil Hetzel Institute (BHI), supervised by Associate Professor Toby Coates. Michael has combined both basic science and clinical research with a part-time role as a Nephrologist at TQEH and more recently at the Royal Adelaide Hospital since the Renal Unit moved to the city in 2010.

Michael's clinical research involved being the principal investigator for a large screening study for colorectal cancer in kidney transplant recipients, a group shown to be at increased risk compared with the general population. This research was partly funded by The Hospital Research Foundation and was predominantly undertaken at The Queen Elizabeth Hospital over 4 years from 2008 to 2012. He was awarded the Young Investigator Award and the Presidents Prize respectively by the Australian and New Zealand Society of Nephrology, and the Transplantation Society of Australia and New Zealand for this work, and it was ultimately published in the high impact journal the *BMJ* in July 2012.

Michael's PhD research at the BHI involved further development of the marmoset non-human primate model as a means to test novel dendritic cell based therapies in transplantation. This work has established the methodological basis for ongoing studies of dendritic cell targeted immunotherapy using nanoparticles in the marmoset model. Michael submitted his thesis for examination in August 2013, and was awarded the PhD in December.

Michael said “I have been very fortunate to have had the opportunity to work at the BHI during my PhD at the University of Adelaide. The close relationship between the Institute and The Queen Elizabeth Hospital has enabled me to undertake a combination of clinical and basic science research over the four years I have been here, and has contributed significantly to the success of both of these major projects. The shared facilities and collegial environment at the BHI has enabled me to get support and collaborate with others to mutual benefit and I have enjoyed the relationships I have had with other BHI researchers and staff. In particular I really valued the constructive feedback and input that I have had through presenting my work at seminars and the annual TQEH Research Day.

I also could not have completed my thesis so effectively without the availability of the PhD write-up office space, and I am very grateful for this being provided.”

After completing his PhD, Michael started working as a Nephrologist in Auckland, New Zealand. He is pursuing research interests in several areas of post-transplant clinical care, and has been successful at securing grant funding for a randomised clinical trial of nutrition interventions to improve patient outcomes post-transplant. He is looking forward to developing further transplant research interests over the next few years, and believes that the skills developed during his PhD at the BHI have given him the necessary grounding to do this.

AMANDA DRILLING B Btech (Hons)

PHD CANDIDATE – BASIL HETZEL INSTITUTE
DEPARTMENT OF OTOLARYNGOLOGY, HEAD AND NECK SURGERY

After completing her Honours degree at Flinders University in Biotechnology, Amanda Drilling joined the BHI and began her PhD with renowned Professor P.J. Wormald in the Otolaryngology Department.

Amanda has focused on a novel treatment for chronic rhinosinusitis and is pioneering a methodology traditionally used in Eastern Europe in more mainstream clinical settings. Amanda is investigating Bacteriophage, a virus that destroys bacteria with possible applications being to dispel pathogens contributing to sinus inflammation – a key aspect of rhinosinusitis.

“Working at the Basil Hetzel Institute has been an incredibly rewarding experience. With the open atmosphere and constant contact with researchers and students in other fields my knowledge of the science field has expanded. I have received amazing support throughout my PhD, not only from my supervisors and members of the Otolaryngology Department, but also from the friends I have made whilst studying at the BHI. I would recommend anyone thinking of applying to undertake a PhD to consider the BHI which boasts a host of fantastic and talented supervisors and a supportive and friendly environment.” said Amanda.

Since Amanda commenced her PhD with the department she has been invited to present at the American Rhinologic Society meeting, Australian Society for Otolaryngology Head and Neck Surgery and The Australian Society for Microbiology and she also recently won an award for best presentation at BHI Research Day 2013. Amanda hopes to finish her PhD early in 2014 and continue working as a post-doctoral researcher in the BHI Otolaryngology department. Due to the exposure Amanda has had with extensive *in vivo* research during her PhD, she is also hoping to pursue a career as a Veterinary scientist post BHI life.



“Working at the BHI has been an incredibly rewarding experience. With the open atmosphere and constant contact with researchers and students in other fields my knowledge of the science field has expanded. I have received amazing support throughout my PhD”

FIRST AUTHOR

STUDENT PUBLICATIONS

2013

Our students continue to publish, many in leading specialised and high impact journals

AGED AND EXTENDED CARE SERVICES

Papers

Shinmoto RL, Ranasinghe D, Shi Qinfeng. Sensor enabled wearable RFID technology mitigating the risk of falls near beds in the conference proceeding of the *IEEE International Conference on RFID*, 2013; pp 191-198.

Yu S, Visvanathan T, Field J, Ward L, Adams R, Chapman I, Wittert G and Visvanathan R. Lean body mass: development and validation of prediction equations. *BMC Pharmacology and Toxicology* 2013; 14:53.

Abstracts

Dent E, Visvanathan R, Piantadosi C, Chapman I. Frailty and Functional Decline Indices as Predictors of Poor Outcomes in Hospitalised Older People. *Journal of Nutrition, Health & Aging*, 2013; 17 (supplement 1).

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Yu S, Appleton S, Adams R, Chapman I, Wittert G, Visvanathan T, Visvanathan R. Sarcopenia In Community Dwelling Older Australians. *European Geriatric Medicine* 2013; 4 (Suppl 1): S94.

Yu S, Appleton S, Adams R, Chapman I, Wittert G, Visvanathan T, Visvanathan R. Sarcopenia In Community Dwelling Older Australians. *Aus J Ageing* 2013; 32 (Suppl 1): 10.

CARDIOLOGY UNIT

Papers

Chan WP, Ngo DT, Sverdlov AL, Rajendran S, Staffordl, Heresztyn T, Chirkov YY, Horowitz JD. Premature ageing of cardiovascular/platelet function in polycystic ovarian syndrome. *Am J Med*. July 2013; 126(7):640.

Chong C, Neil CJ, Nguyen TH, Stansborough J, Law GW, Singh K, Horowitz JD. Disassociation between severity of Tako-tsubo cardiomyopathy and presentation with shock or hypotension. *Clin Card*. 2013; 36(7):401-6.

Dautov R, Ngo DT, Licari G, Liu S, Sverdlov AL, Ritchie RH, Kemp-Harper BK, Horowitz JD, Chirkov YY. The nitric oxide redox sibling nitroxyl partially circumvents impairment of platelet nitric oxide responsiveness: *Biology and Chemistry*. November 2013; 35:72-8.

Singh K, Marinelli T, Horowitz JD. Case report. Takotsubo cardiomyopathy after anti-influenza vaccination: catecholaminergic effect of immune system. *Am J Emerg Med*. November 2013; 31(11):1627.

Abstracts

Amarasekera AT, Black M, Else J, Dymmott G, Roberts MS, Chirkov YY, Horowitz JD, Ngo DT. Vitamin D supplementation in healthy working adults lowers plasma thrombospondin-1 levels: a novel vitamin D target? *American Heart Assoc.*, Dallas USA, November 2013.

Liu S, Ngo DT, Chirkov YY, Stewart S, Horowitz JD. Attenuation of BNP effects on neutrophil superoxide release in heart failure patients. *Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT)*. Melbourne Vic. December 2013.

Chong CR, Phuong H, Choi B, Raman B, Horowitz JD. Dissociation between proportion of perhexiline assays within therapeutic range and clinical demographics or steady-state pharmacokinetics during long-term therapy. *Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT)*. Melbourne Vic. December 2013.

Procter N, Ball J, Ngo DT, Chirkov YY, Isenberg J, Hylek E, Stewart S, Horowitz JD. Evidence for reciprocal dysregulation of asymmetric dimethylarginine and myeloperoxidase in atrial fibrillation. *Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (ASCEPT)*. Melbourne Vic. December 2013.

CLINICAL PHARMACOLOGY UNIT

Papers

Md Dom ZI, Noll BD, Collier JK, Somogyi AA, Russ GR, Hesselink DA, van Gelder T, Sallustio BC. Validation of an LC-MS/MS method for the quantification of mycophenolic acid in human kidney transplant biopsies. *J Chromatogr B* 2014; 945-946:171-177.

Abstracts

Md Dom ZI, Collier JK, Somogyi AA, Sallustio BC. Impact of Recipient and Donor Multidrug Resistance Protein 2 Genetic Variability on Mycophenolic Acid Pharmacokinetics Following Kidney Transplantation. *Ther Drug Monit* 2013; 35:684.

Md Dom ZI, Noll BD, Collier JK, Somogyi AA, Russ GR, Hesselink DA, Van Gelder T, Sallustio BC. Development and validation of an LC-MS/MS method for the quantification of the immunosuppressant mycophenolic acid in human kidney transplant biopsies. *Proc Aust Soc Clin Exp Pharmacol* 2013; p147 (abstract 567).

HAEMATOLOGY AND MEDICAL ONCOLOGY The combined Departments of

Abstracts

Sree Kumar S, Price TJ, Hardingham J. Biomarkers of resistance to anti-EGFR in wild type KRAS/BRAF colorectal cancer cell lines. *Eur J Cancer suppl* 49, 2013, #2186.

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MEDICINE University of Adelaide, Discipline of

Papers

Di Fiore DP, Beltrame JF. Chest pain in patients with 'normal angiography': could it be cardiac? *Int J Evid Based Healthcare* 2013; 11(1):56-68.

Dreyer RP, Beltrame JF, Neil C, Air T, Tavella R, Hoffmann B, Pati PK, Di Fiore D, Arstall M, Zeitz C. Cardiac Hemodynamics in Men Versus Women During Acute ST-Segment Elevation Myocardial Infarction. *Am J Cardiol* 2013; 112(2):143-9.

Dreyer RP, Beltrame JF, Tavella R, Air T, Hoffmann B, Pati PK, Di Fiore D, Arstall M, Zeitz C. Evaluation of Gender Differences in Door-to-Balloon Time in ST-Elevation Myocardial Infarction. *Heart Lung Circ* 2013; 22(10):861-9.

Roscioli E, Hamon R, Lester S, Murgia C, Grant J, Zalewski P. Zinc-Rich Inhibitor of Apoptosis Proteins (IAPs) As Regulatory Factors In The Epithelium Of Normal And Inflamed Airways. *Biometals*. 2013 Apr; 26(2):205-27.

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Roscioli E, Hamon R, Ruffin R, Lester S, Zalewski P. Cellular Inhibitor of Apoptosis-2 is a critical regulator of apoptosis in airway epithelial cells treated with asthma-related inflammatory cytokines. *Physiol Rep*. 2013 Oct; 1(5)

NEUROLOGY UNIT

Abstracts

Winderlich J, Kremer K, Koblar SA. Human adult stem cells interact with the blood brain barrier. *Int J Stroke* 2013; Vol 8 (Suppl. 1) 48.

OTOLARYNGOLOGY, HEAD AND NECK SURGERY Department of

Papers

Bassiouni A, Chen PG, Wormald PJ. Mucosal remodeling and reversibility in chronic rhinosinusitis. *Current opinion in allergy and clinical immunology* 2013; 13: 4-12.

Bassiouni A, Wormald PJ. Role of frontal sinus surgery in nasal polyp recurrence. *The Laryngoscope* 2013; 123: 36-41.

Cantero D, Cooksley C, Bassiouni A, Wormald PJ, Vreugde S. *Staphylococcus aureus* biofilm activates the nucleotide-binding oligomerization domain containing 2 (Nod2) pathway and proinflammatory factors on a human sinonasal explant model. *International forum of allergy & rhinology* 2013; 3: 877-84.

Cantero D. et al. A human nasal explant model to study *Staphylococcus aureus* biofilm in vitro. *International forum of allergy & rhinology* 2013; 3: 556-62.

Cleland EJ, Bassiouni A, Wormald PJ. The bacteriology of chronic rhinosinusitis and the pre-eminence of *Staphylococcus aureus* in revision patients. *International forum of allergy & rhinology* 2013; 3: 642-6.

Jardeleza C. et al. Gene expression differences in nitric oxide and reactive oxygen species regulation point to an altered innate immune response in chronic rhinosinusitis. *International forum of allergy & rhinology* 2013; 3: 193-8.

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Naidoo Y, Bassiouni A, Keen M, Wormald PJ. Long-term outcomes for the endoscopic modified lothrop/draf III procedure: A 10-year review. *The Laryngoscope* 2013 Jun 17. doi:10.1002/lary.24258. [Epub ahead of print].

Naidoo Y, Bassiouni A, Keen M, Wormald PJ. Risk factors and outcomes for primary, revision, and modified Lothrop (Draf III) frontal sinus surgery. *International forum of allergy & rhinology* 2013; 3: 412-7.

Naidoo Y, Tan N, Singhal D, Wormald PJ. Chronic rhinosinusitis assessment using the Adelaide Disease Severity Score. *The Journal of laryngology and otology* 2013; 127 Suppl 2, S24-8.

Rajiv S. et al. The efficacy and safety of chitosan dextran gel in a burr hole neurosurgical sheep model. *Acta neurochirurgica* 2013; 155: 1361-6, discussion 1366.

Tan NC, Cooksley CM, Paramasivan S, Vreugde S, Wormald PJ. Safety evaluation of a sinus surfactant in an explant-based cytotoxicity assay. *The Laryngoscope* 2013 Jun 18. doi: 10.1002/lary.24255. [Epub ahead of print].

Tan NC, Drilling AJ, Jardeleza C, Wormald PJ. Is nasal steroid spray bottle contamination a potential issue in chronic rhinosinusitis? *The Journal of laryngology and otology*, 2013; 1-6.

Tan NC. et al. Intracellular *Staphylococcus aureus*: the Trojan horse of recalcitrant chronic rhinosinusitis? *International forum of allergy & rhinology* 2013; 3, 261-6.

PSYCHIATRY Discipline of

Papers

Dhillon R, Bastiampillai T, Mohan T, Khor L. Can oestrogen use prevent the onset of psychosis? *Aust N Z J Psychiatry*. 2013 Jul; 47(7):682-3.

FIRST AUTHOR

STUDENT PRESENTATIONS

2013

Our students present research findings at international and national forums/conferences

RESPIRATORY MEDICINE UNIT & CLINICAL PRACTICE UNIT

Book Chapters

Carson KV, Robertson T, Brinn MP, Peters M, Veale A, Esterman AJ, Smith BJ. Chapter title: Tobacco use, prevention and cessation for Indigenous populations around the world: A systematic review and narrative synthesis. *Book title: Health Disparities: Epidemiology, Racial/Ethnic and Socioeconomic Risk Factors and Strategies for Elimination*. Edited by: Jackson OT, Evans KA. (Hard copy and print) p1-38; ISBN: 978-1-62618-570-8; Nova Publishers.

Papers

Carson KV, Brinn MP, Robertson T, To-A-Nan R, Esterman AJ, Peters M, Smith BJ. Current and emerging pharmacotherapeutic options for smoking cessation. *Substance Abuse, Research and Treatment* 2013; 7(5): 85-105.

Carson KV, Chandratilleke MG, Picot J, Brinn MP, Smith BJ. Physical training for asthma. *Cochrane Database of Systematic Reviews* 2013 Issue 9. ART. No.: CD001116. DOI: 10.1002/14651858.CD001116.pub4.

Carson KV, Jurisevic MA, Smith BJ. Is cancer still reduced if you give up smoking in later life? *Substance Abuse, Research and Treatment* 2013; 2(5): 357-68; ISSN 1758-1966.

Carson KV, Usmani ZA, Robertson T, Mysore S, Brinn MP. Smoking cessation interventions for lung cancer management. *Lung Cancer Management* 2013; 2(1): 61-74; ISSN 1758-1966.

Usmani ZA, Carson KV, Heslop K, Esterman AJ, De Soyza A, Smith BJ. Psychological therapies for the treatment of anxiety disorders in chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2013; Issue 8 DOI: 10.1002/14651858.CD010673.

Abstracts

Carson KV, Lim B, Mysore S, Mohammed-Akram R, Labiszewski N, Bowe B, Wedzicha J, Smith BJ. Non-invasive positive pressure ventilation for the treatment of respiratory failure due to severe acute exacerbations of asthma: A Cochrane meta-analysis. *Thoracic Society of Australia and New Zealand Annual Scientific Meeting*, Darwin NT, March 2013.

Carson KV, Smith BJ, Labiszewski NA, Lawton K, Kotal L, Liversidge C, Alexander S, Keatley D, Jurisevic M, Veale A, Esterman AJ. Portable oxygen cylinders versus battery powered concentrators for COPD: A randomised cross-over study. *Thoracic Society of Australia and New Zealand Annual Scientific Meeting*, Darwin NT, March 2013.

RHEUMATOLOGY UNIT

Papers

Dunstan E, Lester SL, Rischmueller M, Dodd T, Black R, Ahern M, Cleland LG, Roberts-Thomson P, Hill CL. Epidemiology of biopsy-proven giant cell arteritis in South Australia. *Intern Med J*. 2013 Oct 7. doi: 10.1111/imj.12293. [Epub ahead of print] PubMed PMID: 24118799.

Dunstan E, Lester S, Black R, Rischmueller M, Chan H, Hewitt AV, Hill CL. No Association between FC γ R3B Copy Number Variation and Susceptibility to Biopsy-Proven Giant Cell Arteritis. *Arthritis*. 2013;2013:514914. doi: 10.1155/2013/514914. Epub 2013 Aug 20. PubMed PMID: 24027635; PubMed Central PMCID: PMC3762162.

Dunstan E, Lester S, Rischmueller M, Chan H, Hewitt A, Hill C. TLR4 polymorphism is not associated with biopsy proven Giant Cell Arteritis. *Clin Exp Rheumatol* 2014 Jan 20. [Epub ahead of print]

Abstracts

Dunstan E, Lester S, Rischmueller M, Dodd T, Ahern M, Cleland L, Roberts-Thomson P, Hill CL. Australian Rheumatology Association in conjunction with the Rheumatology Health Professionals Association 54th Annual Scientific Meeting, 18-22 May 2013, Perth, Western Australia. Epidemiology of biopsy-proven giant cell arteritis (GCA) in South Australia. *Int Med J*. 2013; 43 (Suppl. 2):ARA-P44

Dunstan E, Lester S, Hewitt A, Rischmueller M, Hill CL. Australian Rheumatology Association in conjunction with the Rheumatology Health Professionals Association 54th Annual Scientific Meeting, 18-22 May 2013, Perth, Western Australia. No association between FCGR3B, TLR4 and South Australian biopsy-proven giant cell arteritis. *Int Med J*. 2013; 43 (Suppl. 2):ARA-P45.

SURGERY, University of Adelaide Discipline of

Papers

Gargett T, Grubor-Bauk B, Garrod TJ, Yu W, Miller D, Major L, Wesselingh S, Suhrbier A, Gowans EJ. Induction of antigen-positive cell death by the expression of Perforin, but not DTa, from a DNA vaccine enhances the immune response. *Journal Immunol Cell Biol*. 2013; Dec 10. doi: 10.1038/icc.2013.93. [Epub ahead of print].

Gargett T, Grubor-Bauk B, Garrod T, Yu W, Miller D, Major L, Wesselingh S, Suhrbier A, Gowans EJ. Induction of antigen-positive cell death by the overexpression of Perforin, but not Diphtheria Toxin A, from a DNA vaccine enhances anti-viral immune responses. *Immunology and Cell Biology*. 2013; Dec 10. doi:10.1038/icc.2013.93.

Ruzehaji N, Mills SJ, Melville E, Arkell R, Fitridge R, Cowin AJ. The influence of flightless I on toll-like-receptor-mediated inflammation in a Murine model of diabetic wound healing. *BioMed Research International*. 2013; 389792.

Abstracts

Gummow J. Novel DNA-based vaccine for HCV. International Symposium on Hepatitis C virus and Related Viruses 2013. Melbourne, October 2013.

Conference Title and Date

Title of Presentation/Poster

Attendee Name

AGED & EXTENDED CARE SERVICES (GERIATRIC MEDICINE)

IEEE RFID International Conference Orlando, Florida May 2013	Sensor Enabled Wearable RFID Technology for Mitigating the Risk of Falls Near Beds	Shinmoto R
The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney NSW, June 2013	Sarcopenia In Community Dwelling Older Australians	Yu S
The 20th International Association of Gerontology and Geriatrics (IAGG) World Congress of Gerontology and Geriatrics, Seoul, Korea June 2013	Frailty and Functional Decline Indices as Predictors of Poor Outcomes in Hospitalised Older People	Dent E
9th Congress of the European Union Geriatric Medicine Society, Venice, Italy October 2013	Sarcopenia in community dwelling older Australians	Yu S

CLINICAL PHARMACOLOGY UNIT

International Congress of Therapeutic Drug Monitoring and Clinical Toxicology, Salt Lake City, USA September 2013	Impact of Recipient and Donor Multidrug Resistance Protein 2 Genetic Variability on Mycophenolic Acid Pharmacokinetics Following Kidney Transplantation	MdDom ZI
Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists, Melbourne, VIC December 2013	Development and validation of an LC-MS/MS method for the quantification of the immunosuppressant mycophenolic acid in human kidney transplant biopsies	MdDom ZI

NEUROLOGY UNIT

Australian Society for Medical Research (ASMR) Annual Scientific Meeting, Adelaide June 2013	Human adult stem cells interact with the blood brain barrier.	Winderlich J, Kremer K, Koblar SA
Stroke Society of Australasia Annual Scientific Meeting, Darwin, NT August 2013	Human adult stem cells interact with the blood brain barrier.	Winderlich J, Kremer K, Koblar SA

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT

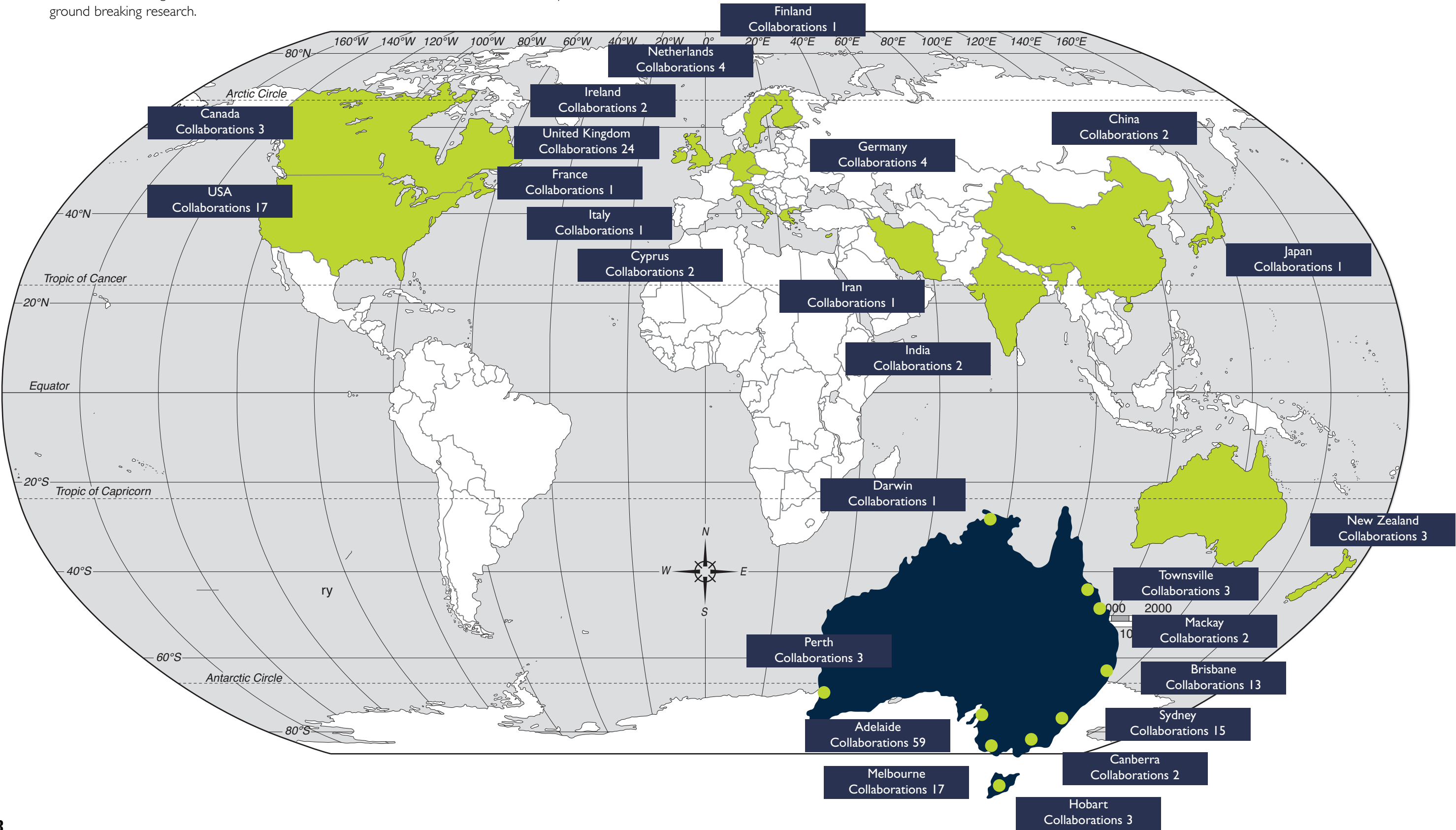
Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Darwin NT, March 2013	Outreach nursing care in COPD	Carson KV
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SURGERY, University of Adelaide Discipline of

Health Sciences Postgraduate Research Conference, Adelaide SA August 2013	Targeting Bone Metastasis with Adoptive Transfer of ex vivo expanded Vγ9Vδ2 T-cells	Zysk A, Evdokiou A
BHI Research Day, Adelaide SA October 2013	Novel DNA-based vaccine for HCV	Gummow J, Yu S, Grubor-Bauk B, Gowans EJ
BHI Research Day, Adelaide SA October 2013	Intranasal vaccination to generate pan-mucosal immunity to HIV	Tomusange K, Gummow JA, Garrod TJ, Yu S, Li J, Grubor-Bauk B, Gowans EJ

COLLABORATION

Collaboration has been an integral part of the research process for decades, and in the past it has usually meant researchers from the same discipline working together. This still occurs but more often we are seeing multidisciplinary collaborations where for example, surgeons work with an engineer to develop a new less invasive surgical technique, or a molecular biologist collaborates with a chemist and a physicist to develop novel specific nanotherapeutics. Collaboration opens the whole world to the Basil Hetzel Institute researchers, allowing them access to other innovative minds in fields of research and the promotion of ground breaking research.



SPOTLIGHT

ON PUBLICATIONS

2013

Aged and Extended Care Services

Bauer J, Biolo G, Cederholm T, Cesari M, Jentoft AC, Morley JE, Phillips S, Sieber C, Stehle P, Teta D, Visvanathan R, Volpi E, Boirie Y. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE study group. *Journal of the American Medical Directors Association* 2013; 14 (8): 542-59.

The Journal of the American Medical Directors Association is the highest ranked clinical journal in geriatrics and gerontology
Impact factor: 5.302

This consensus statement authored by 13 international experts leading research in the area of 'Nutrition and Ageing' identifies protein as an important nutrient requirement for muscle health and physical function in older people. A range of 1.0 to 1.2 g/protein per kg body weight per day is recommended for healthy older people. A higher intake is required in those who are exercising, experiencing acute illness or on dialysis. For renal patients not on dialysis, the daily protein intake recommendations are lower. Reaching this international consensus was a necessary step to provide clinicians with evidence-based guidelines to better manage older patients as well as identify future research directions. This international consensus was endorsed by several international societies: European Union Geriatric Medicine Society (EUGMS), the International Association of Gerontology and Geriatrics-European Region (IAGGER), the International Association of Nutrition and Aging (IANA), and the Australian and New Zealand Society for Geriatric Medicine (ANZSGM). The PROT-AGE group are the 12 co-authors in this consensus document.

Cardiology Unit

Hijazi Z, Siegbahn A, Andersson U, Granger CB, Alexander JH, Atar D, Gersh BJ, Mohan P, Harjola VP, Horowitz JD, Husted S, Hylek EM, Lopes RD, McMurray JJV, Wallentin L on behalf of the ARISTOTLE Investigators. High Sensitivity Troponin I for risk assessment in patients with atrial fibrillation: Insights from the ARISTOTLE trial. *Circulation*. 2013 November; doi:10.1161/CIRCULATIONAHA.113.006286 (Epub ahead of print).

Impact factor: 15.202

This study reveals that atrial fibrillation is often associated with traces of cardiac cell degeneration, which can provide warning of stroke risk.

Sverdllov AL, Chan WPA, Procter NEK, Chirkov YY, Ngo DTM, Horowitz JD. Reciprocal regulation of NO signalling and TxNIP expression in humans: impact of aging and ramipril therapy. *Int J Cardiol*. 2013 October 12;168(5):4624-30.

Impact factor: 5.509

This investigation revealed the first human evidence that the pro-inflammatory protein TxNIP controls the availability of nitric oxide in the body.

Otolaryngology, Head and Neck Surgery Department of

Levin M, Rydnert F, Källström E, Tan LW, Wormald PJ, Lindstedt M, Greiff L, Ohlin M. Phl p I-specific human monoclonal IgE and design of a hypoallergenic group I grass pollen allergen fragment. *Journal of Immunology* 2013; 191: 551-60.

Impact factor: 5.5

Around 9% of the population in Australia are reported to have *chronic sinusitis* (CRS) from which over 30% have both allergic rhinitis and CRS. This research focused on understanding the molecular interactions that take place between allergens (such as grass pollens) and human IgE antibodies. The research allowed identification of a novel IgE-hyporeactive fragment with the potential to be used as a safer hypoallergenic alternative in specific immunotherapy than the pollen extracts used today.

Respiratory Medicine Unit and Clinical Practice Unit

Smith BJ, Carson KV, Brinn MP, Labiszewski NA, Peters M, Fitridge R, Koblar S, Jannes J, Veale A, Goldsworthy S, Litt J, Edwards D, Esterman AJ. Smoking Termination Opportunity for inPatients (STOP): Superiority of a course of varenicline tartrate plus counselling over counselling alone for smoking cessation: A 12-month randomised controlled trial for inpatients. *Thorax* 2013; 68(5): 485-6 doi:10.1136/thoraxjnl-2012-202484

Impact factor: 7.014

This multi-disciplinary, multi-hospital study is the first to examine the efficacy and safety of the smoking cessation medication varenicline tartrate (Champix), in an inpatient setting for patients with acute tobacco-related illnesses. Statistically significant results were achieved in long-term smoking abstinence in the Champix plus counselling group, compared to the counselling alone group at the 12-month follow-up. The medication was well tolerated in the inpatient population and this has substantial implications, as smoking cessation medications are currently underutilised in clinical practice for fear of adverse events and lack of efficacy. However, our results indicate that Champix is well tolerated and indeed successful in achieving long-term smoking cessation in this acute setting. In addition, the number of subjects in the counselling alone group who successfully achieved long-term abstinence suggests that even minimal intervention improves the chances of successful long-term quit attempts and thus cost effectiveness for the public health system. With publication of these results in the journal *Thorax*, one of the highest ranked Respiratory journals, we hope to achieve greater dissemination of these findings and subsequently increase the number of hospitalised patients being offered opportunistic smoking cessation advice and treatment.

Rheumatology Department

Murray CJ, Vos T, Hill C, Memish ZA. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012 Dec 15;380(9859):2197-223. doi: 10.1016/S0140-6736(12) 61689-4. Erratum in: *Lancet*. 2013 Feb 23;381(9867):628. PMID:23245608.

Impact factor: 38.278

Vos T, Flaxman AD, Hill C, Memish ZA. Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012 Dec 15;380(9859):2163-96. doi: 10.1016/S0140-6736(12)61729-2. PMID:23245607. Impact factor: 38.278

These two important papers on the global burden of disease utilised data from the North West Adelaide Health study, with Associate Professor Hill as Chief Investigator, and identified musculoskeletal disorders, along with diabetes and mental health, as important health priorities for the future.

McInnes IB, Kavanaugh A, Gottlieb AB, Puig L, Rahman P, Ritchlin C, Brodmerkel C, Li S, Wang Y, Mendelsohn AM, Doyle MK; PSUMMIT 1 Study Group. Efficacy and safety of ustekinumab in patients with active psoriatic arthritis: 1 year results of the phase 3, multicentre, double-blind, placebo-controlled PSUMMIT 1 trial. *Lancet*. 2013 Aug 31;382(9894):780-9. doi: 10.1016/S0140-6736(13)60594-2. Epub 2013 Jun 13. PubMed PMID: 23769296

Impact factor: 38.278

Dr Maureen Rischmueller was co-investigator on this clinical trial, which demonstrated safety and efficacy of ustekinumab (a novel interleukin 12 and anti-interleukin 23 antagonist) for psoriatic arthritis.

Whittle SL, Richards BL, Buchbinder R. Opioid analgesics for rheumatoid arthritis pain. *JAMA*. 2013 Feb 6;309(5):485-6. doi: 10.1001/jama.2012.193412. PubMed PMID: 23385275.

Impact factor: 30.026

Dr Samuel Whittle was invited to submit this manuscript to JAMA on the management of pain in inflammatory arthritis. This invitation was the result of Dr Whittle's important work developing guidelines for pain management for the 3e (Evidence, Expertise, Exchange) Initiative, which is a multinational collaboration aimed at promoting evidence-based practice in rheumatology by developing practical recommendations that address important clinical problems.

2013

has seen a **broad range of publication success** highlighting the quality of research being carried out at the Basil Hetzel Institute

Rheumatology Department (cont.)

Lessard CJ, Li H, Adrianto I, Ice JA, Rasmussen A, Grundahl KM, Kelly JA, Dozmorov MG, Miceli-Richard C, Bowman S, Lester S, Eriksson P, Eloranta ML, Brun JG, G ransson LG, Harboe E, Guthridge JM, Kaufman KM, Kvarnstr m M, Jazebi H, Cunninghame Graham DS, Grandits ME, Nazmul-Hossain AN, Patel K, Adler AJ, Maier-Moore JS, Farris AD, Brennan MT, Lessard JA, Chodosh J, Gopalakrishnan R, Hefner KS, Houston GD, Huang AJ, Hughes PJ, Lewis DM, Radfar L, Rohrer MD, Stone DU, Wren JD, Vyse TJ, Gaffney PM, James JA, Omdal R, Wahren-Herlenius M, Illei GG, Witte T, Jonsson R, Rischmueller M, R nnblom L, Nordmark G, Ng WF; UK Primary Sj gren's Syndrome Registry, Mariette X, Anaya JM, Rhodus NL, Segal BM, Scofield RH, Montgomery CG, Harley JB, Sivils KL. Variants at multiple loci implicated in both innate and adaptive immune responses are associated with Sj gren's syndrome. *Nat Genet.* 2013 Nov;45(11):1284-92. doi: 10.1038/ng.2792. Epub 2013 Oct 6. PubMed PMID: 24097067

Impact factor: 35.532

Dr Maureen Rischmueller and Sue Lester were co-authors on the first genome wide association study for Sj gren's syndrome. This study was part of a large on-going international collaborative effort, led by Dr Kathy Sivils from the Oklahoma Medical Research Foundation. Some of the key findings of the study highlight the importance of the type I interferon pathway in the pathogenesis of Sj gren's syndrome, and identify potential risk factors for the development of lymphoma in these patients. Future comparative studies of the similarities and differences in the genetic component between Sj gren's and other systemic autoimmune diseases, such as systemic lupus erythematosus, rheumatoid arthritis and scleroderma, will be illuminating.

Surgery, University of Adelaide Discipline of

Athanasiov P, Goggin M, Cutri N, Boffa U, Maddern G. Presence of an anaesthetist during cataract surgery. *Clinical and Experimental Ophthalmology*.2013;41(6):626 627.

Impact factor: 1.964

This paper addresses the issue of the need or not of anaesthetists at all surgical interventions. With the escalating health costs in our community, ways to reduce costs and still provide safe patient care is essential. This paper has demonstrated cataract surgery can be performed safely without an anaesthetist being present.

Broeders JA, Roks CJ, Ahmed Ali U, Watson DJ, Baigrie RJ, Cao ZG, Hartmann J, Maddern G. Laparoscopic anterior 180  versus Nissen fundoplication for gastroesophageal reflux disease. *Annals of Surgery.* 2013;257(5):850 859.

Impact factor: 6.329

Management of gastroesophageal reflux disease is a major challenge in western medicine. Reviewing all published literature on the use of 180  fundoplication has clearly defined its place in preventing reflux and limiting the amount of swallowing difficulties after such surgery. It helps define the gold standard of care in these patients.

Surgery, University of Adelaide Discipline of (cont.)

Cook JA, McCulloch P, Blazeby JM, Beard DJ, Marinac-Dabic D, Sedrakyan A; On behalf of the IDEAL Group. IDEAL framework for surgical innovation 3: randomized controlled trials in the assessment stage and evaluations in the long term study stage. *British Medical Journal.* 2013;346:f2820.

Impact factor: 17.215

This is a paper put together on behalf of the IDEAL group which has been working on surgical innovation. It follows on from previous work published in the Lancet. The issue of appropriate surgical trials and randomised controlled studies is discussed with respect to management of surgical conditions and provides a template for going forward in this challenging but important area.

Maddern G. Public reporting of surgeons' performance. *Medical Journal of Australia.* 2013;198(8):399 400.

Impact factor: 2.853

This invited contribution highlights the need for public reporting and explanation by surgeons of their outcomes. It is an area that is becoming increasingly important in surgical practice and the media and the public have increasing concerns about quality of surgical care they are likely to receive in both the public and private health system. This flags the growing concerns and possible solutions for the future.

Tan SC, Pena G, Altree M, Maddern G. Multidisciplinary team simulation for the operating theatre: a review of the literature. *ANZ Journal of Surgery.* 2013;Dec 2. doi: 10.1111/ans.12478. [Epub ahead of print]

Impact factor: 1.5

As surgical training becomes shorter and the ability to impart necessary experience to trainees becomes challenged, the ability the work in a simulated environment is becoming increasingly important. This review of the literature demonstrates the value of team simulation and lays the basis of further work that it will be necessary to demonstrate that this is a viable and effective form of training.

Therapeutics Research Centre

Kruger P, Bailey M, Bellomo R, Cooper DJ, Harward M, Higgins A, Howe B, Jones D, Joyce C, Kostner K, McNeil J, Nichol A, Roberts MS, Syres G, Venkatesh B; ANZ-STATInS Investigators ANZICS Clinical Trials Group. A multicenter randomized trial of atorvastatin therapy in intensive care patients with severe sepsis. *American Journal of Respiratory and Critical Care Medicine.* 2013;187:743-750.

Impact factor: 11.04   original research

Human and animal studies have shown statins to have immunomodulating properties and observational studies have linked statin therapy with improved outcomes from sepsis. However, the potential risks and benefits of the de novo administration of statin therapy in critically ill patients with severe sepsis are unclear. This multi-centre trial sought to test whether atorvastatin therapy affects biologic and clinical outcomes in this patient cohort with TQEH, led by Associate Professor Sandy Peake, one of the centres involved.

This randomized placebo-controlled trial showed that statin therapy in severe sepsis was not associated with a reduction of inflammation or improved survival. However, prior statin use was associated with a lower baseline IL-6 concentration in this cohort and atorvastatin therapy in prior statin users was associated with improved 28-day survival without an increase in the number of adverse events.

AGED AND EXTENDED CARE SERVICES

SPECIALIST GERIATRIC MEDICINE POSITIVE AGEING RESEARCH GROUP HEALTH OBSERVATORY

Research Focus

The Aged and Extended Care Services (Geriatric Medicine) has the clinical aim of providing a service of excellence to older people across the healthcare continuum (acute, sub-acute and community) and as a result has a strong focus on clinical education and translational research.

- Nutritional Frailty
- Post-prandial Hypotension
- Mobility and Falls
- Technology in Health and Aged Care
- Geriatric Pharmacotherapy

The department is associated with the NHMRC Centre of Research Excellence (CRE) 'Translating Nutritional Science To Good Health' based at the Royal Adelaide Hospital. This department is linked to the newly established Adelaide Geriatrics Training and Research with Aged Care (G-TRAC) Centre located at Resthaven's Paradise campus. An aim of the GTRAC Centre is to develop capacity to undertake research relevant to consumers of aged care services including residential aged care, in partnership with the aged care sector.

Nutritional Frailty

Frailty and Nutrition (FAN) Study (Associate Professor R Visvanathan, Professor I Chapman & Dr C Piantadosi)

The team is winding up recruitment for this NHMRC funded study across 3 states (SA, NSW and Vic). It is anticipated that results will be analysed following the one-year follow up period in mid 2014.

Nutritional Frailty In Hospitalised Patients (Ms E Dent, Dr C Piantadosi, Associate Professor R Visvanathan & Professor I Chapman)

Ms Elsa Dent completed her PhD studies in this area and has published or submitted six publications arising from her PhD.

Sarcopenia Research (Dr S Yu, Dr S Appleton, Professor R Adams, Associate Professor R Visvanathan)

Dr Yu (PhD candidate and geriatrician) has reported on the prevalence of Sarcopenia amongst Australians, and has also developed prediction equations for appendicular skeletal muscle mass and lean body mass. This may have clinical utility where access to bone densitometry or bio-electrical impedance is limited. He has published (including in press) three papers from his PhD research.

Oral Health and Health Outcomes (Ms C McNally, Professor R Adams, Dr S Liberali, Associate Professor R Visvanathan)

This is a new area of research, and to date there has been very little published on the oral health of older people admitted to hospital. This research has just commenced and is focused on older patients admitted to the orthopaedic and geriatric unit.

Post-prandial Hypotension

Post-prandial Hypotension and Cardiovascular Changes (Associate Professor R Visvanathan, Dr S Rajendran, Professor K Jones & Mr L Trahair)

This NHMRC funded study will explore the cardiovascular mechanisms contributing to post-prandial hypotension in older people. This study is currently recruiting.

AGED AND EXTENDED CARE SERVICES

SPECIALIST GERIATRIC MEDICINE POSITIVE AGEING RESEARCH GROUP HEALTH OBSERVATORY

Staff

Clinical Director & Associate Professor

R Visvanathan PhD GradCertEd (Higher Ed.) FRACP MBBS ATCL

Academic Staff

GTRAC Centre Academic: Dr Jeanine Teo MBBS FRACGP

GTRAC Centre Academic: Dr Neha Mahajan PhD MPsych MAPsychol BA

Research Fellow

C Piantadosi BAppSci (Hon) PhD

Consultant Staff

K Parasivam (Deputy Director) FRACP MBBS

S Yu (Acting Deputy Director) FRACP MBBS LTCL

J Ng FRACP MBBS

F Ibrahim FRACP CCT UK MRCP MBBCh LRCPSI

P Shibu FRACP MD CCT UK MRCP MBBS

S Nair MBBS MRCP Fellowship Geriatric Medicine (Malaysia)

K Tham FRAC MBBS

F Cai FRACP MBBS

Specialist Registrars in Geriatric Medicine

G Gopal Kango (Senior Registrar, Associate Professor Geriatric Medicine CMC Vellore) MBBS MD

S Adikari MBBS MD

R Teh BPharm (hon), MBBS

A Teh (Rotating General Medicine Advanced Trainee) MBBS

H Arunasalam MBBS

TQEH Geriatrics Senior Nursing

S Hoskins (CSC- GEM Unit)

L Wakefield (CPC- GEM Liaison)

TQEH Geriatrics Allied Health and Pharmacy

M Rugari (Physiotherapist-GEM Unit)

C Hewton (Clinical Pharmacist-GEM Unit)

E Farrant (Social Worker- GEM Unit)

Rotating Relieving Staff Member (Occupational Therapist-GEM Unit)

Administrative Staff

AECS C Falcone

AECS B Cannon

G-TRAC Centre Coordinator R Bonin

G-TRAC Administrative Officer J Lenman

Postgraduate Students

Higher Degrees Awarded

PhD

E Dent BAppSci (Hon)

'An Investigation into Undernutrition and Frailty in Hospitalised Older Persons'

Conferred by School of Medicine, University of Adelaide, 2013.

PhD Candidates

S Yu FRACP MBBS

'Ageing and Nutrition'

C McNally MPhil (Dent), GCHP, Assoc DDH

'Oral Health, General Health and Operative Risk in Hospitalised Older Patients'

R Shinmoto Torres BSc, MEng

'Novel human activity recognition methodology based on RFID technology for elder care'

B Wimmer MPharm, MSc

'Medication regimen complexity and corresponding clinical outcomes in hospitalised older people'



Post-prandial Hypotension and Mobility

(Dr S Nair, Ms Zoe Kopsaftis, Dr D Gentilcore, Associate Professor R Visvanathan)

Dr Nair recently demonstrated that intermittent walking attenuates the fall in blood pressure normally seen following a glucose drink. She was awarded the RM Gibson prize for best advanced trainee research oral presentation at the 2013 Australia and New Zealand Society for Geriatric Medicine Annual Scientific Meeting for this work. Dr Nair was also awarded a research prize at TQEH Research Day, October 2013.

Mobility and Falls

Technology in Health Care and Falls Prevention In Hospital and Aged Care

(Dr R Teh, Mr R Shinmoto Torres, Mr WMASB Wickramasinghe, Dr N Mahajan,

Associate Professor A Wilson, Ms J Wood,

Professor K Hill, Associate Professor R Visvanathan)

The inter-disciplinary team is developing a technology system that recognises postural transitions associated with increased falls risk in real time, to alert caregivers and provide them with an opportunity to intervene and prevent a fall. Currently three postgraduate research students are working on this project.

Orthogeriatric Care In Frail Fallers

(Dr P Shibu, Ms D Hudson,

Associate Professor R Visvanathan)

Dr Pazhvoor Shibu (geriatrician) has led an investigator initiated quality improvement study on osteoporosis management, funded through an educational grant from Novartis Inc. He has received a second grant to extend this work.

Geriatric Pharmacotherapy

Medication Complexity and Health Outcomes

Of Older People Discharged From Hospital

(Ms B Wimmer, Ms E Dent, Dr M Wiese,

Associate Professor K Johnell, Associate Professor

S Bell, Associate Professor R Visvanathan)

Ms Wimmer is evaluating the association between medication complexity, and health outcomes of frail hospitalised older patients, She has recently noted that frail older patients from a geriatric unit with a less complex medication regimen are more likely to be discharged from hospital.

Prescribing appropriateness at discharge

(Mr DB Cheam, C Hewton, S Goldsworthy, S Bell,

Associate Professor R Visvanathan)

This quality improvement audit confirmed that prescribing practices in the geriatric service, especially in relation to inappropriate medication related to falls, had improved following the implementation of the geriatric evaluation and management unit.

Analgesic load, pain and daytime sedation

(E Tan, E Reeves, D Gnjdjic, H Hiltunen, S Hilmer,

A Vitry, Associate Professor R Visvanathan, S Bell)

Funded by an Alzheimer's Australia-Resthaven Grant, the aim of this research project is to investigate the association between the use of pain relieving medicine, pain, and drowsiness in 300 residential aged care residents. Recruitment to this study will commence in South Australia in 2014.



AGED AND EXTENDED CARE SERVICES

SPECIALIST GERIATRIC MEDICINE>POSITIVE AGEING RESEARCH GROUP>HEALTH OBSERVATORY

Masters Candidates

Master of Philosophy – Clinical Medicine
S Nair FRACP, MRCP (UK), MBBS
'Meal Related Blood Pressure Decline In The Elderly'

Masters of Philosophy- Clinical Medicine
R Teh, BPharm (Hon), MBBS
'A Health Information Tool To Prevent Falls'

Master of Philosophy- Engineering
WMASB Wickramasinghe BSc (Hon)
'Highly Accurate Human Activity Classifier to Mitigate the Risk of Falls in Elderly Based on Wearable RFID Technology'

Honours Candidate

Bachelor of Health Sciences Honours
Z Kopsaftis
'Post-prandial hypotension and falls in the elderly'

Collaborators

Local

Professor Ian Chapman, CRE Translating Nutritional Science To Good Health, University of Adelaide, South Australia

Professor Karen Jones, CRE Translating Nutritional Science To Good Health, University of Adelaide, South Australia

Dr Natalie Luscombe, CRE Translating Nutritional Science To Good Health, University of Adelaide, South Australia

Dr Sharmalar Rajendran, Department of Cardiology, The Queen Elizabeth Hospital

Ms Kylie Lange, CRE Translating Nutritional Science To Good Health, University of Adelaide, South Australia

Dr Damith Ranasinghe, Director, Adelaide Auto-ID Lab and Faculty of Engineering and Computer Sciences, University of Adelaide, South Australia

Professor Jon Karnon, Health Economics, University of Adelaide, South Australia

Associate Professor Michael Reed, Robinson Institute, University of Adelaide, South Australia

Professor Julie Ratcliffe, Health Economics, Flinders University of South Australia

Dr Diana Gentilcore, Senior Lecturer in Nuclear Medicine, University of South Australia

National

Professor Keith Hill, Head of School, School of Physiotherapy, Curtin University, Western Australia

Associate Professor Simon Bell, Centre of Medicine Use, Safety and Pharmaceutical Sciences, Monash University and Adjunct Professor of Geriatric Pharmacotherapy, Faculty of Health Sciences, University of Eastern Finland

Associate Professor Sarah Hilmer, Northern Clinical School, University of Sydney and Staff Specialist, Clinical Pharmacology and Aged Care, Royal Northshore Hospital, NSW

Associate Professor Peter Hunter, Clinical Program Director Rehabilitation and Aged Care, Alfred Health, Victoria

Associate Professor Vasi Naganathan, Centre for Education and Research on Ageing (CERA), University of Sydney and Staff Specialist in Geriatric Medicine, Concord Hospital, NSW

Professor Ian Cameron, Professor of Rehabilitation Medicine, Medicine, Northern Clinical School, Rehabilitation Studies Unit, University of Sydney, NSW

International

PROT-AGE study group

Awards

S Nair: RM Gibson Prize for her platform presentation 'Intermittent Walking: A Potential Treatment Strategy For Older People With Post-prandial Hypotension' at the Australia and New Zealand Society for Geriatric Medicine Annual Scientific Meeting.

S Nair: Best oral presentation Clinical Research Group 2, TQEH Research Day, October 2013, Basil Hetzel Institute.

The Fellowship to the Australia and New Zealand Society for Geriatric Medicine (FANZSGM) to Associate Professor Renuka Visvanathan in recognition of her research, teaching and clinical contribution to geriatric medicine at the Australia and New Zealand Society for Geriatric Medicine Annual Scientific Meeting.

R Shinmoto: Best Paper Award Finalist (one of five) for conference paper 'Sensor Enabled Wearable RFID Technology for Mitigating the Risk of Falls Near Beds'. IEEE RFID International Conference in Orlando, Florida, May 2013.

E Dent University of Adelaide School of Medicine Travel Grant.

N Mahajan University of Adelaide School of Medicine Travel Grant.

E Dent University of Adelaide Dean of Graduate Studies Commendation for Doctoral Thesis Excellence.

Grants

Alzheimer's Australia - Resthaven Dementia Grant. 'Analgesic load, pain and daytime sedation in people with dementia in aged care facilities' (\$150,000 2013) Bell S, Hilmer S, Vitry A, [Visvanathan R](#).

Department of Health and Ageing (Aged Care Workforce Grant-TRACS: 'Teaching and Research Aged Care Services') University of Adelaide - Resthaven Specialised Care For Older People Teaching and Research Centre (\$148,995 2013) 2012-2014, [Visvanathan R](#).

NHMRC. (CRE grant # 1041687) Translating Nutritional Science to Good Health (\$500,000 2013) 2012-2017, Horowitz M, Wittert G, Clifton P, Blackshaw LA, Rayner C, Chapman I, Feinle-Bisset C, Jones K, Noakes M, Chapman M, Als Beckett E, Deane A, Heilbronn L, Kitson A, Little T, Luscombe-Marsh N, Nguyen N, Page A, Shi Z, Turnbull D, [Visvanathan R](#), Young R.

NHMRC. (Project grant # 627178) The effects of testosterone and a nutritional supplement on hospital admissions in under-nourished older people. [TQEH Led multicentre RCT] (\$92,300 2013) 2010-2014, Chapman I, [Visvanathan R](#), Naganathan V, Hunter P, Karnon J, Horowitz M, Lange K, Cameron I.

NHMRC. (Project grant #627189) Gastric, small intestinal and cardiovascular mechanisms of postprandial hypotension. (\$108,278 2013) 2010-2013, Jones KL, Gentilcore D, [Visvanathan R](#), Chapman I, Rayner C, Horowitz M.

The Hospital Research Foundation Strategic Initiatives Funding. (Program grant) The Health Observatory. (\$250,000 2013) 2009-2013, Adams RJ, Wilson D, Hill C, [Visvanathan R](#), Wittert G, Ruffin R.

Research Focus

The Department of Anaesthesia at TQEH is part of the Division of Critical Care of the Central Adelaide Local Health Network. We provide services to Surgery, Cardiology, Gastroenterology, Respiratory Medicine, Radiology, Psychiatry and the Pregnancy Advisory Centre. Our research has a clinical focus and involves regional anaesthesia, patient safety, new drugs, and new applications of drugs.

Our Acute Pain Service (APS) provides advice and postoperative pain management services throughout the Hospital. The Department also provides resuscitation and airway services for the Hospital. We participate in the SA & NT Rotational Anaesthesia Training Scheme (SANTRATS) for the training of Registrars in Anaesthesia. We provide lectures and bed-side teaching sessions for 3rd to 6th year medical students.

At the end of 2012 the Department of Anaesthesia joined the POISE-2 trial, a large, international, placebo-controlled, factorial trial to assess the impact of clonidine and aspirin in patients undergoing non-cardiac surgery who are at risk of a perioperative cardiovascular event. Recruitment finished at the end of 2013.

Research activities are also focused on new techniques to provide safe and effective post-operative pain relief; a simple and safe abdominal nerve block (TAP) procedure was compared to a standard epidural technique in a randomized controlled trial. This study was published in 2013.

Patient safety is also the focus of our research. We published a case where prolonged QT interval caused severe arrhythmia during sevoflurane anaesthesia in a patient with diabetes. We are running a study specifically investigating the effect of sevoflurane on QTc interval in diabetic patients.

- PeriOperative ISchemic Evaluation-2 (POISE-2) Trial
- A comparison of epidural vs. TAP block for postoperative pain relief after laparotomy
- The effect of sevoflurane on Qtc interval in patients with type 2 diabetes
- Dexmedetomidine in Functional Endoscopic Sinus Surgery (in collaboration with ENT Surgery)
- Sugammadex and new anaesthetic strategies to facilitate surgery, quality of recovery, and interaction with Dexamethasone
- Neuropraxia and Laryngeal Mask Airway (anatomical study)
- Beta-blockers as adjuvants to analgesia and anaesthesia
- Oxycodone and Fentanyl for Patient-Controlled Analgesia

Dexmedetomidine may significantly reduce the amount of bleeding in the surgical field. Together with ENT Surgery we are investigating this in Frontal Endoscopic Sinus Surgery in a randomised controlled trial.

Sugammadex is a relatively new and revolutionary muscle relaxant reversal agent. With the availability of this agent, we are now able to explore the provision of continuous deep muscle relaxation in laparoscopic surgery in a randomized controlled trial. In collaboration with Upper GI Surgery a pilot study was finalized in 2013 to estimate the size and variance of the beneficial effect of deep muscle relaxation on intra-abdominal pressure requirements. Based on this, further study targets will be developed.

We published a review this year on neuropraxia due to laryngeal mask airway devices and an anatomical study was initiated into the causes for this.

A systematic review was done and submitted for publication on the effects of beta-blockade on analgesia, anaesthesia and postoperative nausea and vomiting. The findings may cause a paradigm shift in anaesthesia, as beta-blockade appears to significantly reduce analgesia and anaesthesia dosing, whilst reducing postoperative pain and nausea and vomiting. Further research focussing on this finding will follow.

Staff

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International
POISE-2 International Trial Group (Canada)



CARDIOLOGY

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Research Focus

The Cardiology Unit concerns itself with the emerging epidemic of “new” cardiac diseases of the 21st century, as well as with the development of new treatments for “old” diseases such as heart attacks. A central theme is the role of nitric oxide (NO) as a means of protecting blood vessels and heart muscle, and disorders of NO effect in valve disease, heart failure, stress cardiomyopathy and atrial fibrillation. We are utilising understanding of the mechanisms of these disease states to develop new treatments, with consequent reductions in disability.

Changing pattern of heart disease

Heart disease remains the main cause of disability, health care costs and death in Western society. The pattern of heart disease has changed substantially in the last 30 years with heart attacks generally occurring later in life than was previously the case, and with the emergence in aging patients of “new” disease epidemics, such as atrial fibrillation, heart failure and stenosis of the aortic valve. It has become increasingly evident that patterns of heart disease in women are often different from those in men, and that these differences demand specific diagnostic and therapeutic adjustments. Research within the Cardiology Unit is addressing all of these areas.

Role of nitric oxide and related compounds (Dr Y Chirkov, Dr A Chan, Professor J Horowitz)

A central theme is the role of nitric oxide (NO) and structurally related compounds (nitroxyl, nitrite) in protecting the heart and blood vessels. We have shown that the effectiveness of NO in suppressing clot formation and thickening of the wall of the heart is diminished in many forms of heart disease. Research undertaken by Drs Dautov and Chirkov in the Unit has shown that both nitroxyl and nitrite partially circumvent this problem, and might therefore be useful for the management of cardiac emergencies. On the other hand, we have shown that the

- Roles of nitric oxide, nitrite and nitroxyl in cardiovascular homeostasis and pathology.
- Management of heart failure.
- Pathogenesis and management of aortic valve disease.
- Heart disease in women: focus on stress (Tako-Tsubo) cardiomyopathy.
- Mechanisms of action of anti-aggregatory agents.
- Pathogenesis and management of atrial fibrillation.
- Management of acute and chronic myocardial ischemia.

efficacy of NO seems to be reduced in the presence of increased levels of an intracellular pro-oxidant compound called thioredoxin-interacting protein (TxNIP), and we are working to identify compounds which will suppress TxNIP and thereby restore NO signalling.

The management of heart failure (Dr Y Chirkov, Dr T Nguyen, Professor J Horowitz)

The management of heart failure remains a clinical priority. In the presence of acute heart failure, a hormone called B-type natriuretic peptide (BNP) is released from the heart and should theoretically restore balance to the circulation. A PhD student, Sai Fei Liu, has demonstrated that tissues from patients with heart failure are poorly responsive to BPN. We will attempt to identify means for correcting the deficiency. We are also investigating the mechanisms underlying the beneficial effects of cardiac resynchronisation therapy in heart failure patients. We are also determining the potential for improved outcomes in heart failure by optimising patient compliance with prescribed therapy. Valvular heart disease affecting the aortic valve may also result in heart failure, we are developing clinical strategies for slowing progression of such disease, and we recently provided the first human evidence that this might be possible.



Staff

Stress (Tako-Tsubo) cardiomyopathy (Professor J Horowitz, Dr T Nguyen, Dr Y Chirkov)

Stress (Tako-Tsubo) cardiomyopathy was first described by Japanese investigators 20 years ago, and is actually a relatively common cause of chest pain in aging women. Attacks are often misdiagnosed as “heart attacks” but are triggered by physical or emotional stress. We have demonstrated that patients with stress cardiomyopathy exhibit an increase in tissue NO signalling which facilitates the generation of peroxynitrite within the heart. This leads to inflammation of the heart and associated impairment of function. We have developed a model of this disease in rats, and are evaluating whether blocking peroxynitrite generation or effects might permit patients to be treated more effectively.

Preventing stent thrombosis (Dr Y Chirkov)

Clopidogrel, prasugrel and ticagrelor are agents which limit platelet aggregation and are used to prevent stent thrombosis. However, some patients respond poorly to these agents, and are therefore unprotected from recurrent heart attacks. We have identified a new chemical pathway which contributes substantially to variability in responses to Clopidogrel, and will utilise this finding to develop safer ways to use this group of drugs.

Treatment of atrial fibrillation (AF) (Prof J Horowitz, Dr J Hii)

An increasing focus of research within the Unit is the condition of atrial fibrillation (AF), a leading cause for stroke risk in the elderly. We have demonstrated that acute AF is associated with impaired NO effects on platelets, which may predispose to thrombotic risk. Furthermore, in a group of 5,000 patients with AF, elevation of plasma levels of asymmetric dimethyl arginine, which prevents NO formation, represented a risk factor for the occurrence of both strokes and haemorrhages. We are also determining the effects of treatment of AF on potential restoration of NO responses in tissues.

Director

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Staff

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M Black RN

J Rose RN

G Dymmott RN

N Hare RN

E Jansen

J Stansborough

S Castle

Administrative Staff

P Pachen

B Phillippo

Postgraduate Students

Higher degrees awarded

A Chan MBBS FRACP PhD

‘The polycystic ovary syndrome and coronary risk’

PhD conferred by School of Medicine, University of Adelaide, 2013.

PhD Candidates

N Hurst MBBS FRACP

‘The effect of the nitric oxide and prostacyclin pathways on platelet aggregation’

G Mahadavan MBBS FRACP

‘The pathophysiology and potential therapeutics of diastolic heart failure’

C Neil MBBS FRACP

‘Short and long-term impact of Tako-Tsubo cardiomyopathy on myocardial structure and function’

A Amarasekera BPharm

‘Does vitamin D deficiency affect endothelial dysfunction of diabetic obese patients?’

S Liu MSc

‘Impaired tissue responsiveness to brain natriuretic peptide (BNP) in heart failure (HD): biochemical bases’

R Dautov MD

‘Therapeutic potential of nitrites and nitroxyl donors in ischaemic heart disease’

V Nooney BPharm

‘Determinants of clinical response to platelet ADP receptor antagonists’

P Averbuj MD

‘Interactions between diabetes, renal insufficiency and oxidative potential therapeutic implications’

V Goh MBChB FRACP

‘Reverse genesis: does atrial fibrillation perpetuate dyshomeopathic origins?’

K Singh MBBS FRACP

‘Pathogenesis of Tako-Tsubo Cardiomyopathy’

N Procter BSc(Hons)

‘Biochemical correlates of stroke risk in atrial fibrillation’

C Chong BPharm

‘Determination of the mechanism of mechanism of action of Perhexiline – enantiomer specific actions’

Masters Candidates

M Chapman BSc

‘Pathogenesis of valvular and aortic degenerative changes in association with bicuspid aortic valve’

Grants

The Hospital Research Foundation. (Program Grant) Vascular disease and therapeutics research Group: Towards improved outcomes for vascular disease. (\$237,200 2013) 2009-13, Horowitz JD, Beltrame JD, Morris R, Fitridge R, Wilson DP, Zeitz C, Chirkov Y, Sallustio B, Kennedy J, Cowled P.

Medical Research Council, UK. (Program grant #G1001536) Effect of Inorganic Nitrite on cardiac and skeletal muscle: Physiology, Pharmacology and therapeutic potential. (£460,000 2013) 2011-16, Frenneaux M, Feelisch M, Horowitz JD et al.

National Heart Foundation. (Project grant) Utility of (+) and (-) perhexiline as model compounds for the development of new myocardial metabolic agents. (\$65,000 2013) 2012-13, Sallustio B, Horowitz JD, Kennedy JA, Frenneaux MP.

NHMRC. (Project grant App #1049133) Which Heart failure Intervention is most Cost effective in reducing Hospital care (WHICH? II) Trial: A multicentre, randomised trial of standard versus intensified management of metropolitan and regional-dwelling patients with heart failure. (\$363,564 2013) 2013-18, Stewart S, Horowitz JD, Carrington M, Scuffham P, Wong C, Newton P, Rischbieth A.

Tenovus Scotland Grant. G13/10 Stress induced Heart Disease. (£4,995 2013) 2013-2014, Dawson D, Neil CJ, Horowitz JD, Frenneaux MP.

Collaborations
National

Baker Research Institute, Melbourne.
Department of Epidemiology and Preventative Medicine, Monash University, Melbourne.
Department of Pharmacology, Monash University, Melbourne.

International

Cardiology Department, Aberdeen University, UK.
Department of Biochemistry, Hannover University, Germany.
Department of Medicine, Boston University, USA.
Department of Medicine, Pittsburgh University, USA.

Acknowledgements

The Cardiology Unit wishes to thank the Anne-Marie Trimboli Trust, NHF, NHMRC, The Hospital Research Foundation, Rebecca L Cooper Foundation, South Australian Department of Health, and the University of Adelaide for their valuable project, research staff and student support.

ASSOCIATE PROFESSOR
JENNY KENNEDY

The Basil Hetzel Institute and The Queen Elizabeth Hospital Cardiology Unit this year farewelled one of our longest serving scientists, Associate Professor Jenny Kennedy.

Associate Professor Kennedy first joined The Queen Elizabeth Hospital Clinical Chemistry Department in 1988 under the watchful eye of Maurice Wellby. Maurice was previously a student of Professor Basil Hetzel and this started Dr Kennedy's 25 year association with the Hetzel name.

After developing a successful collaboration with Professor Horowitz whilst part of the Clinical Chemistry Department, Jenny chose to transfer to the Cardiology Unit in 1996, returning to her original area of research. Biochemical pharmacology. Her research then focussed on the mechanism of action of anti-anginal agents and effects on myocardial biochemistry. She was also responsible for investigations which identified CPT-inhibition as a major mechanism of the therapeutic effect of perhexiline, and a component effect of amiodrone.

Throughout her career Associate Professor Kennedy showed her ability to mentor young minds as she supervised five PhD students, two Masters students and three Honours students. She was also the recipient of 12 National Heart Foundation and National Health and Medical Research Council grants and published more than 34 journal articles throughout her career.



CLINICAL PHARMACOLOGY UNIT

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Research Focus

Clinical Pharmacology's main focus is to individualise drug therapy through the use of therapeutic drug monitoring, particularly of immunosuppressant drugs used in kidney transplantation and the anti-anginal agent perhexiline in cardiac care. Combined with research in these fields our laboratory strives to provide a better understanding of drug action, metabolism and disposition in patients with varied genetic makeup in order to better use these agents and tailor them to each individual, and to develop new therapies.

Clinical Pharmacology has both a routine diagnostic role and a medical research role. Whilst the two may seem unrelated, our aim is, where ever possible, to blend the two so as to translate new research findings into new laboratory and clinical skills that contribute to the state-of-the-art clinical care of hospital patients, and those remote from The Queen Elizabeth Hospital.

Heart Disease

The department maintains an active research interest in the treatment of ischaemic heart disease and heart failure, which has evolved from work with perhexiline, an older and very effective drug used to treat angina, which can however cause serious liver and nerve toxicity if dosages are not individualised based on the testing provided in our laboratory. Our current research aims to better understand the mechanisms of action and fate of perhexiline in the body in order to translate this understanding into safer clinical use, and to develop new therapies for the treatment of heart diseases such as angina. Mr John Licari, who successfully completed his PhD this year, has been investigating the development of new drugs for the treatment of heart disease, based on our growing knowledge of how perhexiline works. This work has now led to a patent application in Australia and the USA, an international collaboration with the University of Aberdeen, two years of funding from the National Heart Foundation (2012-2013)

- Personalised Medicine
- Translating laboratory skills in therapeutic drug monitoring to the delivery of optimal testing for clinical care
- Developing new treatments for heart disease
- Developing new monitoring strategies in organ transplantation
- Therapeutic drug monitoring opportunities for cancer drugs
- Local anaesthetic drugs in post-operative pain management

supporting a new research scientist Ms Susi Zeile, and most recently licensing of the IP developed in collaboration with Adelaide University and University of South Australia to Heart Metabolics Ltd., a UK pharmaceutical company. Our work with perhexiline has also led to an international collaboration with Nagoya University in Japan, investigating the possible use of perhexiline not for heart disease, but as a treatment for a rare bone disorder; *fibrodysplasia ossificans progressiva*.

Transplantation Therapy

Research investigating overall genetic factors that may influence the efficacy of immunosuppressant drugs and hence, the incidence of rejection or organ toxicity forms the focus of Mr Zaipul Md Dom's PhD studies, which are part of our larger transplantation pharmacogenetics project, previously funded by NHMRC. Initial results indicate that genetic differences in some transporter proteins (MRP2) affect the handling of the immunosuppressant mycophenolic acid in transplant recipients, and that differences in the expression of another transporter protein (P-gp) within the transplanted kidney are associated with both renal exposure to other immunosuppressant drugs (cyclosporine and tacrolimus), and renal tubulo-interstitial damage. These exciting results suggest that models that predict the kidney's exposure to immunosuppressant drugs and incorporate genetic markers may be an important additional guide to individualising patients' immunosuppressant medication. Part of this work was presented at the 2013 International Congress of Therapeutic Drug Monitoring and Clinical Toxicology in Salt Lake City, USA. The project has also involved an international collaboration with Erasmus University Medical Centre, Rotterdam, The Netherlands.



Cancer Research

A relatively new area of research for the department is the dose individualisation of chemotherapeutic agents, in particular the drug Docetaxel used in the treatment of breast and prostate cancer. Dr Ian Westley has joined a group of scientists and clinicians from the State's Universities and Hospitals to form a 'Therapeutic Drug Monitoring – Oncology Research Group'. The studies are investigating how the current "one dose fits all" policy of chemotherapeutic agents compares to a targeted concentration approach. The ultimate aim to reduce the adverse side effects associated with this drug whilst optimising drug actions.

Local anaesthesia – novel clinical usage

We currently have two projects involving anaesthetic drugs:

- 1) A project recently completed involved measuring plasma concentrations of local anaesthetic after a spinal TAP-block in Intensive Care Unit patients. The aim was to review the amount absorbed into the blood stream after the dose, to enhance therapeutic benefit. This project is currently under consideration for publication.
- 2) A second project has commenced investigating a drug interaction between an anaesthetic reversing agent and other drugs used during surgery to prevent post operative nausea. The aim is to determine if the efficacy of the drugs is compromised or enhanced when combined with the reversing agent.

All projects have involved collaboration with personnel in the Department of Anaesthetics, nursing staff and the Department of Clinical Pharmacology.

Collaborations

Professor GR Russ and Associate Professor PT Coates, Renal Unit, Central Adelaide Local Health Network

Professor AA Somogyi and Dr JK Coller, Discipline of Pharmacology, University of Adelaide

Professor RW Milne, School of Pharmacy and Medical Sciences, University of South Australia

Dr NE Drury, Cardiothoracic Surgery, Birmingham Heartlands Hospital & University of Birmingham, UK

Professor ME Frenneaux, School of Medicine, University of Aberdeen, UK

Dr Iain Greig, Kosterlitz Centre for Therapeutics, University of Aberdeen, UK

Professor T Van Gelder and Dr DA Hesselink, Department of Internal Medicine, Renal Transplant Unit, and Department of Hospital Pharmacy, Erasmus University Medical Centre, Rotterdam, the Netherlands

Dr H Kitoh and Dr S Ohno, Nagoya University Graduate School of Medicine, Nagoya, Japan

Dr Michael Wiese, School of Pharmacy and Medical Sciences, University of South Australia, Australia

Dr Andrew Rowland and Dr Michael Sorich, School of Medicine, Flinders University, Australia

Dr Ganessan Kichenadasse, Medical Oncology, Flinders Medical Centre, Australia

Dr Richard Watts, Department of Anaesthesia, The Queen Elizabeth Hospital, Adelaide

Staff

Principal Medical Scientist/Associate Professor
BC Sallustio BSc PhD

Senior Medical Scientist
IS Westley BMedSc PhD

Grant-Funded Scientists
S Zeile M Biochem Eng (Germany)

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P Dubois BSc(Hons)

Technical Officer
A Kalaitidis BSc
D Dinow BSc
C de Nichilo BSc

**Postgraduate Students
PhD Candidates**

J Licari BHSc(Hons)
'Investigation of the pharmacological effect of (-)- and (+)-
perhexiline'

Z MD Dom BHSc(Hons)
'Pharmacogenetics of renal transplantation'

C-R Chong BPharm
'Determination of the mechanism of action of perhexiline:
enantiomer-specific actions'

Grants

Endeavour Post-Graduate Award. Australian Federal
Government PhD award (\$75,000 2011-2014), MD Dom Z.

The University of Adelaide, Faculty of Health Sciences
Divisional Scholarship (\$24,653 2013), Chong C-R.

The Hospital Research Foundation Strategic Initiatives Funding.
(Program Grant) Vascular Diseases and Therapeutics Research
Group: Towards improved outcomes for Vascular Disease
(\$540,000 2009-2013), Horowitz JD, Beltrame JF, Morris RG,
Fitridge RA, Zeitz CJ, Wilson DD, Sallustio BC, Chirkov YY,
Kennedy JA, Cowled PA.

Heart Foundation. (Project grant GIA – GI IA 5932)
Utility of (+) and (-) perhexiline as model compounds for
the development of new myocardial metabolic agents.
(\$130,000 2012-2013) Sallustio B, Horowitz, JD, Kennedy JA,
Frenneaux MP.



ENDOCRINOLOGY UNIT

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Research Focus

The Endocrinology Unit conducts research mainly in areas relating to diabetes and osteoporosis. We aim to gain clinical endocrine knowledge through clinical trials and other research.

- Randomised Clinical Trial in collaboration with Royal Adelaide Hospital
- Diabetes patient care quality improvement
- Development of efficient strategies to diagnose and monitor diabetes and osteoporosis

Currently we are the Adelaide site of a multi-centre double-blind, randomised, placebo-controlled trial (T4DM). This trial is to determine the efficacy of testosterone treatment together with a lifestyle program to prevent progression to type 2 diabetes mellitus in men with pre-diabetes and relatively low testosterone levels in comparison to a lifestyle program alone. The principal investigator of this clinical trial is Professor Gary Wittert, University of Adelaide, and Dr David Jesudason is the chief investigator at The Queen Elizabeth Hospital. This study is supported by the NHMRC and also receives support from The Hospital Research Foundation. Dr Jim Wang in the unit has worked in meeting the various requirements and prepared the site specific application for human research ethics approval of the clinical trial. Mr Sam Jose, a research nurse has been employed to be the research coordinator and Dr Susan Shanley is the doctor enrolling participants in the trial.

Two hundred and forty enrolments are planned at The Queen Elizabeth Hospital, while overall 1490 participants are to be enrolled from six endocrinology units across Australia. So far 32 volunteers have been enrolled at TQEH (after screening of 869 volunteers). The data on the utility of screening for pre-diabetes to fulfil the inclusion criterion with fasting capillary blood glucose levels and fasting venous blood glucose levels are being analysed for publication. The challenge of improving recruitment rates is being addressed by adapting exclusion criteria, and by wider publicity through radio interviews given by Professor Wittert, in press releases offering trial screening in the

workplace, and by local community figures acting as ambassadors. The trial has been advertised in presentations at medical forums, including the Adelaide Endocrinology Society by Dr Susan Shanley and Dr David Jesudason, at GP forums and public meetings. Mr Sam Jose has represented the study at community events in conjunction with radio station Coast FM and with Diabetes South Australia. Most volunteers have now been participating for 42 weeks and approximately 75% of men have lost weight, on average over 6kg. There have been no serious adverse events. Participants have been positive in their feedback regarding trial participation and are inviting peers to be screened.

Dr David Jesudason conducted study on the assessment of kidney function in overweight and obese patients using data collected in a clinical trial conducted in collaboration work with Professor Peter Clifton Division of Nutrition, CSIRO. Dr Jim Wang has been involved in statistical analysis of this work. This work has resulted in presentations in an international conference and one research letter submitted.

The project of the Self Management and Review Type 1 Intensive Education (SMaRTIE) is in progress and no result is available at this stage.

We continue to be involved in the North West Adelaide Health Study in collaboration with other departments in The Queen Elizabeth Hospital, the Unit of Population Research & Outcome Studies of the University of Adelaide, and the University of South Australia to assess the risk factors and early indicators of chronic health problems, including diabetes and cardiovascular diseases.

Osteoporosis and associated fractures are a major cause of preventable disability and dependence for South Australians and a major cost to our community. Our good links with the community organisation Osteoporosis Australia, the Royal Australian College of General Practitioners and the Medical Services of the central, northern and western suburbs of Adelaide enable us to review the management of osteoporosis in our community. Our combined services now see about 5,500 patients per year and we have two databases containing records for around 35,000 individuals. These databases are an important source of clinical data for investigating many aspects of the overall bone health of the communities that we service, the treatment options currently in use and of long term trends and changes.

Recently, we have implemented a system for assessing and reporting estimated total body percentage fat, using soft tissue measurements from spine and femur bone density acquisitions. In the coming year we will be evaluating the usefulness of these measurements for assessing the impact of weight and body composition changes on bone density measurements and changes in bone mineral density.

We also conduct the body composition and bone density assessments for the participants of the T4DM trial.

The research projects will be continued in 2014.

Staff

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Registrar

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T4DM Clinical Trial

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R Cox CN BN MN

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D Barrow RN Grad Cert (Diab Ed)

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J Cocks

GASTROENTEROLOGY AND HEPATOLOGY

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Research Focus

The management of chronic inflammatory disorders of unknown aetiology is a continuing challenge for medical research. One example that is well-recognised in the community is rheumatoid arthritis. In gastroenterology, we have several examples including ulcerative colitis, Crohn's disease and coeliac disease.

All of these disorders are thought to involve genetic susceptibility, immune regulation and perhaps the complex involvement of environmental factors. Most is known about coeliac disease where there is a prominent susceptibility gene (HLA-DQ2) and a clear environmental factor; namely exposure to wheat and wheat products. In ulcerative colitis and Crohn's disease, genetic susceptibility is determined by several genes and there is only a limited understanding of immunological and environmental factors. One environmental factor of potential interest is the mix of bacteria in the small and large bowel. This is partly determined by diet but is also influenced by a number of other factors including breast feeding, use of antibiotics and the transfer of bacteria from mother to baby at the time of birth.

Studies in our Department are examining two aspects of inflammatory bowel disease. The first study is examining the inflammatory response in the lining of the small and large bowel. In particular, we are interested in proteins called cytokines that are released from inflammatory cells such as lymphocytes, macrophages and dendritic cells. These studies are being undertaken by our PhD student, Dr James Fon, and include an assessment of cytokine levels in inflamed bowel as well as the detection of messenger RNA that results in cytokine production. These studies are relevant to therapy as the management of patients with difficult inflammatory bowel disease involves the use of monoclonal antibodies directed against various cytokines. Thus far, the most beneficial antibodies have been directed against tumour necrosis factor- α .

- Cytokines in inflammatory bowel disease
- Faecal transplantation for ulcerative colitis
- Breath analysis in gastrointestinal cancer

The second study is the use of faecal transplantation for patients with ulcerative colitis. This study is based on the hypothesis that ulcerative colitis is due, in part, to the presence of particular colonic bacteria and that these bacteria can be altered by faecal transplantation. These transplants are largely performed by placing new bacteria (donor bacteria) in the colon at the time of colonoscopy. The aim is to determine whether faecal transplantation is helpful for ulcerative colitis and, if so, is it possible to define specific bacteria or mixes of bacteria that are either pro-inflammatory or anti-inflammatory. The study is being performed by our second PhD student, Dr Sam Costello, in collaboration with Associate Professor Jane Andrews, Royal Adelaide Hospital, Dr Michael Conlon, CSIRO, and Dr Patrick Hughes, University of Adelaide. Although faecal transplantation is of uncertain benefit in ulcerative colitis, the procedure has been remarkably effective for a small group of patients with prolonged infections caused by *Clostridium difficile*.

A second research theme is the potential use of breath analysis to diagnose cancers in the gastrointestinal tract. These studies are being supervised by Professor Ross Butler, University of South Australia, and Dr Roger Yazbeck, an NHMRC post-doctoral fellow. The hypothesis is that the altered metabolism of cancer cells causes changes in the composition of expired air that can be detected using sensitive analytical techniques. Current studies are being performed by three PhD students and largely involve cell culture experiments. Studies in 2014 will include the use of animal models and the inclusion of patients with gastric and oesophageal cancer, inflammatory bowel disease and irritable bowel syndrome. It may also be possible to detect bowel inflammation that occurs in some patients during chemotherapy for cancer. These developments have been made possible by the establishment of the Non-Invasive Biomarker Engineering Centre (NIBEC) at the University of South Australia and The Basil Hetzel Institute for Translational Health Research.

Professor Ian Roberts-Thomson has now retired as the Director of the Department of Gastroenterology and Hepatology at TQEH. However, he will continue to be involved in medical research and has recently been awarded the title of Emeritus Professor by the University of Adelaide.

Grants

BiolInnovationSA AIB Labs Grant to aid in the establishment of the Non-Invasive Biomarker Engineering Centre (NIBEC). (\$100,000 2012-2013) Butler RN.

Beat Cancer SAHMRI Senior Cancer Research Fellowship. New Non-Invasive Breath tests for Oesophageal Cancer. (\$105,000 2013) 2012-2014, Butler RN.

Beat Cancer Project Grant. New Non-Invasive Breath test for Oesophageal Cancer. (\$72,000 2012-2013) Yazbeck R, Butler RN, Brooks D.

Staff

Directors

IC Roberts-Thomson MD FRACP
RN Butler, BSc, MSc, PhD
I Lidums PhD FRACP

Post-doctoral Fellow

R Yazbeck BSc(Hons), PhD

Medical Scientist

WJ Uylaki BSc(Hons)

Post-Graduate Students Phd Students

J Fon MBBS
M Squire
K Crawshaw
S Jaenisch
S Costello MBBS

Honorary Consultant

A Cummins MD, PhD, FRACP

Additional Collaborating Investigators

Dr M Conlon, Senior Research Scientist, CSIRO Food and Nutritional Sciences
Professor G Howarth, School of Animal Sciences, University of Adelaide
Professor P Hewett, Discipline of Surgery, TQEH
Professor E Gowans, University of Adelaide, Discipline of Surgery, TQEH
Dr J Hardingham, Department of Haematology and Oncology, TQEH
Associate Professor T Price, Department of Haematology and Oncology, TQEH
Professor D Brooks, University of South Australia

GYNAECOLOGY

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Research Focus

The Gynaecology department provides a comprehensive range of general gynaecological and subspecialist investigations and procedures with an emphasis on minimally invasive surgery, colposcopy, pelvic organ prolapse and urinary incontinence (urogynaecology), gynaecological oncology and management of severe endometriosis including close collaboration with our colorectal colleagues for severe pelvic disease.

- Treatment options for female pelvic organ prolapse, pelvic floor dysfunction and menstrual disorders

All consultants in our department have an active role in clinical research activities and are supportive of our trainees undertaking suitable projects while working in our unit. In 2013 the department concentrated on auditing its results for day surgery endometrial ablation combined with insertion of progestogen containing IUS for improved menorrhagia results.

Research interests include the use of graft materials in vaginal repair surgery; new approaches to imaging pelvic organ prolapse and treatment of recurrent urinary tract infections. Further studies looking at conservation of the uterus with or without mesh grafting are being assessed.

The department is soon to launch a database of surgery follow up to measure the incidence of complications and assess outcome form surgery.

Dr Barry, in conjunction with his colleagues, continues to run the very successful pelvic anatomy workshop for Consultants and trainees.This is part of the continuing development of educational courses for advanced anatomical dissection and insertion of prosthesis.



Staff

Director

R Watson MBBS FRANZCOG FRCOG

Senior Visiting Gynaecologist with specialist interest in pre malignant disease,Tutor and Assessor for the RANZCOG Chair of RANZCOG Asia Pacific Committee and DRANZCOG Education and Assessment Committee.

Senior Consultants

C Barry MB BS MRCOG FRANZCOG

Staff Specialist and Senior Gynaecologist with a special interest in Urogynaecology.Vice-President of the SA Continence Foundation of Australia.

D Munday MB BS FRANZCOG

Senior Visiting Gynaecologist with special interests in minimal access surgery/endometriosis/pelvic floor repair/Essure sterilisation. Deputy Chair of the Australian Gynaecological Endoscopy Society Research Committee.

J Miller MB BS FRANZCOG CGO

Senior Visiting Gynaecologist and certified sub-specialist in Gynaecology Oncology.

A Singla MB BS FRANZCOG

Senior Staff Specialist, Senior Obstetrician and Gynaecologist with special interest in Pelvic Floor repair; menopause, Colposcopy and vulval disorders.

R Yoong MB BS FRANZCOG

Visiting Medical Specialist in Gynaecology.

HAEMATOLOGY AND MEDICAL ONCOLOGY

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Research Focus

The Medical Oncology and Haematology Clinical Unit, together with The Basil Hetzel Institute for Translational Health Research, strive to undertake research in all major forms of cancer and where possible the less common cancers.

- Identification, development and clinical trial of new therapeutic agents for the treatment of cancer
- Further understanding of the molecular mechanisms underlying solid cancers and haematological disease, particularly colorectal cancer, myeloproliferative disorders, leukaemia and inherited bone marrow failure syndromes.
- Development of new cancer biomarkers and diagnostic assays

The group undertakes clinical trials which will allow patient access to cutting edge medicines that offer potential improvements in outcome, but also often allow ready access to new drugs that otherwise may come at a cost to the patient. In particular we have had clinical trials for patients with breast, colorectal, lung and prostate cancer. Participation in these clinical trials importantly allows our investigators to answer questions at a molecular or gene level. Together with scientists at The Basil Hetzel Institute for Translational Health we are able to explore ways of predicting which patients are best treated with certain drugs ultimately with the aim of a more personalised and targeted use of these therapies. Importantly if we can predict those who do not benefit we can save patients from side effects and cost of an inactive treatment.

Clinical research

The clinical focus has been Phase I to III trials of all major tumour types, although the focus of our group's translational research has been advanced colorectal cancer. As a result of our collaborations with other AGITG clinical investigators, we have developed a tissue bank of patients from the large randomised CO-17 and CO-20 studies. This data will allow exploration of predictors of EGFR resistance which come from the laboratory research.

In addition to this collaboration, a developed Phase Ib study is ongoing with Dr Amanda Townsend as Principal Investigator. The trial is being run in collaboration with RAH, FMC and The Austin Hospital in Melbourne and has funding from AMGEN and Novartis Australia. The design of this trial aims to build on current evidence that inhibition of the EGFR pathway in KRAS wild type colorectal cancer combined with chemotherapy has significant activity, and will explore the additional effect of inhibiting the mTOR pathway with everolimus.

We are also collaborating in breast cancer research with the Monash Medical Centre in Melbourne, participating in a study of chemotherapy treatment for locally advanced breast cancer. This study is assessing the benefits of new imaging techniques, and developing a tissue bank for future laboratory studies aimed at assessing predictors of benefit and resistance to current treatments.

Within the clinical unit there are thirty other ongoing trials investigating novel biological agents in cancer; including colorectal, renal cell, non small cell lung, breast and prostate cancer. These clinical trials have the potential to lead to further translational research and the planned link with SAHMRI in 2014 with the appointment of an additional 'solid cancer' Research Scientist will enhance these opportunities. Outcomes of these trials have been reported by our team at international meetings, the most recent being the international ASPECCT trial of panitumumab versus cetuximab in advanced colorectal cancer at the ECCO/ESMO meeting in Amsterdam in September.



Laboratory Based Research

Colorectal Research Group - Molecular Oncology Laboratory

A major focus of the Molecular Oncology Research Group is to discover and validate biomarkers to predict resistance to novel targeted therapies, such as monoclonal antibodies inhibiting the epidermal growth factor receptor (EGFR) or vascular endothelial growth factor (VEGF). The hypothesis that tumour resistance develops due to compensatory up-regulation of alternative factors (biomarkers), and the identification of these biomarkers will predict which patients will benefit from these therapies. This knowledge will significantly aid tailoring treatment for each patient, to improve efficacy, and reduce the toxicity and cost of treatment. We have discovered three genes that are over expressed in metastatic colorectal cancer patients that showed resistance to antibody therapy targeting EGFR (a major growth pathway in colorectal cancer). Knocking down the expression of these genes using RNA interference resulted in the tumour cells being re-sensitised to anti-EGFR treatment.

Our collaboration over the past year with Professor Andrea Yool at Adelaide University on the Aquaporin inhibitor compounds has progressed to seeking a commercial partner. Aquaporins (AQP) are water channel proteins that regulate osmotic pressure gradients between cells and the tissue environment and thus allow migration of cells. AQP1 has been found to be upregulated in colon carcinomas. Our hypothesis is that pharmacological inhibition of AQP1 will reduce migration and invasion of colon cancer and will result in suppression of metastasis. Preliminary data has confirmed that AQP1 inhibition abrogates migration and invasion of tumour cells. A patent is in place to cover this potential therapeutic application.

We confirmed this year that the stem cell marker Lgr5 is uniquely qualified to identify circulating stem cells in the blood of patients with early stage colorectal cancer. Accrual of patients for this study is ongoing to determine if the detection of circulating stem cells is a prognostic marker for early relapse.

Blood disorders research group

The blood disorders research group at the BHI uses molecular genetic approaches to investigate a range of haematological diseases, in particular Acute Myeloid Leukaemia, Myeloproliferative neoplasms and bone marrow failure syndromes.

Our research in 2013 has focused on the rare congenital bone marrow failure syndrome Diamond Blackfan Anemia (DBA). This disorder is predominantly characterised by mutations in ribosomal proteins leading to severe anaemia. The mechanisms that result in the specific defect in production of red blood cells are not completely understood. With support from the Captain Courageous Foundation (initiated by an Adelaide-based family whose youngest son suffers from this disorder), we have been developing a cell line and a culture system for primary human erythroid progenitor cells. These two models are being used to identify regulatory genes and pathways that potentially contribute to the defective growth, survival and differentiation of erythroid progenitor cells in these patients. The results of this research has been presented at national and international conferences in 2013.

Another key research project in our laboratory involves using molecular genetic approaches to identify lesions important in the initiation and progression of Acute Myeloid Leukaemia (AML). We have recently undertaken a whole-genome screen of a large panel of 100 AML diagnostic samples derived mainly from the TQEH and RAH sites in Adelaide. From this work we have identified novel mutations and determined frequency and the overlap with common recurrent AML mutations. Work is ongoing to correlate these mutations with altered properties of AML cells, and with clinical outcomes.

Staff

Chief Medical Scientist and Laboratory Head, Blood Disorders

RJ D'Andrea PhD

Principal Medical Scientist and Colorectal Research Group Leader

JE Hardingham PhD

Clinical Research Staff

T Price MBBS FRACP (Head of combined Haematology Oncology Unit/Clinical Research Program)

K Pittman MBBS MD FRACP (Director of Medical Oncology)

A Townsend MBBS FRACP (Translational Clinical Lead)

P Bardy MBBS FRACP FRCPA (Director Clinical Haematology)

U Hahn MD FRACP

C Lee MBBS FRACP FRCPA

J Gray MBBS PhD FRCPA

W Jaksic

W Patterson MBBS FRACP

V Broadbridge

R Roberts-Thompson MBBS FRACP

C Hocking (Clinical Research Fellow 2013)

Grant Funded Scientists

S Bray BSc (Hons) PhD

MA Bruhn BBtec (Hons) PhD

A Wee BSc (Hons)

JWrin BSc (Hons)

Postgraduate Students

PhD candidates

N Rao BSc (Hons)

'Molecular characterisation of Polycythemia Vera'

K Z Y Maung BSc (Hons)

Characterisation of two novel AML mutations in genes (FANCD2 and MBD2) affecting DNA repair and methylation pathways; arising from genome-wide analysis of genetic alterations in AML'

S Sree Kumar BSc MSc

'Determination of biomarkers of resistance to monoclonal antibody therapies and additional therapeutic targets in colorectal cancer'

Masters student

P S Wulandari BSc

'Molecular Pathogenesis of Diamond Blackfan Anaemia – the role of alternative splicing'

Honours students

H Dorward BSc

'The effect of the AQP1 antagonists AQB013 and AQB050 on cell migration, invasion and proliferation in colorectal adenocarcinoma'

WY Kang BSc

'Detection of circulating colon cancer stem cells using magnetic bead capture and quantitative real time PCR'

M Suresh BSc

'The effect of silencing the human SET gene on cell proliferation and migration in colorectal cancer'



Collaborations

Internal (TQEH)

- Associate Professor A Cummins, Department Gastroenterology and Hepatology,TQEH
- Professor I Roberts-Thomson, Department Gastroenterology and Hepatology,TQEH
- Dr P Grover, Department of Surgery,TQEH
- Mr P Hewett, Colorectal Surgical Unit, Department of Surgery,The Royal Adelaide and The Queen Elizabeth Hospitals, Adelaide
- Mr N Rieger, Colorectal Surgical Unit, Department of Surgery,The Royal Adelaide and The Queen Elizabeth Hospitals, Adelaide
- Mr D Walsh, Breast/Endocrine Unit, Department of Surgery, The Queen Elizabeth Hospital, Adelaide

Other local and National

- Associate Professor S Barry, Department of Paediatrics, University of Adelaide, Adelaide
- Professor P Klinken, Western Australian Institute for Medical research (WAIMR)
- Professor S Wang, Professor of Medicinal Chemistry and Head of the Centre for Drug Discovery and Development, School of Pharmacy and Medical Sciences, University of South Australia, Adelaide
- Dr G Suthers, Familial Cancer Unit, Adelaide Women's and Children's Hospital
- Professor LB To, Department of Haematology, SA Pathology, Adelaide
- Associate Professor Niall Tebbutt: MMBS, PhD, FRACP, Austin Health

Other local and National (continued)

- Dr Chee K Lee, MB BS(Hons), MMedSc, MBiostat, FRACP, PhD research fellow, NHMRC Clinical Trials Centre, Sydney
- Professor AF Lopez, Division of Human Immunology, SA Pathology, Adelaide
- Dr I Lewis, Department of Haematology, SA Pathology, Adelaide
- Professor T Gonda, Diamantina Institute, for Cancer, Immunology and Metabolic Medicine, University of Queensland, Brisbane
- Dr H Scott, Division of Molecular Medicine, SA Pathology, Adelaide
- Dr D Ross, Department of Haematology, Flinders Medical Centre, Bedford Park
- Dr P Neilsen, Sarcoma Research Group, Discipline of Medicine, University of Adelaide
- Dr H Tapp, Women's and Children's Hospital, Adelaide
- Professor T Hughes and A/Prof Deborah White, SA Pathology
- Associate Professor B Thierry BScA, MScA, PhD Ian Wark Research Institute, University of SA
- Professor A Yool PhD, Head Physiology, School of Medical Sciences, University of Adelaide
- Dr P Ekert, Walter and Eliza Hall Institute, Melbourne
- Professor R Hannan, Peter MacCallum Cancer Centre, Melbourne
- Mr C Story, Haematology Department, SA Pathology (Women's and Children's Hospital), Adelaide

International:

- Dr C Mullighan, St. Jude Children's Research Hospital, Memphis, Tennessee, USA
- Dr Ari Melnick, Weill Cornell Medical College, New York, USA
- Professor David Cunningham, The Royal Marsden Hospital, UK

Grants

- Captain Courageous Foundation. Diamond Blackfan Anaemia and associated bone marrow failure syndromes. (\$282,397 2013), D'Andrea RJ, To LB.
- Australian Hotel Association (AHA Hotel Care) Grant. Gene expression analysis in a cell model of Diamond Blackfan Anaemia (\$9,757 2013), Bray S.
- University of Adelaide, Discipline of Medicine Travel Grant (\$1,460 2013), Bray S.
- University of Adelaide, Discipline of Medicine RIBG Equipment grant (\$10,000 2013), P Zalewski, S Appleton, S Bray.

Grants Awarded, commencing 2014

Principal investigator T Price, and senior investigators A Townsend and J Hardingham (and 20 others): SAHMRI ACRF grant of \$1.8M awarded Nov 2013 to develop the ACRF Innovative Cancer Imaging and Therapeutics Facility.

New grants awarded for 2014

NHMRC Project Grant. Targeting the EGFR and C-MET Tyrosine Kinase Receptors in Myeloproliferative Neoplasms (\$587,562 2014-2016), D'Andrea RJ, Lane S, Ross D, Bardy P.

Awards

S Bray was awarded a European Haematology Association Travel Grant at the 18th annual congress, held in Stockholm, Sweden in June 2013 for the presentation of 'The effects of RPS19 knockdown on Gata1 expression in a cell line model of Diamond Blackfan Anaemia' S Bray, L Wee, M Perugini, R D'Andrea.

S Sree Kumar was awarded a travel grant from the School of Medical Sciences, University of Adelaide and a top-up from Scheme A to present two posters at the European Cancer Congress, Amsterdam, September 2013

Acknowledgements

The Department of Haematology & Oncology would like to thank The Hospital Research Foundation, the National Health and Medical Research Council, The Cancer Council of South Australia (SAHMRI), The Captain Courageous Research Fund, Dry July, Channel 7 Children's Research Foundation, AIB Labs, the Australian Red Cross Blood Service, The Familial Cancer Unit - Children, Youth & Women's Health Service, Flinders University and the University of Adelaide for their generous support of this research.

INTENSIVE CARE UNIT

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Research Focus

The research activities of the Department of Intensive Care Medicine at The Queen Elizabeth Hospital are world recognized, published in leading journals and have received prizes at national and international meetings.

Research conducted within the department includes a combination of:

- Investigator - initiated studies, including those by advanced trainees as part of the course requirements of the College of Intensive Care Medicine, intensive care nurses
- Investigator - initiated studies conducted under the auspices of the Australian and New Zealand Intensive Care Society - Clinical Trials Group
- Company sponsored clinical trials

SEPSIS STUDIES

Australasian Resuscitation In Sepsis Evaluation (ARISE)

ARISE is a phase III, multi-centre, NHMRC funded, ANZICS CTG-endorsed, randomised, controlled study evaluating early goal-directed therapy in 1600 patients presenting to the Emergency Department with severe sepsis in 45 hospitals in Australia, New Zealand, Finland, Ireland and Hong Kong. The study is being conducted through the Australian and New Zealand Intensive Care Centre Research Centre, School of Epidemiology and Preventive Medicine, Monash University. Associate Professor Sandra Peake is the chief investigator and Chair of the ARISE Management Committee and Patricia Williams is the Research Coordinator representative on the ARISE Management Committee. The study commenced at TQEH in October 2008 and is a collaboration between the Emergency Department and the Intensive Care Unit. The ARISE Trial has recruited 1495 of the 1600 patients required and recruitment is expected to be completed by April/May 2014.

- Improving patient safety and outcomes
- Answering pragmatic, relevant clinical questions that are of importance to the clinicians who provide patient care
- Advancements in the delivery of more efficient and effective treatments in the ICU that will not only benefit patients but also decrease costs, preserve resources and increase access to scarce critical care beds
- Statistical analysis of short and long-term outcomes relating to Intensive Care; survival analysis of chronically-ill patients and meta-analysis using the Bayesian paradigm

An economic evaluation of resuscitation in sepsis

An economic evaluation of the multi-centre, ARISE randomised controlled trial of early goal-directed therapy in patients presenting to the Emergency Department with severe sepsis will be conducted in a cohort of patients randomised to the ARISE RCT. Cost per quality life year gained will be evaluated. The study was awarded a \$100,000 grant from the Intensive Care Foundation. Associate Professor Sandra Peake is a chief investigator of this study.

Australasian Resuscitation In Sepsis Evaluation (ARISE) – An Individual patient Data Meta-Analysis

A prospective, pre-planned, individual patient data meta-analysis (IPDMA) of three independent, but collaborative, multi-centre, randomised controlled trials (ARISE, ProCESS, ProMISE) will be undertaken immediately following the completion and publication of the three trials. The IPDMA represents a unique opportunity to examine the broad generalisability of the trials' findings, investigate the cause of any divergent results and conduct definitive sub-group analyses. The IPDMA is endorsed by the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS CTG) and the Australasian College of Emergency Medicine (ACEM) and will be undertaken in collaboration with the University of Pittsburgh Department of Critical Care Medicine (United States) and the Intensive Care and the National Audit Centre (United Kingdom). The sum of the results of all three individual trials will represent all the Phase III evidence in the world on the role of EGDT in patients presenting to the ED with severe sepsis or septic shock.



Bacteraemic Load in Septic Shock (BLISS)

An NHMRC funded inception cohort study nested within the ARISE RCT aims to quantify bacterial and immune response markers in the bloodstream of patients with septic shock, the most severe form of sepsis, to determine the relationship between bacterial load, immune response and clinical outcomes. This study will collect blood samples for analysis from patients enrolled in the ARISE study. These blood samples will allow us to determine whether the elevated levels of bacteria or the body inflammatory reaction to it are associated with increased risk of death. This study is being performed under the auspices of the ANZICS CTG. Associate Professor Sandra Peake is on the management committee for this study.

Tissue penetration of vancomycin in critically ill patients with sepsis

An investigation of the tissue penetration of vancomycin in critically ill patients with sepsis using microdialysis, by Dr Jacob Abraham commenced recruitment in 2011. This study aims to use a validated technique called *in vivo* microdialysis to compare subcutaneous tissue concentrations of vancomycin with plasma concentrations, and determine the appropriateness of present dosing approaches for optimising use of this important antibiotic in critically ill patients. This study is a collaboration between The Queen Elizabeth Hospital Department of Intensive Care Medicine, the Basil Hetzel Institute Therapeutics Research Centre, the School of Pharmacy and Medical Sciences, University of South Australia and The University of Queensland.

ADjunctive coRticosteroid trEatment iN criticAlly ill patients with septic shock (Adrenal)

An NHMRC funded randomised blinded placebo controlled trial of hydrocortisone in critically ill patients with septic shock. The purpose of this study is to find out whether adult patients admitted to the Intensive Care Unit with septic shock who are given hydrocortisone compared to placebo, will have an improved rate of survival 90 days later. This study is being performed under the auspices of the ANZICS CTG and commenced recruitment at The Queen Elizabeth Hospital in 2013.

OBSERVATIONAL STUDIES

Prolonged QT interval in the ICU-incidence, risk factors and outcome, a prospective multi-centre observational study

This study by Dr Vinodh Thodur to determine the incidence of prolonged QTc interval and QTc dispersion in critically ill patients admitted to the ICU. The study aims to identify associated risk factors, compare cardiac and non-cardiac complications, mortality, length of ICU and hospital stay in patients with prolonged QTc interval and QTc dispersion. The study was conducted in collaboration with the Royal Adelaide Hospital Intensive Care Department. Preparation is underway to submit the results of this study for publication.

The epidemiology of radiocontrast exposure in critically ill Australian adults: a prospective, multi-centre, observational study

A study by Dr Arpudaswamy Kumar to determine the incidence of intravascular radiocontrast (contrast) nephropathy following exposure to contrast among adults admitted to Intensive Care Unit's (ICU) in Australia is completed. This study is in collaboration with the Royal Prince Alfred Hospital Intensive Care Unit. Preparation is underway to submit the results of this study for publication.

Point Prevalence Program

The Point Prevalence Program, performed under the auspices of the ANZICS CTG, aims to provide the structure for individual researchers to conduct basic observational Point Prevalence Studies to inform future research, while minimising the workload on participating ICUs by combining studies using a common and standardised Case Report Form, on predictable dates. This program is funded by the Intensive Care Foundation. The 2013 audit day included a point prevalence study of Physiological Monitoring Alarms and Targets, Glycaemic Targets, Non-Invasive Ventilation and Nutrition, Hypercapnoeic Respiratory Failure, Fluid Resuscitation and Severe Sepsis and Septic Shock patients (as part of the IMPRESS Study).

An International Multicentre Prevalence Study on Sepsis – Surviving Sepsis Campaign

A prospective, observational, quality improvement project of the prevalence of patients presenting to intensive care with either severe sepsis or septic shock and compliance with evidence-based practices. The IMPRESS study aims to identify practice gaps in sepsis care that may inform current and future quality improvement initiatives globally. This study was performed alongside the Point Prevalence Survey in 2013.

A Comparison of Point of Care Capillary and Arterial Lactate Measurements in the critically ill patient

The aim of this study is to compare the measurement of paired capillary and arterial blood samples and to ascertain whether there is significant agreement between the samples, using arterial blood sampling as the “gold standard”. The secondary aim of this study will be to compare the time and cost-effectiveness of measuring capillary blood lactate when compared to arterial blood lactate. Recruitment is ongoing.

A prospective, multi-centre observational study in patients admitted to intensive care to estimate daily sodium balance

This prospective, multi-centre, observational study will recruit 100 patients in 4 adult intensive care units in Australia. It will provide knowledge about the amount of salt being administered to patients admitted to the intensive care unit, who require ventilatory support. This information, along with the patients' daily salt balance will provide the basis for further studies looking at interventions aimed at reducing the amount of salt administered during a patients stay in intensive care and any influence salt balance may play in clinically important patient outcomes. Associate Professor Sandra Peake and Patricia Williams are both on the study Management Committee. Preliminary data for this study was obtained by conducting a single day point prevalence audit of sodium intake in 46 units in Australia and New Zealand intensive care (Critical Care and Resuscitation, 2013, 15:294-300). Recruitment was completed in August and preparation is underway to submit the results of this study for publication.

Antimicrobial medications and the factors influencing time to administration in an adult intensive Care Unit

RN Yolande Pearce is coordinating an observational study on ‘Factors that influence the timing of antimicrobial therapy administration relative to prescription within the ICU’.

NUTRITION STUDIES

The Augmented vs Reduced Goals for Energy delivery Trial (TARGET): A feasibility trial

A randomised, controlled, double-blind, feasibility study was conducted in five adult intensive care units nationally. This study was being undertaken to provide baseline data to allow for the planning and funding of a larger multicentre trial to determine if the delivery of additional energy to critically ill adults over the first 10 days of their ICU stay affects clinically important outcomes. Associate Professor Sandra Peake is chief investigator and on the study Management Committee. This study is funded by an ANZCA grant. Recruitment was undertaken over a three month period in 2013, with the results of the study being presented at the ANZICS/ACCCN Intensive Care Annual Scientific Meeting in Hobart in October 2013. Preparation is underway to submit the results of this study for publication.

PATIENT SAFETY

Comparison of Haemodynamic Effects of Paracetamol in the Critically ill

A randomised, controlled trial assessing the safety and haemodynamic effects of intravenous paracetamol (versus enteral paracetamol) in intensive care patients was commenced in 2010 and completed in 2011. The study was funded by a grant from the Intensive Care Foundation. Dr Susan Kelly presented the results at the 37th Australian and New Zealand Annual Scientific Meeting on Intensive Care in Adelaide, October 2012. Her presentation entitled “Haemodynamic effects of paracetamol in ICU”, was awarded the Matt Spence Medal for the best intensive care trainee presentation at the ASM. Manuscript is in progress.

OUTCOME STUDIES

The correlation between waist circumference and outcomes in critically ill patients

The study is a prospective, single centre, epidemiological study conducted over a 12 month period involving patients who are admitted to the intensive care unit for more than 24 hours. The study was to determine whether there is a correlation between waist circumference and morbidity, ICU mortality, 28 day mortality, hospital mortality and 6 and 12 monthly mortality in critically ill patients. 12 monthly mortality data completed in 2012. Preparation by Dr John Raj is underway to submit the results of this study for publication.

A study of volume outcome relationships in ICU patients

The object of this study was to examine the volume outcome relationship in a cohort of patients admitted to ANZ ICU's, between 2006-2010, with a diagnosis of 'trauma' as defined by the APACHE III diagnosis codes, utilising the Australian and New Zealand Intensive Care Society adult patient database. This project was undertaken as part of a Masters Degree by Dr C Nottage (ICU Registrar). Associate Professor Sandra Peake was an associate supervisor on this project. Dr Casey Nottage was awarded her Masters in clinical epidemiology and graduate diploma in law (human rights) in 2012.

STandaRd Issue TrANsfusion versuS Fresher red blood cell Use in intenSive carE (TRANSFUSE) – a randomised controlled trial

A multi-centre, randomised, double blind, controlled trial, testing the effect of the freshest available RBC compared to standard practice, on mortality in critically ill patients who require RBC transfusion. This study will determine the effect of transfusing the freshest blood in the inventory compared to transfusing the oldest blood in inventory (current standard of care). We will determine if these two inventory management approaches affect mortality in critically ill patients. This study will provide critically important information that will help blood banks implement the findings. The results of our study will impact transfusion policy worldwide and ultimately could save many

thousands of lives each year. This study is being performed under the auspices of the ANZICS CTG. Recruitment for this study commenced early in 2013 and The Queen Elizabeth Hospital has currently recruited seventeen patients.

Zinc levels in patients with chronic liver disease

Dr Sydney Jacobs aims to establish if low zinc levels are present in patients with chronic liver failure and if these low levels equate to poor outcome and increased incidence of hepatic encephalopathy. Recruitment is ongoing.

Matched controls (zinc levels) for patients with chronic liver disease

This study is the second phase of the previously mentioned zinc study and aims to investigate the zinc levels of patients without chronic liver disease as a comparison. Recruitment is ongoing.

STATISTICAL METHOD REVIEWS

The application of advanced statistical techniques in the analysis of outcome data

A number of studies are ongoing defining the role of advanced statistical analysis in outcomes research and meta-analysis:

- (1) The effect of baseline risk on treatment efficacy as assessed by meta-analyses by Associate Professor John Moran
- (2) The effect of autocorrelation on the application of statistical process control to linear profiles by Associate Professor John Moran
- (3) The utility of relative survival in the estimation of long term survival of the critically ill by Associate Professor John Moran

PHARMACOKINETIC STUDIES

Plasma and interstitial fluid pharmacokinetic and pharmacodynamic evaluation of fluconazole in critically ill non-immunosuppressed patients

Planning is underway to conduct this project in the TQEH ICU as part of Mahipal Sinnollareddy's PhD studies. The aim of the proposed thesis is to understand the plasma and interstitial fluid pharmacokinetics of fluconazole in critically ill patients with and without acute renal replacement therapy (RRT). A suitable pharmacokinetic (PK) and pharmacodynamic (PD) model will be built and dosing strategies required to attain the PD target for fluconazole will be evaluated. An attempt will be made to understand the effect of fluid shifts in critically ill on the fluconazole pharmacokinetics by measuring the total body water and extracellular water. Associate Professor Sandra Peake is an associate PhD supervisor on this project. This study is a collaboration between The Queen Elizabeth Hospital Department of Intensive Care Medicine, the Basil Hetzel Institute Therapeutics Research Centre and University of South Australia School of Pharmacy and Medical Sciences, and The University of Queensland.

Pharmacokinetics of fluconazole and piperacillin/tazobactam in critically ill patients undergoing Sustained low efficiency dialysis (SLED)

Planning is underway to conduct this project in the TQEH ICU as part of Mahipal Sinnollareddy's PhD studies. This prospective study in twelve critically ill patients undergoing SLED will enrol six patients receiving fluconazole and six patients receiving piperacillin/tazobactam. The aims of the study are to describe the plasma pharmacokinetics of fluconazole and piperacillin/tazobactam in critically ill patients receiving SLED; to measure the interstitial fluid (ISF) exposures and quantify and compare the distribution of fluconazole from plasma into the ISF using microdialysis in patients receiving SLED; to develop and validate a population pharmacokinetic model for fluconazole and piperacillin/tazobactam using NONMEM; to use the developed model to optimize dosage regimens using Monte Carlo Simulations. Associate Professor Sandra Peake is an associate PhD supervisor on this project. This study is a collaboration between The Queen Elizabeth Hospital Department of Intensive Care Medicine, the Basil Hetzel Institute Therapeutics Research Centre and University of South Australia School of Pharmacy and Medical Sciences, and The University of Queensland.

Does therapeutic drug monitoring of beta-lactam antibiotics in critically ill patients influence clinical outcomes? A pilot randomized controlled trial.

Planning is underway to conduct this project in the TQEH ICU as part of Fekade Sime's PhD studies. The aim of the proposed thesis is to test the hypotheses that therapeutic drug monitoring-guided dose optimization of beta-lactam antibiotics in the critically ill improves clinical outcome. Associate Professor Sandra Peake is an associate PhD supervisor on this project. This study is a collaboration between The Queen Elizabeth Hospital Department of Intensive Care Medicine, the Basil Hetzel Institute Therapeutics Research Centre and University of South Australia School of Pharmacy and Medical Sciences, and The University of Queensland.

Sampling Antibiotics in Renal Replacement Therapy (SMARRT)

A large NHMRC funded multicentre trial in critically ill patients who are prescribed renal replacement therapy and piperacillin-tazobactam, meropenem or vancomycin. The aim of the SMARRT Study is to develop optimised antibiotic dosing guidelines for ICU patients with life-threatening infections that account for patient characteristics and the type of RRT they are prescribed. Associate Professor Sandra Peake is a chief investigator. The SMARRT study is being performed under the auspices of the ANZICS CTG and recruitment is expected to commence in 2014.



Staff

Studies on the critically ill represent co-operative undertakings between all the nursing and medical staff in the intensive care unit. Many thanks to our research coordinators, Miss JoAnne McIntyre and Jennie Phillips-Hughes and research project officer, Mrs Catherine Kurenda.

Director

MS O'Fathartaigh MB Bch BAO FFARCS (Ire.) FFICANZCA

Consultant Specialists

SL Peake BM BS BSc(Hons) FJFICM PhD
JL Moran MB BS FANZCA FRACP FJFICM MD
S Moodie MB CHB FJFICM
K Lee MBBS MBus FACEM FJFICM
S Jacobs MBChB FRCA FANZCA
D Clayton BSc MBBS FRCA FANZCA FCICM

Research Coordinator

J McIntyre RN IntC Cert Grad Dip CritCareN
J Phillips-Hughes RN IntC Cert BNs Grad Dip CritCareN

Research Project Officer

C Kurenda

Senior Registrars / Registrars

B Chacko MBBS
J Raj MBBS MS
P Marella MBBS
S Kalgudi MBBS MD Anaesthesiology IDCCM
W Chee MBBS
K Chekuri MBBS MD Internal Medicine
J Smit BSc MBBS
I Shapiro M Medicine
H Parikh MBBS MD Anaesthesiology
N Diakomichalis BM BS BTechnology (Forensic & Analytical Chemistry) BSc (Hons)
D Rajput MBBS MD Anaesthesiology
R Nathan MBBS
V Thyagaraj MBBS MD Anaesthesiology IDCCM
P Kuruppu MBBS
A Baghini MBBS

Nursing staff

B Grealy RN RM IntCCert BN MN(Res)
S Flynn RN IntCCert
L Esca, RN IntCCert
R Fraser, RN Int CCert
J Phillips-Hughes RN IntC Cert BNs Grad Dip CritCareN
R Kelly RN IntCCert Grad Dip CritCareN
Y Pearce RN IntC Cert Grad Dip CritCareN
A Lloyd RN Int CCert

Pharmacist/PhD students

MG Sinnollarredy Grad Dip Clin Pharmacology BPharmacy (Hons)
FB Sime B Pharmacy Masters of Science (Pharmacology)

Studies have also been undertaken in collaboration with The Queen Elizabeth Hospital Pharmacy and Emergency Department and the Royal Adelaide Hospital and Royal Prince Alfred Intensive Care Units.

Grants

NHMRC. (Project grant #1044941) Robust antibiotic dosing for critically ill patients receiving renal replacement therapy. 2013-2015 (\$1,034,978 over a period of 3 years) Roberts J, Lipman J, Roberts M, Paul S, Peake S, Turnidge J.

ANZCA The Augmented versus Routine approach to Giving Energy Trial in Intensive Care (TARGET) – Randomised Controlled Trial (\$34,300 2013) Chapman M, Peake S, Davies A, Deane A, O'Connor S, Williams P, Ridley E.

Collaborators

The Queen Elizabeth Hospital Emergency Department
The Royal Adelaide Hospital Intensive Care unit
The University of Queensland
Monash University, Department of Epidemiology and Preventive Medicine
The George Institute for Global Health
ANZICS - Clinical Trials Group
The University of Adelaide
Covance Pty Ltd
INC Research Australia



Research Focus

The University of Adelaide Discipline of Medicine at The Queen Elizabeth Hospital has major research and teaching responsibilities led by an experienced team of clinical academic physicians supported by an enthusiastic team of research scientists, teaching and administrative staff. The research conducted within the Discipline spans the full spectrum of research fields including basic, clinical, population and health service delivery.

Areas of particular expertise include cardiology (see Cardiology), geriatrics (see Aged and Extended Care), neurology (see Neurology), and health literacy. The Discipline's research activities involve collaboration with other researchers within The Queen Elizabeth Hospital, the Basil Hetzel Institute, other South Australian hospitals, as well research institutions within Australia and internationally. The diversity in research activities and widespread collaboration has forged a strong department with significant outputs. In addition to conducting research, the Discipline has a major responsibility in research training, ranging from medical student projects and vacation electives, to those undertaken by basic and advanced physician trainees, to the supervision of higher degree research students.

Professor John Beltrame is the Head of Discipline of Medicine at The Queen Elizabeth Hospital. He is an academic cardiologist with active research, clinical and teaching roles. His international reputation and expertise focuses on coronary vascular disorders although in recent years this has broadened to include peripheral artery disease (in collaboration with the vascular surgical unit led by Professor Rob Fitridge), molecular mechanisms in vascular disorders (in collaboration with Dr David Wilson), gender disparities in cardiovascular disorders, depression (in collaboration with Dr Geoff Schrader), cardiovascular imaging and health service delivery, with projects such as CADOSA (Coronary Angiogram Database of South Australia). His collaborative studies not only involve local hospitals and institutions but also international institutions in the United States, Holland, Italy and Japan.

Multi-Disciplinary Research

- Vascular disease
- Stem cells in the treatment of stroke
- Zinc in the pathophysiology of disease
- Quality health care improvements
- Cancer biology
- Nutritional problems in the elderly
- Health literacy population research
- Undergraduate and postgraduate assessment

Professor Bob Adams is a respiratory physician and epidemiologist, and is Director of the Health Observatory. He is a chief investigator in the North West Adelaide Health Cohort Study (NWAHS) from which he has published on many chronic disease issues including respiratory diseases, obesity, the metabolic syndrome and nutrition. Recently, his group completed sleep studies on patients in the MAILES (Men: Androgens, Inflammation, Lifestyle and Environment Study). This NHMRC-funded study examined the relationship between obstructive and uro-genital health, sexual function, sex steroids and inflammation and their contribution to cardiovascular disease and type 2 diabetes mellitus in men. Professor Adams was also involved in initiating the Mental Health Observatory (MHO), which involves the Health Observatory, Country Health SA, Flinders University and the University of South Australia. The SPARK Project was the first initiative of the MHO and evaluated the services accessed by people with mental illness across rural and metropolitan South Australia, determining the impact on health outcomes at 12 months. This project was a finalist for the SA Health Awards.

Professor John Horowitz is an academic cardiologist with a distinguished research career; being recognised both nationally and internationally. He is the Director of the Cardiology Unit and the Clinical Pharmacology Unit. He has an extensive publication record with important studies in the pathophysiology and therapeutics of cardiovascular disorders including coronary artery disease, heart failure, and aortic stenosis. He supervises a large group of basic science and clinical researchers, including many higher degree research students. The details of his research activities are summarised in the Cardiology Unit report.



Professor Simon Koblar is a neurologist and the Director of the Stroke Research Program and leads an innovative research team investigating the use of dental pulp stem cells as a potential therapy for stroke patients. Recently he has been awarded two NHMRC research project grants to pursue this therapeutic approach. He has also been awarded the inaugural Peter Couche Foundation research grant, which was supported by the 'Don't Speak' fundraising campaign, in which he was an avid participant.

Associate Professor Renuka Visvanathan is an academic geriatrician, Director of Aged and Extended Care Services at TQEH, and a chief investigator in the Health Observatory. She is also the academic lead for the Geriatrics Teaching and Research with Aged care Centre (G-TRAC) located at the Resthaven Paradise Campus. She is also the Deputy Chair of the Older People's Network. The details of her research activities are summarised in the Aged and Extended Care Services report.

Associate Professor Chris Zeitz is an academic cardiologist with multiple clinical roles including Co-Director of the Division of Medicine and the Director of the Cardiac Catheterisation Laboratory. He has recently been appointed as the Clinical Director of Medicine in the Central Adelaide Local Health Network. He is also the founding Director of the Cardiology Assistance to Remote Districts in Australia – South Australia division (CARDIA-SA) clinical group and is a member of the University of Adelaide Spencer Gulf Rural Health School. CARDIA-SA is a University of Adelaide initiative that provides consultative cardiology services to rural regions of South Australia. Associate Professor Zeitz's research interests include the management of acute coronary syndromes and indigenous cardiovascular health with active research projects in these important fields.

Dr Sharmalar Rajendran is an interventional cardiologist and Senior Lecturer in Medicine. Her research interests focus on the cardiovascular consequences of polycystic ovary disease as well as invasive coronary studies. She is also actively involved in undergraduate teaching and supervising postgraduate research students.

Dr Peter Zalewski is a senior lecturer and the postgraduate co-ordinator for the Discipline of Medicine. His expertise in zinc biology has focussed on alveolar macrophage function, in collaboration with Professors Sandy Hodge and Hubertus Jersmann. Major contributions to this NHMRC-funded research has also been made by Dr Chiara Murgia, a visiting research fellow from the Institute for Food and Nutrition in Rome, and Dr Hai Tran, a post-doctoral fellow.

Dr Sarah Appleton is a foundation research fellow in the Health Observatory. Her research interest focuses on chronic disease issues such as diabetes, the metabolic syndrome, undiagnosed disease, health literacy and obstructive sleep apnea.

Dr Cynthia Piantadosi is a research fellow who is currently working with Professor Ian Chapman and Associate Professor Renuka Visvanathan on a national multicentre study examining the effect of testosterone and a nutritional supplement in under-nourished, older people.

Dr Tiffany Gill is a physiotherapist and accomplished epidemiologist who holds an NHMRC Early Career Fellowship. Her research interests in the epidemiology of musculoskeletal disorders, chronic disease risk factors and other aspects of public health have made a major contribution to the Health Observatory.

Dr Rosanna Tavella is a Senior Lecturer in Medicine and the Cardiovascular Data Project Manager for the Central Adelaide Local Health Network. She has also played a key role in quality assurance and health service delivery activities for the Statewide Cardiology Clinical Network, Data and Information Working Group. In addition, she is the data custodian for the Coronary Angiogram Database of South Australia (CADOSA) registry. Her knowledge, experience and expertise in clinical datasets has rapidly brought her to the attention of clinical epidemiology groups around the country and internationally.

Throughout 2013, the Cancer Biology Group, headed by Dr Grant Buchanan continued a Cancer Australia funded study investigating the involvement of the tumour microenvironment in early prostate cancer progression. Much of this promising work was performed by PhD candidate Mr Damien Leach. Work also continued on a study funded by the Australian Research Council investigating how steroids and their receptors interact and influence the actions of each other within cells, with much of this work performed by Drs Eleanor Need and Andrew Trotta. PhD candidate Ms Lauren Giorgio continued her work investigating the mechanisms of action in prostate cells of a polyphenol compound called Curcumin, obtained from the spice Tumeric. This work is conducted in collaboration with the Laboratory of Dr Tak Harada from the Chemistry Department at The University of Adelaide. This year, Ms Lauren Giorgio won a poster presentation award at the University of Adelaide Health Sciences Postgraduate Research Expo, and a travel award from SAHMRI-Beat Cancer. Research papers this year include publications in the *Journal of the National Cancer Institute*, *Molecular Pharmaceutics*, *Molecular and Cellular Endocrinology* and the *International Journal of Cancer*.

Staff

Michell Professor of Medicine

J Beltrame BSc BMBS PhD FRACP FESC, FACC, FAHA, FCSANZ

Professor in Cardiology

J Horowitz MBBS BMedSc(Hons) PhD FRACP

Professor in Medicine

RJ Adams MBBS MD FRACP

S Koblar MBBS PhD FRACP

Emeritus Professor

RE Ruffin BSc (Hons) MBBS (Hons) MD FRACP

Associate Professors

R Visvanathan MBBS PhD FRACP

CJ Zeitz MBBS PhD FRACP

Senior Lecturers

S Rajendran MBBS FRACP PhD

PD Zalewski BSc (Hons) PhD

G Buchanan PhD

Research Fellows

SL Appleton BSc (Hons) PhD

T Gill BAppSc(Physio), MAppSc(Physio), CertHlthEc, PGradDip(Hlth Sc), MBA, PGradDip(Biostats), PhD

C Piantadosi BAppSc (Hon) PhD

J Licari B Health Sc (Hons) PhD

E Need BSc (Hons) PhD

D Leach PhD

A Trotta BHSc (Hons) BSc PhD

Peter Doherty Research Fellow

CJ Lang BSc (Hons) PhD

Clinical Data Project Manager

R Tavella B Health Sc (Hons), PhD

Hospital Scientists

AG Milton BSc (Hons)

R Jakobczak BSc

G Yong BSc BHSc (Hons)

Research Officers

R Hamon BSc (Hons)

J Q Ng BSc (Hons)

A Wee BSc

K Rajopadhyaya BSc (Hons)

R Battersby

E Meyer

E Rees

C Cilento

J Chan

Research Administrators

L Gallina (CADOSA Administrative Project Officer)

J Sowden

G Jones

Discipline Secretaries

A Brown

L Gallina

CardiaSA Secretary

K Zahra

L Jones

Clinical Education

R Limb MBBS

M Denys

Postgraduate Students

Higher degrees awarded

R Dreyer

'Gender Disparities in Cardiovascular Disease'

PhD conferred by School of Medicine, University of Adelaide, 2013.

PhD students

D DiFiore

'Health Outcomes in Patients with Vasospastic Angina'

A Jaghoori

'Heterogeneity in Vasomotor Responses'

D Leach

'Tumour microenvironment in prostate cancer'

V Lamin

'Mechanical Studies in Macro and Micro-Vascular Dysfunction'

C McNally

'Oral Health as an Indicator of Overall Health in a Hospitalised Geriatric Population'

S Pasupathy BSc(Biomedical Science)(Hons)

'Myocardial Infarction with Non-obstructive Coronary Arteries'

E Roscioli

'The role of ZIP 1 in regulating apoptosis in cells in the respiratory epithelium'

S Sidharta

'Relationship of Human Coronary Endothelial Function and Plaque Progression/Regression'

A Sheikh

'Pathophysiological Studies in Coronary Microvascular Disorder'

G Tucker

'Refinements in health status measurement'

Honours Students

C Verdicchio

S Cai

Awards

R Dreyer

Faculty of Health Science Dean's Commendation

R Dreyer

Sir Keith Murdoch American-Australian Fellowship Award

R Dreyer

State Finalist for Young Australian of the Year Award 2013

Y Du

Ram S Tulsi Research Award

T Pasupathy

Best Oral Presentation – Clinical Research Group I, TQEH Research Day, October 2013, BHI

A Trotta

Discipline of Medicine Travel Grant

P Zalewski

Discipline of Medicine Travel Grant

Grants

TQEH Research Foundation Strategic Initiatives Funding. (Program Grant) The Health Observatory. (\$1,250,000 2013) 2009-2013, Adams RJ, Wilson D, Hill C, Visvanathan R, Wittert G, Ruffin R.

NHMRC. (Project grant # 627223). Alveolar macrophage zinc and zinc transporters and their role in phagocytosis. (\$92,916 2013) 2010-2013. Zalewski P, Hodge S, Jersmann H.

NHMRC. (Project grant) A randomised comparison evaluating the value of high-sensitivity troponin in the efficient management of chest pain patients across the spectrum of risk for an acute coronary syndrome. (\$248,402 2013) 2012-2013, Chew D, Beltrame J, Worthley M, Zeitz C, Aylward P, Quinn, S, Astley C.

SA Heart Foundation. Chronic refractory angina – defining its characteristics and exploring endothelin blockade as a new potential therapy. (\$442,550 2013) 2011–2014, J Beltrame J, Worthley S, Chew D, Ganz P, Zeitz C, Arstall M.

NHMRC. (Early Career Fellowship Australian Public Health) (\$96,274 2013) 2011-2014, Gill T.

Cancer Australia. Androgen receptor action in the prostate cancer microenvironment (\$191,194 2013) 2012 – 2015, Buchanan G., Need EF, Taylor RA.

ARC Discovery Projects. Molecular dynamics of steroid receptor crosstalk. (\$116,000 2013) 2011 – 2013, Buchanan G, Tilley WD.

University of Adelaide (Discipline of Medicine Equipment Grant) (\$10,000 2013) Zalewski P, Beltrame JF, Appleton S, Bray S.

University of Adelaide (Discipline of Medicine Equipment Grant). The Coronary Angiogram Database of South Australia (CADOSA) Biobank (\$10,000 2013) Beltrame JF, Zeitz CJ, Worthley MI, Arstall MA.

The Hospital Research Foundation. (Equipment Grant). The Coronary Angiogram Database of South Australia (CADOSA) Biobank (\$8,901 2013) Beltrame JF, Zeitz CJ, Worthley MI, Arstall MA.

NHMRC. (Partnership Grant #1062331) The ACCESS Project – Assessment of Coronary artery disease using Ct Effectively for Stable Symptoms (\$312,833 2013) 2013-2017, Beltrame JF, Zeitz CJ, Tavella R, Worthley MI.

Grant commencing in 2014

The Hospital Research Foundation (Project grant). Exercise Therapy for the Management of the Coronary Slow Flow Phenomenon. (\$300,000 2014-15) Beltrame JF, Elliott A, Rajopadhyaya K, Fitridge R.



NUCLEAR MEDICINE UNIT

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Research Focus

The Queen Elizabeth Hospital Nuclear Medicine Department collaborates with other departments (e.g. Cardiology, Oncology) in a number of multi-disciplinary research projects. Our main research focus within the department is in the study of changes in cerebral blood flow in conditions such as Alzheimer's disease and chronic fatigue syndrome, as well as the treatment of rare neuro-endocrine tumours.

Our Department's research continues to focus on the major areas of cardiac and neurological nuclear medicine. In addition we are monitoring the clinical and cost effects of Peptide Receptor Radionuclide Therapy (PRRT) using with Lu-177 Octreotate in patients with Gastro-entero-pancreatic neuro-endocrine tumours (GEPNETs).

In 2013, chief medical scientist Dr Leighton Barnden was awarded a Mason Foundation grant for the second stage of a quantitative MRI longitudinal study entitled 'The progression over 5 years of brain MRI abnormalities in Chronic Fatigue Syndrome'. Research coordinator Lisa Burres is employed on this study, and re-evaluation of the 25 CFS and 25 normal control subjects is underway. Writing up of the extended results from the baseline MRI study performed in 2007 is continuing.

The data acquisition phase of a new CFS cohort to confirm and extend the 2007 results is nearing completion and data analysis will commence in 2014.

- Statistical parametric mapping of regional cerebral blood flow and MRI
- Development of new image processing techniques in brain and cardiac MRI imaging
- Peptide receptor radionuclide therapy (PRRT) of gastro-entero-pancreatic neuro-endocrine tumours (GEPNETs)

Grant

Mason Foundation. (Project Grant) Magnetic Resonance Imaging (MRI) and Single-Photon-Emission Computed Tomography (SPECT) study of changes in the brain associated with changes in clinical parameters in Chronic Fatigue Syndrome (CFS): Extension to Longitudinal Study. (\$80,000 2013) Barnden L, Kwiatek R.

Collaborations

Cardiology Unit: The ongoing prospective RoCAD study randomises patients with an intermediate risk of coronary disease to either gated SPECT or CTCA imaging, with follow-up to determine which strategy is best. In the SeCRet trial completed in 2013, myocardial septal perfusion and LV dyssynchrony was compared during LBBB and biventricular pacing in patients with ischaemic cardiomyopathy undergoing cardiac resynchronisation therapy.

Oncology Unit: The Nuclear Medicine Unit performs bone and cardiac scans for patients enrolled in multi-centre trials of new therapies in metastatic melanoma and prostate cancer.

Staff

Director

S Unger MBBS FRACP PhD

Visiting Medical Specialists

M Kitchener MBBS FRACP

R Casse MBBS FRACP

A Warner MBBS FRACP PhD

G Cehic MBBS FRACP

K Tan MBBS FRACP

M Nottage MBBS FRACR

Medical Scientists

L Barnden BSc(Hons)PhD MACPSEM

D Badger BSc(Hons) MSc

Technologists (shared with LMH)

P Ong

G Pandos

T Smith

P Sotiropoulos

N Farnham

E Langeluddecke

J Lawrie

D Edwards

R Edwards

Research Coordinator

L Burres RN

Senior Nursing Staff

D Nicholls



NEUROLOGY UNIT

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Research Focus

The Neurology Department has two main research arms:

- *Stroke related research which involves genetic, proteomic and clinical investigations into risk for stroke, stem cell therapy to repair the brain following stroke, inflammatory pathways involved in stroke, and primary health stroke prevention research.*
- *Clinical trials sponsored to investigate the benefit to our patient populations of new therapeutics in dementia, epilepsy and multiple sclerosis.*

STROKE RESEARCH PROGRAMME

The Stroke Research Programme (SRP), directed by Professor Simon Koblar and Co-Director Dr Anne Hamilton-Bruce, collaborates with the University of Adelaide via the Schools of Medicine, Medical Science, Molecular and Biomedical Science and the Robinson Institute. The SRP also participates in the Australian Stroke Genetics Collaboration, a multi-state, multi-centre Australian study into the genetic causes of stroke.

The SRP is finalising a pre-clinical study commenced in 2012, to investigate how best to deliver Dental Pulp Stem Cells (DPSC), and if improvement can be achieved when DPSC are administered days after stroke. Several possible mechanisms of action may underlie how DPSC improve brain function. We look forward to the next step in establishing the best time window for DPSC treatment to aid the recovery of patients after stroke.

- Investigating genetic, proteomic and clinical risks for stroke
- Investigation of the therapeutic application of adult stem cells to repair the brain following stroke
- Investigation of inflammatory pathways in stroke and other diseases
- Primary health stroke prevention research
- Statistical parametric mapping analysis of regional cerebral blood flow (Nuclear Medicine collaboration)
- Epilepsy Research (clinical trials of new anti-epileptic medication)
- Dementia Research (clinical trials of new Alzheimer's Disease and Prodromal Alzheimer's Disease medications)
- Multiple Sclerosis (clinical trials of new RRMS treatments)

PhD candidate Ms Kylie Ellis finalised her work on neuronal differentiation of DPSC and submitted her PhD in 2013. PhD candidate Mr Michael Djukic is finalising his proteomic biomarker research in transient ischaemic attack (TIA) patients that has discovered further biomarkers with potential Intellectual Property applications. This has also led to a successful biotechnology business partnership. Dr Elaine Leung is finalising her PhD defining characteristics of TIA assessment and management to determine if a community-based rapid access TIA clinic improves patient stroke outcome.

Dr Thomas Klaric's PhD was conferred at a ceremony this year and he has joined the SRP as a postdoctoral research fellow. A third year medical student, Ms Rebekah Chew, started with us as a summer scholarship student before undertaking an honours year, finishing with first-class honours.

SRP team members and Stroke Unit staff participated in the Australian Society for Medical Research (ASMR) Scientific Meeting in Adelaide and also at the Conference for the Stroke Society of Australasia in Darwin. Team members also continued to present at community meetings to raise awareness about our research and funding needs to support our research.

Professor Simon Koblar was invited to join the Editorial Board of the journal Stem Cell Research and Therapy.



In breaking news, the SRP is part of a multi-institutional research project that has been awarded NHMRC project funding worth \$735,660 over the next four years (2014-2017). Titled 'Characterising post-stroke cortical plasticity in humans – identifying a critical window for rehabilitation', the project will enrol patients from the Stroke Units at both the Royal Adelaide Hospital (RAH) and The Queen Elizabeth Hospital (TQEH). The local Chief Investigators are Associate Professor Michael Ridding from the Robinson Institute, University of Adelaide (RI), Professor Simon Koblar (TQEH) and Dr Michelle McDonnell (University of South Australia). Others involved include Associate Professor Jim Jannes (TQEH), Professor Philip Thompson (RAH), Associate Professor Tim Kleinig (RAH), Dr Ann-Maree Vallence (RI) and Dr Nicolette Hodyl (RI).

The project will address the following key aims:

- Aim 1. Provide neurophysiological evidence of a critical window of enhanced neuroplasticity in patients following ischaemic stroke and establish its duration.
- Aim 2. Characterise the changes in cortical inhibition that are seen following stroke.
- Aim 3. Characterise changes in function following stroke.
- Aim 4. Investigate genetic and serum influences on neuroplasticity following stroke.

CLINICAL TRIALS

Stroke

INSPIRE study: International Stroke Perfusion Imaging REgistry an Australia-first databank of all information and data relevant to acute brain imaging. The registry will compile different stroke scans from hospitals Australia wide, allowing for comparative analysis. twelve patients on the register.

Start-Extend Trial: STroke imAging pRevention and Treatment (START) – Extend: Extending the time for Thrombolysis in Emergency Neurological Deficits. This trial is an investigator initiated, Phase 3, randomised, placebo controlled, double-blinded, clinical trial that will be conducted in approximately 20 study sites throughout Australia and New Zealand. One patient recruited.

Extend-IA : Extending the time for Thrombolysis in Emergency Neurological Deficits – IntraArterial. A randomized controlled trial of intra-arterial reperfusion therapy after standard dose intravenous tPA within 4.5 hours of stroke onset utilising dual target imaging selection. The study will be a multicentre, prospective, randomised, open label, blinded endpoint (PROBE), controlled phase 2 trial (2 arm with 1:1 randomisation) in anterior circulation ischaemic stroke patients. No patients recruited to date.

National Stroke Foundation : My Stroke Journey Information pack for carers and survivors. Australian Stroke Survivors Needs Assessment Project.

Epilepsy

The Department has been recruiting for two new studies. USL P09-004 investigates 'Slow Release Topiramate as adjunctive therapy for refractory partial onset seizures with or without secondary generalisation'; SP0993 and the extension SP0994 study are 'monotherapy controlled trials of Lacosamide 200 to 600 mg day, versus Controlled Release Carbamazepine (400 to 1200 mg day) versus placebo'. Such investigative trials will allow access to new anti-epileptic drugs that may not become available to the general public until Pharmaceutical Benefits Scheme (PBS) listing, and allows development of valuable clinical experience in the utilisation of these drugs. We have also undertaken a retrospective audit of Epilepsy Clinic patients from 1/3/2010 – 1/3/2012 to assess the impact of the new Assessing Fitness to Drive guidelines. This focuses on the impact of these guidelines on our patients' quality of life and also helps to review our own practice in terms of assessing our patient's fitness to drive.



Dementia

The Memory Clinic and Clinical Cognitive Research Units continue to participate in many national and international studies. Dr Karyn Boundy is the Chairperson of the Australasian Consortium of Centres for Clinical Cognitive Research (AC4R) to facilitate clinical trials in memory conditions in Australasia. She is also the South Australian and AC4R representative for Neurosciences Trials Australia – a clinical trials platform with “nodes” in each neurological subspecialty area to facilitate both investigator driven and to also attract pharmaceutical company early stage phase I – III research to Australia. Dr Boundy has spoken at local General Practitioner (GP) division, national and international meetings about aspects of dementia management and diagnosis of less common dementias e.g., frontal lobe and tauopathies.

The satellite Neurology/Memory Clinic has proven popular in Port Lincoln and Tumby Bay via Rural Health SA.

Various international publications have arisen from participation in the Prospective Research in Memory Clinics (PRIME), a database that studies all types of dementia patients attending Australian Memory Clinics. Applications have been successfully made to PBS/PBAC to simplify prescribing of AD medications.

Alzheimer Symptomatic Trials

There has been a renewed interest in both Alzheimer symptomatic and disease modifying trials.

‘Lundbeck compound Lu AE58054, a selective serotonin receptor 6 (5-HT6 receptor) antagonist for patients with moderate Alzheimer’s disease’ completed recruitment in 2011 further studies are planned.

The Medivation/Pfizer sponsored DIM18 (Dimebon) Phase III study for mild to moderate Alzheimer’s Disease a Phase III mono-therapy extension study was completed but results did not favour further trials.

Servier’s CL2-38093-005 protocol for compound S 38093 trialled in both Naïve patients and as an add on, to donepezil has now been advanced to phase IIb and is still recruiting with success (CL2 38093-012).

Sanofi-Aventis are researching ‘the effect of SAR110894D at doses of 0.5 mg, 2 mg, and 5 mg/day for 24 weeks in patients with mild to moderate Alzheimer’s disease on stable donepezil therapy’ (study completed and result to be published).

Roche RO4602522 (Mayflower) added to background Alzheimer therapy in moderate Alzheimer disease. The primary objective is to evaluate the efficacy of a 12-month treatment of RO4602522 (MAO-B) versus placebo added to any AChEI alone or in combination with memantine in patients with moderate severity AD. This trial is now completed

Disease Modifying Trials in Alzheimer’s Disease

Recruitment for the Wyeth/Elan -3000/I-WWW APOE-4 non-carrier study extension now ensures ongoing patients receive 4 years of treatment with this monoclonal antibody. This study has now been completed.

Baxter iMIG phase III study was initiated but due to study results overseas discontinued.

Merck MK 8931 safety and efficacy in mild to moderate AD add on to all Alzheimer drugs is currently recruiting.(BACE inhibitor Phase III),

Roche compound RO5313534, added to donepezil for mild to moderate Alzheimer’s Disease was completed and shown to be safe but ineffectual. The Pfizer Phase 2 study of Multiple Doses of PF 04360365 in Patients with Mild to Moderate Alzheimer’s Disease, a humanized monoclonal antibody was proven safe but further studies are on hold.

Tau RX 12 month trial of Leuco-methylthionium in mild to moderate AD (mild cohort completed), further studies with this agent in Mild AD and Prodromal AD planned in future.

Prodromal AD

Roche is studying the effects of RO4919832 on Cognition and Function in Prodromal Alzheimer’s Disease for two years with open label extension to four years. This study is being conducted due to Gantenerumab having a preclinical profile consistent with AB reduction effect, additionally in the multiple ascending dose (MAD) study conducted in AD patients, Gantenerumab appeared to inhibit and reduce the accumulation of brain AB observed on positron emission tomography (PET) brain scans.

The frequent MRI Brain scan required in this study have identifying new amyloid therapy related imaging abnormalities ARIA-H & Aria-E, which have further enhanced our understanding of amyloid role in blood vessels and the effect of its removal.

Multiple Sclerosis (MS)

The research scene in MS continues to be exciting, with news of MS treatments that are being trialled, showing efficacy in the reduction of MS relapses. A further two oral medications (Aubagio [Teriflunomide] and Dimethyl Fumerate [Tecfidera]) will be on the PBS from 1st December 2013 adding to Fingolimod (Gilenya), the other oral drug for MS treatment which was PBS-listed in September 2011. We are pleased to have been involved in the pivotal clinical trials with those medications. We continue our association with Fingolimod, working on a long term extension trial for patients who were in the pivotal studies (protocol CFTY720D2399); and a new year-long trial comparing treatment-naïve patients versus treatment failure patients (protocol CFTY720DES03). Monitoring clinic for commencement of Gilenya underway.

The CAMMS323 and CAMMS324 protocols trialled Alemtuzumab in treatment-naïve and previously treated MS patients respectively. CAMMS323 showed a 55% reduction in relapse at two years in adults treated with Alemtuzumab 12mg compared with those receiving interferon. Similarly, the 324 study showed a 49 percent reduction in relapse rate in patients treated with Alemtuzumab 12 mg compared to interferon beta-1a over two years of study. Importantly, there was also a 42 percent reduction in the risk of sustained accumulation (worsening) of disability as measured by the Expanded Disability Status Scale (EDSS). An extension study is in place to monitor the longer term effects of Alemtuzumab (CAMMS03409). This drug has a positive recommendation for the TGA for consideration as another treatment for MS.

Neuromyelitis Optica (NMO) has been recognised as a distinct clinical and pathological variant of multiple sclerosis (MS). Clinically, the disease is confined to the optic nerves and spinal cord where severe relapses of inflammatory demyelination result in accumulation of significant morbidity. Pathologically, demyelination is often accompanied by neuronal and astrocyte loss, a distinction from MS. The recent discovery of an antibody to the water channel, aquaporin-4 (located on astrocyte endfeet) in cases of clinical NMO appears consistent with this idea. A study on a prevalence survey of cases of NMO identified by neurologists in Australia and NZ in 2010 and an incidence survey from 2010 to 2013 is in progress. This project has three main objectives. First, to establish the prevalence and incidence of Neuromyelitis Optica in Australia and New Zealand using clinical criteria. Second, to estimate the sensitivity and specificity of NMO IgG serum testing for the diagnosis of NMO in this population. Third, by comparison with existing cohorts of classical MS, highlight the demographic and clinical features of Antipodean NMO. This study is an investigator-driven study and is ongoing.

We are also involved in a worldwide database of MS patients for the last few years from which several research papers have been published by authors from different countries, principally from Australia.

Grants

NHMRC. (Project Grant 1003417) Brain repair following stroke: the role of Npas4, a neural-specific transcription factor (\$196,682 2013) 2011-2013 Koblar SA, Hamilton-Bruce A, Milton AG, Lin Y, Lewis M.

NHMRC. (Project Grant 1011649) Role of Tenascin-C and TLR-4 in carotid atherosclerosis related stroke, (\$99,174 2013) 2011-2013, Clancy P, Koblar SA, Maguire J, Lincz L.

Peter Couche Foundation Fellowship “Stem Cell Therapy for Stroke”. (\$70,814 2013) Kremer K.

Robinson Institute/SPRH Early Career Researcher International Travel Grant. (\$1,800 2013) Klaric T.

MSNA Australasia Inc Educational Scholarship 2013. (\$1,000 2013) Cheung P.

Novartis Pharmaceuticals Australia Pty Ltd Educational Grant 2013. (\$1,000) Cheung P.

Collaborations

Neuroplasticity - experiments and collaborations made re determining the mechanism of action of DPSC improving stroke outcome. These have been undertaken at Cambridge with Professor James Fawcett, Cambridge Centre for Brain Repair; University of Cambridge and with Professor Jean-Claude Baron, Lewin Stroke & Rehabilitation Unit, Addenbrookes Hospital, Cambridge.

Inflammation and stroke - collaborations set-up with Professor Stefano Pluchino from Cambridge Centre for Brain Repair (formerly University of San Raffael, Milan, Italy). May 2010. Professor Stefano Pluchino also agreed to give plenary lecture at SSA meeting in Adelaide 2011.

Transient Ischaemic Attack (TIA) - collaborations begun with Drs Peter Martin and Liz Warburton, TIA services, Lewin Stroke & Rehabilitation Unit, Addenbrookes Hospital, Cambridge.

Animal Assisted Therapy (AAT) – Collaborations with Dr Susan Hazel, Lecturer in Animal Science, Roseworthy Campus, University of Adelaide.

TIA Economics – A new collaboration with Professor Jon Karnon, Professor in Health Economics, University of Adelaide and Professor Luke Vale, Health Foundation Chair in Health Economics, Newcastle University, United Kingdom and Chairman of the Joint Economics Methods Group of the International Cochrane and Campbell Collaborations..

Awards

The Peter Couche Foundation fellowship (2 years) awarded to Dr Karlea Kremer.

Fresh Science 2013 state finals - on DPSC & stroke project: Dr Wai Khay Leong.

Australian Society for Medical Research (ASMR) Best Poster Prize, June 5 2013, Joshua Winderlich.

University of Adelaide School of Medicine Best Poster Prize: August 29 2013, Joshua Winderlich

Patents

‘An assay for determining neuroplasticity effect of stem cells’ PCT/AU02/01759.

Applicant: ARI, University of Adelaide & Medvet Science Pty Ltd, SA, Australia. 2007

Inventors: Koblar SA, Gronthos S, Arthur A.

Staff

Senior Consultant Neurologist/Director of Neurology
MK Robinson MBBS FRACP

Senior Visiting Neurologist
GH Purdie MBBS FRACP
KL Boundy MBBS FRACP
H Waddy BMBS FRACP

Senior Consultant Neurologist/Director of Stroke Unit/Chair, Statewide Stroke Clinical Network (SA Health)
J Jannes BMBS FRACP PhD

Clinical Academic Neurologist/Director of Stroke Research Programme
SA Koblar BMBS FRACP PhD

Chief Clinical Neuropsychologist
AC Kneebone BA Dip App Psych MA PhD FAPS

Consultant Neurologist
C Short BSc MBBS FRACP
J Leyden BMBS FRACP
A Tan BMBS FRACP

Principal Medical Scientist/Co-Director of Stroke Research Programme
MA Hamilton-Bruce BSc MSc MBA PhD AFCHSE CBiol MSB CSci FIBMS

Medical Scientist
MB Donk BHSc

Chief EEG Technologist
J Pruszkowski Diploma in Medical Analysis

Stroke Clinical Network Development Manager (SA Health)
K Goldsmith BA MPH

Neurology Secretary
JA Greutner Cert IV Bus Admin

Administrative Assistant
K Greet
R Richards

Memory Unit Secretary
K McKinna

Clinical Nurse Manager
KJ Webb RN BN

Comprehensive Epilepsy Program NP
S Horn NP MNSc

Stroke Nurse
L Dodd RN BN

Transient Ischaemic Attack (TIA) Nurse
P Toner RN BN

Clinical Research Trials
PCK Cheung RN
P Steventon RN
S Casey RN BN

Senior Medical Scientist for SRP
AG Milton BSc(Hons) Dip Comp Sci

Research Officers/Assistants
X Kaidonis
T Klaric

Grant-Funded Researchers
M Lewis

Postgraduate Students

Higher degree awarded
K Ellis BSc(Biomed Science) BPsych(Hons)
'Neurophysiology and electrophysiology of dental pulp stem cells'
PhD conferred by School of Medicine, University of Adelaide, 2013.

PhD candidates
FC Choy BSc(Hons)
'The regulation of Npas4, a neural-specific transcription factor'
M Djukic BHSc(Hons) GradCertBus(Acc)
'Proteomic and genomic investigations in transient ischaemic attack'
ES Leung MBBS BSc(Med) DCH FRACGP
'That a community-based approach to Transient Ischaemic Attack (TIA) care is effective'
J Winderlich BSc(Health Sci)(Hons)
'Investigations into the mechanisms of action of stem cell therapy for stroke'

Masters candidates
J Sutton MPhil (Med), MN, BComm, BBus (Int), CPA
'A Clinical and Economic Evaluation of TIA Care Management Models for Preventing Stroke'
W Pan BSc(Biomed Science)(Hons)
'Investigation of p75 Neurotrophin Receptor in Mouse Dental Pulp Stem Cells (mDPSC)' - International Scholarship

Honours Student
R Chew
'Investigation of DPSC from Aged Teeth' (1st class honours).

Completed Honours
A Humenick BSc(Biomed Science)
'Modelling Ischemic Stroke in vitro: The Induction and Neuroprotective Function of Neuronal PAS Domain Protein 4 (Npas4)' (1st class honours)

J Winderlich BSc(Health Science)
'Modulation of Blood Brain Barrier permeability by Dental Pulp Stem Cells: an in vitro approach' (1st class honours)

Summer Scholarships
R Chew (Medicine, yr 3)
L Dawes (Medicine yr 3, Flinders University)
J Gowland (BVetSc)
J J Li (Medicine yr 4)



OTOLARYNGOLOGY HEAD AND NECK SURGERY

DEPARTMENT OF OTOLARYNGOLOGY-HEAD AND NECK SURGERY>DEPARTMENT OF OTOL

Research Focus

Chronic Rhinosinusitis (CRS) is defined as an inflammation of the mucosal surfaces of the nose and paranasal sinuses for more than 12 weeks. Symptoms of persistent nasal obstruction, runny nose, post-nasal drip, alteration of smell, frontal headaches and facial pain become major contributing factors to poor quality of life in these patients. CRS affects as many as 1.8 million (9.2%) Australians and is one of the most frequently reported health conditions comparable to asthma. In the United States, 31 million Americans suffer from CRS, resulting in 18 to 22 million primary care visits and an estimated annual healthcare cost of \$3 to \$5 billion.

Despite extensive research into the bacteriological and immunological aspects of the disease, the etiopathogenesis of CRS remains poorly understood.

Research in the Department of Otolaryngology, Head and Neck Surgery (ENT) is focused on understanding the pathogenesis of CRS, using a multidisciplinary approach, aimed at identifying new diagnostic/prognostic markers and treatment strategies to the benefit of our patients. New compounds and treatment strategies are tested for safety and efficacy in our pre-clinical large animal model of sinusitis.

The ENT department is committed to excellence in ENT research and education. The research team currently consists of 2 Honours and 11 PhD students, supported by five scientists and clinical staff and is recognised internationally as one of the leading rhinological research institutions in the world. This is evidenced by the large number of scientific publications produced (22 publications in 2013), and by scientific prizes that were awarded to members of the department at national and international scientific meetings.

• Clinical and Translational Research of Chronic Rhinosinusitis

Pathophysiological aspects of chronic rhinosinusitis

Despite extensive research in the bacteriological and immunological aspects of CRS, the pathogenetic basis of CRS remains poorly understood. Several of our research projects are aimed at understanding molecular, cellular, microbiological and immunological aspects of CRS.

Dr Clare Cooksley is the department's expert in molecular microbiology and cell biology and has a supporting role in many projects. Her research focuses on the effect of bacterial products on the host immune system. She also studies mechanisms in which *S. aureus* invades the epithelial cells.

Dr E. Roscioli joined the group in April 2013. He is setting up different experimental protocols using primary nasal epithelial cells and his project involves the characterisation of zinc transporter and inflammasome proteins in CRS.

Dr H. Tran supports different projects by providing state-of-the-art protein localisation studies using immunohistochemistry and he explores inflammasome activation in CRS.

Dr Ahmed Bassiouni, PhD candidate, is focusing on understanding the role of eosinophilic inflammatory load, fibrosis and remodelling in patients with refractory chronic rhinosinusitis (rCRS) and failure of surgical and medical treatment. He is also involved in bio-informatics analysis of microbiome data.

Dr Edward Cleland, PhD candidate, is characterising the microbiome in different CRS patient populations, and is validating some of the findings in an *in vivo* model of rhinosinusitis.

Mr Zacki Malik, Honours student, studied the effect of *S. aureus* derived bacterial supernatants on the epithelial barrier function and mucociliary clearance.

The host immune response in Chronic Rhinosinusitis (CRS)

Ms Dijana Miljkovic is the department's expert in flow cytometry, used to characterise different immune cell populations in CRS patient tissue.

Dr Daniel Cantero, PhD candidate, studies the innate host immune response to *S. aureus* using a human nasal tissue explant model.



Mr Ahmed Al-Hussain, Honours student, has studied the effect of invasion of Human Nasal Epithelial cells by *S. aureus* on the host immune response.

Dr Judy Ou, PhD candidate, studies the role of Th2 cytokines in the development of CRS and explores the role of secondary lymphoid organ development in the disease process.

New treatment strategies for chronic rhinosinusitis

Treatment of CRS is aimed at controlling rather than curing the disease. However, despite optimal treatment measures, a significant subset of patients do not respond well and require multiple surgical interventions and repetitive antibiotic treatments, favouring the development of *Staphylococcus* strains resistant to all known antibiotics (MRSA). There is a need for the identification of further and improved therapeutic targets to treat this complex disease.

Dr Camille Jardeleza, PhD candidate, is testing the effect of liposome encapsulated Nitric Oxide (NO) against *S. aureus* biofilms *in vitro* and *in vivo*.

Ms Amanda Drilling, PhD candidate, is assessing the efficacy of a bacteriophage cocktail to eliminate *S. aureus* biofilm formation *in vitro* and *in vivo*.

Efficacy and safety study of a novel Chitosan gel in a neurosurgical sheep model and in abdominal surgery

Dr Sukanya Rajiv, PhD candidate, is studying the haemostatic and wound healing potential of a novel Chitosan gel in a neurosurgical sheep model and studies the acute and chronic inflammatory changes caused by the Chitosan gel in the above model.

Dr Thanh Ngoc Ha, PhD candidate, is in charge of a clinical study evaluating the effects of Chitosan gel on wound healing following Endoscopic Sinus Surgery.

Treatment of large vessel injuries as a complication of sinus surgery

Dr Vikram Padhye, PhD candidate, studies different treatment possibilities to arrest bleeding from large vessel injuries in a large animal model.

Collaborations

Local

Professor Andreas Evdokiou and Dr M DeNichilo (Breast Cancer Research Unit, University of Adelaide Discipline of Surgery): 'Role of leucocyte-derived factors on fibrosis development in CRS'.

Dr Peter Zalewski (University of Adelaide Discipline of Medicine): 'Role of zinc transporter proteins in CRS'.

Professor Guy Maddern and Dr Ehud Hauben (University of Adelaide Discipline of Surgery): 'Inflammasome activation in the gut'.

Professor G Maddern: NH&MRC project grant, 'In vivo evaluation of the safety and efficacy of a novel chitosan gel in the reduction of adhesions following abdominal surgery in both animal and human models'.

National

University of South Australia: Group of Professor Clive Prestidge and Associate Professor B Thierry (Department of Nanomedicine): (1) NH&MRC project grant, 'A novel nitric oxide-based treatment for recalcitrant *Staphylococcus aureus*-associated chronic rhinosinusitis', (2) 'Development of novel nanoparticles for use in the treatment and prevention of bacterial biofilms'.

Flinders University: Group of Professor J Mitchell and P Speck (Department of Microbiology): 'The use of a bacteriophage cocktail to treat bacterial biofilms'.

Special Phage Services, Sydney: 'The use of a bacteriophage cocktail to treat bacterial biofilms'.

International

Stanford University Medical School, USA: Professor P Hwang and Dr M Costa (Department of ENT): 'The use of a bacteriophage cocktail to treat bacterial biofilms'.

Gillies Hospital, Auckland, New Zealand: Dr R Douglas (Department of ENT): 'The use of a bacteriophage cocktail to treat bacterial biofilms'.

Otago University, Chemistry Department, New Zealand: Dr Steve Moratti, Professor Lyal Hanton, Professor Brian Robinson. 'Development of a novel chitosan based gel to prevent adhesion formation in the nose and sinuses, in the abdomen and in spinal surgery'. NHMRC project grant.



Staff

Professor of Otorhinolaryngology Head & Neck Surgery and Head of Department

PJ Wormald MD FRACS, FCS(SA) FRCS(Ed)

Senior Lecturer

G Rees MBBS FRACS

A Psaltis MBBS FRACS PhD

Staff Specialists

S Floreani MBBS FRACS

J Ling MBBS FRACS

S Rajapaksa MBBS FRACS

H Pant MBBS FRACS

D Close MBBS FRACS

K Ha MBBS FRACS

Rhinology Fellow

J Brunworth BA MD

ENT Registrar

R Valentine MBBS PhD

Chief Scientist, Otolaryngology Head & Neck Surgery

S Vreugde MD PhD

ENT Research Assistants

C Cooksley BSc PhD

D Miljkovic BSc

E Roscioli BSc PhD

H Tran BSc PhD

Clinical Nurse Operating Theatres

S Hughes RN

Secretary

L Martin

Postgraduate Students

Higher Degrees Awarded

N Tan MBBS BSc(Hons) MRCS DO-HNS

PhD conferred by School of Medicine, University of Adelaide 2013

'The role of intracellular Staphylococcus aureus in the pathophysiology of Chronic Rhinosinusitis'

PhD Candidates

J Micklen BBTech (Hons)

'Australian Aboriginal Head and Neck Cancer Patients: Health-related Quality of Life in South Australia and the Northern Territory'

Y Naidoo MBBS FRACS

'Outcomes in Frontal Sinus Surgery'

C Jardeleza MD

'Role of Nitric Oxide in the Pathophysiology of *Staphylococcus aureus* Biofilm Formation in Chronic Rhinosinusitis'

E Cleland MBBS

'The microbiome in CRS'

A Drilling BBiotec (Hons)

'Use of bacteriophage to treat *Staphylococcus aureus* sinusitis in a sheep model'

S Rajiv MBBS

'The efficacy of Chitosan gel on hemostasis in neurosurgical sheep model'

D Cantero MD

'The host Immune Response to *Staphylococcus aureus* biofilm in Chronic Rhinosinusitis'

T Ha MBBS

'The effects of Chitosan gel on wound healing following Endoscopic Sinus Surgery and Modified Endoscopic Lothrop Procedure'

A Bassiouni MBBCr

'Understanding the role of eosinophilic inflammatory load, fibrosis and remodelling in patients with refractory chronic rhinosinusitis (rCRS) and failure of surgical and medical treatment'

Continuing PhD Candidates

V Padhye MBBS

'Early and late complications of endoscopic haemostatic techniques following different carotid artery injury characteristics'

J Ou MBBS

'Innate lymphoid cells and cytokines in CRS'

Honours students

A Al-Hussain (BSc)

'Mechanisms of *Staphylococcus aureus* persistence within the paranasal sinus mucosa: a tale of immune evasion and encapsulation'

Z Malik

'*S. aureus* bacterial products disrupt airway epithelial barrier function'

Awards

N Tan

University of Adelaide Dean of Graduate Studies

Commendation for PhD thesis excellence

Z Malik

Best oral presentation, Honours student category, TQEH Research Day, BHI October 2013

V Padhye

Best oral presentation, Junior PhD students, Basic Research category, TQEH Research Day, BHI October 2013

A Drilling

Best oral presentation for senior PhD students, Basic Research category, TQEH Research Day, BHI October 2013

E Cleland

American Rhinologic Society Vancouver CA, Maurice Cottle

Award Best Scientific Presentation October 2013

Grants

NHMRC. (Project grant I050883) '*In vivo* evaluation of the safety and efficacy of a novel chitosan gel in the reduction of adhesions following abdominal surgery in both animal and human models'. (\$171,659 2013) 2013-15, Wormald PJ, Maddern G, Robinson S.

NHMRC. (Project grant I047576) 'A novel nitric oxide-based treatment for recalcitrant *Staphylococcus aureus*-associated chronic rhinosinusitis'. (\$174,319 2013) 2013-15, Wormald PJ, Prestidge C, Thierry B, Vreugde S.

Garnett Passe and Rodney Williams Memorial Foundation.

(Project grant). 'The clinical significance of intracellular *Staphylococcus aureus* in CRS'. (\$75,000 2013) 2013-2016.

Wormald PJ, Vreugde S.

Garnett Passe and Rodney Williams Memorial Foundation.

(Research Scholarship). 'Unravelling the role of type 2 innate lymphoid cells and their activating cytokines IL25, IL33 and TSLP in chronic rhinosinusitis'. (\$28,416 2013) 2013-2015, Ou J, Wormald PJ.

Garnett Passe and Rodney Williams Memorial Foundation.

Research Scientist Fellowship. 'Treatment and prevention of injuries to large arterial vessels in the ENT surgical setting'. (\$75,000 2013) 2013-15, Padhye V, Wormald PJ.

PSYCHIATRY

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Research Focus

In 2013 under the guidance of Professor Bernhard Baune, The Queen Elizabeth, Lyell McEwin and Royal Adelaide Hospital divisions of the University of Adelaide, Discipline of Psychiatry have integrated their research programs.

- Longitudinal studies of cognitive function and general function in mood and psychotic disorders
- Biomarkers of outcome in mood and psychotic disorders
- Pharmacogenomics of lithium
- Mental illness outcome trajectories
- Epidemiology of treatment resistant psychosis and management with clozapine
- Impact of psychiatric illness on physical health

Our group's aim is to enhance the understanding of the etiology and pathophysiology of psychiatric disorders, and to strengthen the emerging knowledge and clinical application on the regenerative capacity of the human mind and brain for severe psychiatric disorders. Our research program is spread from basic to clinical science investigates the structures, systems, and functions of the biological, cognitive, emotional, behavioural, and environmental mediators of psychiatric disorders and their potential for clinical intervention, improvement and recovery.

In line with the discipline's aims, research at The Queen Elizabeth Hospital focuses on large longitudinal cohort studies of cognitive and general function and outcome in mood and psychotic disorders, with participants drawn both from the clinical service and the general public. These studies collect data on standardized diagnosis, psychopathology, illness course, treatment response, cognitive and general function, specific blood biological markers (DNA, RNA, protein) and outcomes. Currently the Cognitive Function and Mood Disorders Study (CoFAMS) has recruited 170 participants across Adelaide. A subset of this study the Lifetime Lithium Response Study, has assessed 70 participants across Adelaide. In collaboration with the international CONLIGEN group this sample has been included in a genome wide association study of lithium response. A similar study in a sample of patients with psychotic illness, the Cognitive And Functioning in Psychosis Staging Study (CoFAPSS), will commence in 2014.

A secondary area of focus is the extraction and prediction of specific disease trajectories from these samples, and from health service level data.



Staff

Clinical Academic

SR Clark MBBS FRANZCP PhD BSc (Hons)

Postgraduate Students

PhD candidates

JC Chadbourne BSc(Hons)

'The relationship between neurocognitive performance and general function in Major Depressive Disorder'

R Dhillon MBBS FRANZCP

'Impact of psychiatric comorbidity on outcome in physical illness'

Administration

D Alberton

New Grant commencing in 2014

NHMRC. (Project grant) 'Defining the Role of Inflammation in Depression during Aging'. (\$714,000 2014-2017) Baune B.

Collaborations

University of Melbourne: Pat McGorry, Chris Pantelis, Ian Everall

Florey Institute: Anthony Hannan, Gursharan Chana

University of New South Wales: Perminder Sachdev, Julian Trollor

University of Sydney: Ian Hickie, Maria Fiatarone Singh

Menzies Research Institute, Immunology Lab: Heinrich Koerner

SAHMRI / Flinders University: Ma-Li Wong / Julio Licinio

University of Groningen: Bram Prins

University of Manchester: Chris Murgatroyd

University of Marburg: Udo Dannlowski

University of Würzburg: Katharina Domschke

University of Münster: Klaus Berger, Volker Arolt

ConLigen - Consortium on the genetics of treatment response to Lithium in bipolar disorder

Psychiatric Genetics Consortium - Major Depressive Disorder

BrainInflame – Consortium on Brain Inflammation in Aging

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT > RESPIRATORY MEDICINE UNIT

Research Focus

The research focus of the Respiratory Medicine and Clinical Practice Units is to conduct evidence based medicine evaluations with the primary aim of research translation. With an emphasis on best-practice clinical care for COPD, asthma, bronchiectasis, pneumothorax, sleep apnoea, tobacco-related illnesses and Indigenous respiratory health. The research being done by these units directly impact the clinical care received by patients attending public hospitals in South Australia and internationally.

A number of registrars, advanced trainees, research officers, medical students and Consultants have undergone training workshops for The Cochrane Collaboration to undertake systematic reviews in specialised areas of Respiratory Medicine. Twenty four reviews are being conducted under the supervision of Professor Brian Smith with collaborations in the UK, Ireland, Netherlands and Iran.

Through the methodological tailoring of a Cochrane meta-analysis titled 'Asthma self-management education with regular healthcare professional review or written action plans or both for adults', completed in collaboration the UK based Cochrane Airways group. We contributed to the development of indicators for the National Institute for Health and Clinical Excellence (NICE) quality and outcomes framework for asthma clinical care in the UK. This same analysis was also used to inform Quality Outcome Measures for paediatric asthma action plans for the non-profit Primary Care Medical Home Group in the USA. Evidence from our review resulted in an upgrade of asthma action plans from best practice to an 'Official quality measure'.

- Evidence based medicine research (Cochrane meta-analyses)
- Innovative forms of portable oxygen delivery (POC study)
- Pharmacotherapy for anxiety and depression in patients with Chronic Obstructive Pulmonary Disease (PAC study)
- Best Practice/medication/counselling combination intervention for inpatient smoking cessation (STOP study)
- Nicotine receptor up-regulation with transdermal nicotine patches (NRT study)
- Aboriginal health research
- Clinical evaluation of new techniques to assess gas exchange in the Hypoxic Altitude Simulation Test
- Evidence based management of spontaneous pneumothorax
- Nurse-led evidence based management evaluations for the treatment of bronchiectasis and COPD
- Mandatory reporting of sleep apnoea

An evaluation comparing portable oxygen concentrators and regular oxygen cylinders across five Adelaide hospitals using a randomised, controlled cross-over design is nearing completion, to determine the efficacy and effectiveness of oxygen delivery for patients with COPD. Four abstracts based on this work have been submitted for presentation at the Thoracic Society of Australia and New Zealand conference in 2014.

A multi-centre randomised controlled trial (RCT) across five Adelaide hospitals is underway to investigate the role of paroxetine for the treatment of anxiety, and/or depression in patients with COPD (PAC study). A total of n=100 subjects are required for the study with a follow-up of 12-months. This trial aims to determine the efficacy and safety of paroxetine for: anxiety and depression, quality of life, exercise capacity, respiratory function, and hospital utilisation and cost effectiveness of the intervention.

An evaluation of the randomised controlled STOP smoking trial comparing the latest smoking-cessation mediation (varenicline tartrate) to best practice counselling is now complete, with significant results. Professor Brian Smith was interviewed for Channel 9 News in September about the clinical impact of these results on the public health system and patient care.



In 2013 we completed a pilot evaluation of nicotine receptor up-regulation activity through metabolic induction, changes in responsiveness and surrogate evaluation methods (NRT study). This work has received media coverage by Channel 7 News and numerous radio interviews. Primary analysis is underway with publication expected in 2014.

A number of projects including qualitative focus groups and one-on-one interviews are underway with the aim of improving the health of Aboriginal Australians. These studies, developed in collaboration with Aboriginal Elders, researchers, policy-makers, healthcare workers and key community-stakeholders, are designed to provide information from the 'grass-roots' level to identify the barriers and enablers in current practice and highlight evidence gaps. Areas of particular interest include: smoking cessation pharmacotherapies, tobacco prevention initiatives for youth, Doctor and healthcare visits and research conducted with Aboriginal participants. To date this work has resulted in wide-spread media coverage including an article in The Australian and NT News, over a dozen radio interviews broadcast across Australia and over 20 online media news articles.

A comparison of Arterial Blood Sampling (ABG) and transcutaneous monitoring used to measure arterial oxygen and carbon dioxide tensions is underway to assess gas exchange during the Hypoxic Altitude Simulation Test (HAST). This study led by principal scientist Dr Mark Jurisevic has the potential to validate a non-invasive alternative to ABG sampling for clinical HAST studies.

Currently, treatment options for spontaneous pneumothorax (SP) vary depending on classification, presence of symptoms and severity of respiratory distress. However, despite the availability of evidence based clinical guidelines, the management of patients with SP remains largely varied across hospitals, with low compliance to published guidelines. For these reasons we are undertaking a retrospective analysis of patients presenting with SP across multiple Adelaide hospitals over a five year period to: evaluate the effectiveness of treatment options, compare existing practice across hospitals and to existing BTS (British Thoracic Society) guidelines and to examine the clinical outcomes and cost-effectiveness of each intervention.

Respiratory nurses Karen Royals and Kathy Lawton are conducting two retrospective evaluations comparing hospital records to published best-practice guidelines for the nurse-led management of bronchiectasis and COPD. A Cochrane review of Nurse Specialist care for bronchiectasis is also nearing completion.

Senior sleep technician Nathan Elgar is continuing to conduct an evaluation of SA's mandatory reporting legislation which requires doctors to report patients potentially unsafe to drive. This has involved surveys of the general population, a clinical patient population and most recently of doctors and their interpretation of and compliance with the legislation.

The Respiratory Research Unit continues to evaluate a range of new medications for COPD, Asthma, IPF and Bronchiectasis led by Dr Antony Veale and Dr Zafar Usmani

Awards

M Brinn

TSANZ Tobacco Control Prize for best oral presentation

K Carson

Young Professionals Group Development Grant Award for 'Leaders in Lung Health and Respiratory Services'

K Carson

South Australian Young Investigator Award semi-finalist

K Carson

Catherine Helen Spence Memorial Scholarship finalist

K Carson

SA and NT TSANZ Young Investigator Award finalist

Staff

Director (Professor)

BJ Smith FRACP Dip Clin Epi PhD

Senior Consultants

I Nikitins FRACP
A Veale PhD FRACP
J Polasek FRACP
Z Usmani FRACP
A Roy FRACP
S Lehmann FRACP
D Grosser FRACP

Advanced Trainees

J Cheng
K Ramsay

Principal Medical Scientist

M Jurisevic PhD

Pulmonary Function Laboratory

D Keatley BSc (Biomed) (Hons)
M Storey BSc
X H Liu BSc
P Kid BSc

Clinical Trials Unit Coordinator

K Boath Mgt Cert Adv Cert BHLthSc

Research Nurse

P Gluyas RN RM CC Cert

Sleep Laboratory

T Faulkner BPsych (Hons)
V Coe BSc
N Elgar BSc (Hons) BTh
M Shaw BSc
E Besley BSc
D Hooper BSc
A Teare BSc
M Bradford BSc
T Jones (Admin)

Respiratory Nurses

L Kotal RN RM CC Cert Post Grad Dip Health Counselling
K Lawton BAN
K Royals RN
M Peskett RN

Unit Pharmacist

T Jones B Pharm Dip Ed PhD

Secretarial

C Gilbert
M Ashley
C Deegan
R McCawley

Clinical Practice Unit researchers

K Carson Cert III Lab Skills; Dip Lab Med
M Brinn BHLth Sc (Life Sc) Flinders BHLth Sc (Anat Hons) Adelaide

Post-graduate Students

PhD Candidates

K Carson Cert III Lab Skills; Dip Lab Med
'Tobacco cessation and prevention for Indigenous populations'

Z Usmani MBBS, FRACP

'Treatment of anxiety in patients with chronic obstructive pulmonary disease'

Clinical Trials

Dr Antony Veale & Dr Zafar Usmani

2013 Total revenue: \$143,424

Boehringer Ingelheim: 'Roll over study for those subjects participating in the Idiopathic Pulmonary Fibrosis study designed to evaluate efficacy of a new medication to prevent scarring of lungs and disease progression in subjects with Idiopathic Pulmonary Fibrosis'. Revenue: \$4,202; Status: Ongoing

Boehringer Ingelheim: 'Study designed to assess the efficacy of Tiotropium combined with a new 24 hour reliever medication delivered via the Respimat™ Inhaler in subjects with COPD'. Revenue: \$59,199; Status: Complete

Intermune Inc: Roll 'Over Study where patients receive open label Pirfenidone after completing the double blind study above'. Revenue: \$16,775; Status: Ongoing

Chiltern International: 'Randomised study to evaluate the safety, tolerability & efficacy of KB003, a monoclonal antibody, in subjects with asthma inadequately controlled by corticosteroids'. Revenue: \$2,970; Status: Complete

Medimmune: 'A randomised IPF study to evaluate the efficacy of Tralokinumab in adults with Idiopathic Pulmonary Fibrosis'. Revenue: \$18,959; Status: Ongoing

Novartis: 'Randomised 12 week study to evaluate the efficacy and safety of QMF149 compared with Seretide in patients with COPD'. Revenue: \$28,329; Status: Complete

Bayer: 'Randomised study comparing inhaled ciprofloxacin administered 14 days on/14 days off versus 28 days on /28 days off versus placebo to evaluate time to first pulmonary exacerbation in subjects with non-cystic fibrosis bronchiectasis'. Revenue: \$20,000; Status: Ongoing



Grants

NHMRC. (Centre for Research Excellence) Australasian Satellite of the Cochrane Airways Group (\$69,000 2013). Walters J, Walters H, Holland A, Yang I, Gibson P, Smith BJ.

Australian and New Zealand School of Government. Interventions for smoking cessation and prevention in Indigenous populations. (\$10,000 2013) 2013-2014, Carson KV, Peters M, Esterman AJ, Veale A, Smith BJ.

Collaborations

National

NRT study; Therapeutics Research Group TQEH, Department of Medicine, The University of Adelaide

ACAGN (Australian Cochrane Airways Group Network), University of Tasmania, University of Newcastle, Menzies Institute, The University of Queensland, La Trobe University, Monash University

STOP study: Royal Adelaide Hospital, Lyell McEwin Hospital, The University of Adelaide, The University of South Australia, The Cancer Council of South Australia, Flinders University, University of Sydney, University of Melbourne

Indigenous Respiratory health: The Thoracic Society of Australia and New Zealand, Concord Hospital, The University of Sydney, The University of Adelaide, The University of South Australia; Community participants from Adelaide and Murray Bridge

Indigenous tobacco cessation: James Cook University, The University of Adelaide, The University of South Australia; Community participants from Adelaide and Murray Bridge

Asthma self-management education: Repatriation General Hospital, University of Tasmania, The University of Adelaide, The University of South Australia

Lung volume reduction surgery for diffuse emphysema: John Hunter Hospital, The University of Newcastle, Repatriation General Hospital, The University of Adelaide, The University of South Australia

Consumer guidelines for chronic disease management: The University of Adelaide, The University of South Australia, Concord Hospital, The University of Sydney, University of Tasmania

International

Community and mass media interventions to prevent smoking in youth: Tehran University, Iran; Menzies Institute, University of Adelaide, The University of South Australia

Community pharmacy interventions for smoking cessation: The University of Aberdeen, UK; The University of South Australia, The University of Adelaide, Oxford University, UK

CPAP for obstructive sleep apnoea: St George's Hospital, UK; The Cochrane Collaboration, UK; York District Hospital, UK; Bradford Royal Infirmary, UK; The University of Adelaide, The University of South Australia

Non-invasive ventilation for COPD and asthma: Monash University, University of Southampton, UK; St James University Hospital, Leeds, UK; Royal Free and University College Medical School, London, UK

Nurse specialist care for bronchiectasis: University of Sheffield, Sheffield, UK; The University of Adelaide, The University of South Australia

Physical Training for asthma: University of Southampton, UK; The University of Adelaide, The University of South Australia

Prolonged antibiotics for purulent bronchiectasis: Hemel Hempstead Hospital, Hemel Hempstead, UK; Castle Hill Hospital, Cottingham, UK, Flinders Medical Centre, The University of Adelaide, The University of South Australia

Psychological interventions for the treatment of anxiety in COPD: Newcastle upon Tyne NHS Hospitals Foundation Trust, Newcastle upon Tyne, UK; Newcastle University, Newcastle, UK; The University of Adelaide, The University of South Australia

Simple aspiration versus intercostal tube drainage in primary pneumothorax: Royal College of Surgeons in Ireland, Dublin, Ireland; Our Lady's Children's Hospital Crumlin, Dublin, Ireland; Cork University Hospital, Cork, Ireland, The University of Adelaide, The University of South Australia

Training health professionals in smoking cessation: Leiden University Medical Centre, Leiden, Netherlands; Radbound University Nijmegen Medical Centre, Nijmegen, Netherlands; The University of Adelaide, The University of South Australia

RHEUMATOLOGY UNIT

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Research Focus

The Rheumatology Unit strives to augment its clinical rheumatology services with research programs into the causation and complications of rheumatic diseases, and evaluation of new generations of pharmaceutical agents for the treatment of arthritis. These rheumatic diseases include rheumatoid arthritis, osteoarthritis, psoriatic arthritis, ankylosing spondylitis, gout, Sjögren's syndrome, giant cell arteritis, and fibromyalgia.

Rheumatological diseases affect a large sector of the population and lead to chronic pain, disability, reduced quality of life, and in many cases, shortened life span. The monetary costs are huge with respect to lost earnings, as well as direct health care costs. Rheumatology research at The Queen Elizabeth Hospital is classic "bench to bedside" – translating the latest findings in therapeutics to patients in need of effective treatments, and also "beside to bench" – where symptoms initially reported in well-characterised groups of patients at TQEH have been studied through large surveys, as well as via molecular studies, resulting in international publications advancing the understanding of these diseases and their previously unrecognised complications.

- Autoimmunity
- Epidemiology of musculoskeletal disorders
- Evidence based medicine
- Immunogenetics
- Inflammation
- Osteoarthritis
- Giant Cell Arteritis
- Fibromyalgia
- Pain
- Therapeutics

Research Highlights

The Rheumatology Department had 38 peer reviewed publications in the period between December 2012 and December 2013. Research highlights include:

- Associate Professor Catherine Hill was a co-author on two important papers on the global burden of disease, published in the *Lancet* (impact factor 38.278) in late December 2012 (*Lancet* 380(9859): 2163-96, 2012 and 380(9859): 2197-223, 2012). These two papers utilised data from the North West Adelaide Health study, for which Associate Professor Hill is a Chief Investigator, and identified musculoskeletal disorders, along with diabetes and mental health, as important health priorities for the future.
- Dr Maureen Rischmueller was co-investigator on a clinical trial, also published in the *Lancet* (impact factor 38.278), which demonstrated safety and efficacy of ustekinumab (anti-interleukin 12 and anti-interleukin 23) for psoriatic arthritis (*Lancet* 382(9894): 780-9, 2013).
- Dr Samuel Whittle was invited to submit a manuscript to *JAMA* (impact factor 30.026) on the management of pain in inflammatory arthritis, which was published in February (309(5):485-6, 2013). This invitation was the result of Dr Whittle's important work developing guidelines for pain management for the 3e (Evidence, Expertise, Exchange) Initiative, which is a multinational collaboration aimed at promoting evidence-based practice in rheumatology by developing practical recommendations that address important clinical problems.



iv. Dr Maureen Rischmueller and Sue Lester were co-authors on the first genome wide association study for Sjögren's syndrome, which was published in *Nature Genetics* (impact factor 35.532) in November (45(11):1284-92, 2013). This study was part of a large on-going international collaborative effort, led by Dr Kathy Sivils from the Oklahoma Medical Research Foundation. Some of the key findings of the study highlight the importance of the type I interferon pathway in the pathogenesis of Sjögren's syndrome, and identify potential risk factors for the development of lymphoma in these patients. Future comparative studies of the similarities and differences in the genetic component between Sjögren's and other systemic autoimmune diseases, such as systemic lupus erythematosus, rheumatoid arthritis and scleroderma, will be illuminating.

v. Dr Maureen Rischmueller is a Chief Investigator for the Australasian Genomics Recruitment Initiative (AGRIA), which is an Australian-New Zealand collaboration of rheumatologists and geneticists to recruit sufficient patients for genome wide association studies for giant cell arteritis, gout and ankylosing spondylitis. AGRIA was successful in an NHMRC application (to commence in 2014, and with Associate Professor Hill as a Chief Investigator) for a genome wide study of giant cell arteritis, and the first major study from the AGRIA collaboration.

vi. Emma Dunstan, who obtained first class Honours in 2012 with the first Australian study of the epidemiology and genetics of giant cell arteritis, has published three first author papers in 2013 from her Honours thesis, which is an outstanding achievement. Some of her work was also presented at the national Australian Rheumatology Association annual scientific meeting in Perth in May, 2013.

vii. While The Hospital Research Foundation funding for the Centre of Inflammatory Diseases Research (CIDR) finished two years ago, four papers resulting from this programme grant were published this year, either from work directly arising from CIDR projects, or from collaborations formed during that time. Overall, there are now a total of six publications from the CIDR collaboration.

Clinical Trials

Dr Rischmueller leads one of the three largest rheumatology clinical trial units in Australia, and is a principal investigator on clinical trials for patients with a wide range of rheumatological diseases, including rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, gout and scleroderma. This has resulted in two high impact publications in 2013, one in *Arthritis and Rheumatism*, a leading Rheumatology journal, and the *Lancet*.

Associate Professor Hill is currently co-investigator on two NHMRC funded trials for the treatment of knee osteoarthritis.

New Collaborations

Dr Rischmueller has formed a new collaboration with Dr Fabien Vincent and Professor Fabienne Mackay (Immunology department, B lymphocyte, BAFF and Autoimmunity Laboratory, Alfred Medical Research and Education Precinct) and Professor Eric Morand (Head of the Lupus Clinic at Southern Health/Monash Medical centre) to investigate, and compare, the role of TACI variants in Sjögren's syndrome and systemic lupus erythematosus phenotypes, B cell subsets and type I interferon expression in plasmacytoid dendritic cells.



Staff

Director/Senior Lecturer

M Rischmueller MBBS FRACP

Staff Consultant Rheumatologists

C Hill MBBS MSc (Epi) FRACP

S Whittle MBBS MClinEpi FRACP

S Burnet MBBS FRACP

Dr Fin Cai MBBS FRACP

Registrar

K Ting

Rheumatology Research Administration Coordinator

S Downie-Doyle BSc(Hons) PhD

Chief Medical Scientist

S Lester BSc(Hons)

Clinical Trials

A Batty — Rheumatology Outpatient Nurse

L Wedding — Rheumatology Infusion Nurse

P Rogers — Rheumatology Clinical Trials Nurse

S White — Rheumatology Clinical Trials Nurse

J Marrett — Clinical Trial Assistant

M Bubicich — Clinical Trial Assistant

Research Assistant

E Dunstan

Secretary

M Devine

Acknowledgements

The Rheumatology Department acknowledges The Hospital Research Foundation for past (Centre for Inflammatory Diseases Research) and current (The Health Observatory) funding, which is continuing to bear fruit in relation to both collaborations and publications.

We also wish to acknowledge the patients who have willingly contributed their time, and samples, to our clinical research projects.

Grants

The Hospital Research Foundation Strategic Initiatives Funding (Program Grant). The Health Observatory. (\$250,000 2013) 2009-2013 Adams RJ, Wilson DW, Hill CL, Visvanathan R, Ruffin RE, Wittert G

Arthritis Australia Project Grant. Extraction of DNA from GCA patient biopsies. (\$25,000 2013). Brown MA, Merriman T, Rischmueller M, Hewitt A, Harrison A, Hill C.

NHMRC. (Project Grant #104858) I. 'Does statin use have a disease modifying effect in symptomatic knee osteoarthritis? A multicentre randomised, double-blind, placebo-controlled trial'. (\$323,670 2013) 2013-2015, Wang Y, Cicuttini F, Tonkin A, Hill D, Ding C.

NHMRC. (Project Grant #1045415) A randomised trial of zoledronic acid for osteoarthritis of the knee. (\$318,199 2013) 2013-2015, Jones G, Cicuttini F, March L, Hill C, Dore D.

New grants commencing 2014

NHMRC (Project Grant #1068023). Dissecting the great ophthalmic masquerade: The Global Giant Cell Arteritis Genomics Consortium. (\$569,927 2014-2016) Hewitt A, Hill CL, Evans D, Merriman T, Morgan A, Smith K, McKelvie P, Martin J.



Research Focus

2013 has seen ongoing outstanding results within the Discipline of Surgery at The Queen Elizabeth Hospital. All groups have continued to publish extensively in journals with high impact factors with their relevant specialties. There continues to be a growing demand for higher degree students within the Discipline as many now perceive a strong research background as an important part of their surgical career.

- Early breast cancer
- Metastatic breast disease
- Functional sinus disease
- Liver function in surgical disease
- Audit of surgical mortality in Australia
- Endovascular surgery
- Outcome predictors
- Surgical simulation

Funding all of this activity continues to be a major challenge, however at present the Discipline has nine NHMRC grants. This, of course, attests to the high quality work being conducted, however it is a difficult position to maintain and requires not only high quality research but a substantial amount of time and effort to maintain this position. Indeed, the Discipline of Surgery represents one of the most successful research surgical departments in the country, a position it is fiercely proud of and will need to work hard to maintain.

Staff

RP Jepson Professor of Surgery
Head, Discipline of Surgery
Director, Division of Surgery
Director of Research, Basil Hetzel Research Institute for Translational Health Research
GJ Maddern MBBS PhD MS MD FRACS

Professor of Vascular Surgery
R Fitridge MBBS MS FRACS

Professor of Colorectal Surgery
P Hewett MBBS FRACS

Associate Professor
N Rieger MBBS MS FRACS

Senior Lecturer
M Bruening MBBS MS FRACS
J Miller MBBS FRACS
M Goggin MB BCH BAO DO FRCSI (Ophth) FRCOphth FRANZCO MS
D Rodda MBBS FRACS
M Trochsler MD FMH MMIS FRACS
D Walsh MBBS FRACS

Staff Specialist
A Anthony MBBS FRACS
S Ganesh MBBS FRACS
M Hamilton MBChB FRACS
I Harvey BMBS FRACS
P Hewett MBBS FRACS
H Kanhere MBBS FRACS
G Kiroff MBBS FRACS
C Lai MBBS FRACS
D Spernat MBBS FRACS
P Subramaniam MBBS FRACS
D Tonkin MBBS FRACS
D Walters MBBS FRACS
N Wright MBBCh FRSAFRACS(Vasc)

Visiting Specialists
G Benveniste MBBS FRACS
J Black MBBS FRANZCO
F Bridgewater MBBS FRCS FRACS
B Carney MBBS FRACS
D Close MBBS FRACS
P Cooper MBBS FRANZCO
S Durkin BMBS FRANZCO
D Economos MBBS FRANZCO
R Fleming MBBS FRANZCO
N Gehling BMBS FRACO
J Gilhotra MBBS FRANZCO
R Harries BMBS FRACS
I Harvey BMBS FRACS
A Karatassas MBBS FRACS
M Lodge MBBS FRACS
D Lance BM FRACS
B Landers MBBS FRACS
M Lloyd MBBS FRACS
A Lord MBBS FRACS
K Moretti MBBS FRACS
R Parkyn MBBS FRACS
I Patterson MBBS FRACS
S Phipps MBBS FRANZCO
A Porter MBBS FRACS

Clinical Title Holders
S Ali Clinical Lecturer
A Anthony Clinical Lecturer
W Babidge Affiliate Assoc/Professor
F Bridgewater Clinical Assoc/Professor
J Black Clinical Lecturer
P Byrne Clinical Lecturer
B Carney Clinical Lecturer
S Chong Clinical Senior Lecturer
D Close Clinical Lecturer
P Cowled Affiliate Senior Lecturer
A Cowin Affiliate Assoc/Professor
P Cooper Clinical Lecturer
P Drew Visiting Research Fellow
D Economos Clinical Lecturer
R Fleming Clinical Lecturer
H Forbes Clinical Lecturer
N Gehling Clinical Lecturer
K Gibb Clinical Senior Lecturer
JS Gilhotra Clinical Associate Professor
M Hamilton Clinical Senior Lecturer
I Hensman Clinical Senior Lecturer
P Hewett Clinical Professor
V Humeniuk Clinical Lecturer
H Kanhere Clinical Senior Lecturer
A Karatassas Clinical Lecturer
C Lai Clinical Senior Lecturer
CM Lee Clinical Senior Lecturer
M Lloyd Clinical Lecturer
A Luck Clinical Senior Lecturer
B McCusker Clinical Lecturer
R McGovern Clinical Lecturer

K Moretti Clinical Lecturer
J Muecke Clinical Lecturer
P Nandoskar Associate Lecturer
S Neuhaus Clinical Assoc/Professor
S Olakkengil Clinical Senior Lecturer
R Parkyn Clinical Assoc/Professor
M Patkin Clinical Lecturer
C Pinnock Affiliate Senior Lecturer
R Phillips Clinical Lecturer
S Phipps Clinical Lecturer
C Pozza Clinical Lecturer
T Proudman Clinical Senior Lecturer
M Rao Clinical Assoc/Professor
S Raptis Clinical Senior Lecturer
T Rayner Affiliate Lecturer
D Roach Clinical Senior Lecturer
WEW Roediger Clinical Associate Professor
C Russell Clinical Associate Lecturer
C-KL Shaw Clinical Senior Lecturer
D Spernat Clinical Senior Lecturer
R Strickland Clinical Lecturer
P Stuart Clinical Lecturer
P Sutherland Clinical Senior Lecturer
LW Tan Affiliate Senior Lecturer
MTie Clinical Lecturer
D Walters Clinical Senior Lecturer
M Wichmann Clinical Associate Professor
J Young Affiliate Associate Professor

RP Jepson Research Fellow
P Cowled PhD

Senior Research Officer
E Smith PhD

Research Officer
G Pena MD

Technical Officers
B Hutchens
M Slawinski
M Smith

Senior Project Coordinator
E Hauben PhD

Project Coordinators
S Lauder BA(Hons)
L Leonardos BSc(Hons)
L Leopardi BSc BEng(Biomedical))(Hons)
J Mees MD
P Vanderzon BSc

Clinical Trials Coordinators
S Page BMedSc(Hons)
B Sivendra BMedRad(NucMed)
A Horner BHthSc(Hons)

Colorectal Research Coordinator

J Stephens BSc(Hons) MPH

Photographers (Ophthalmology)

A Drew

P Anderson

VIROLOGY GROUP

NHMRC Senior Research Fellow

Professor E Gowans PhD

Senior Research Officer

B Grubor-Bauk BSc(Hons) PhD

Research Officer

J Li BSc(Hons) PhD (from May 2013)

W Yu BSc(Hons) PhD

BREAST CANCER RESEARCH GROUP

Michell-McGrath Breast Cancer Fellow

Professor A Evdokiou BSc(Hons) PhD

Research Associate

M De Nichilo PhD

I Zininos PhD

V Liapis BSc

V Panagopoulos BSc (part time)

G Kaur BSc(Hons) MSc (part time)

Research Assistant

S Hay BSc

BREAST BIOLOGY AND CANCER GROUP

The Hospital Research Foundation

Associate Professor in Breast Cancer Research Fellow

National Breast Cancer Foundation Research Fellow, and Research Program Leader, Mammary Gland Biology

Associate Professor W Ingman PhD

Senior Research Officer

D Glynn PhD

The Hospital Research Foundation Postdoctoral Fellow

P Dasari PhD

Research Assistant

L Hodson BSc(Hons)

Research Nurse

K Mildren RN

NHMRC EVAR Trial

Project Manager

M Boulton BSc(Hons) GradDipIM

Project Coordinator/Database Manager

T DeLorin MA(Psych)

Postgraduate Students

Completed Theses

T Gargett BSc(Hons)

‘Optimising DNA vaccine technology to prevent HIV-1 infection’ PhD 2013

J Smith PhD

‘The litigation threat to surgical practice: Legal reform and risk management’ PhD 2013

N Ruzehaji BSc(Hons) BAppSc(Podiatry)

‘The role of Flii in the pathology of diabetic wounds’ PhD 2013

PhD candidates

J Smith PhD

‘Surgery, ethics and climate change’

V Panagopoulos BSc

‘A novel role for peroxidases in breast cancer development progression and metastasis’

A Zysk BSc(Hons)

‘Targeting bone metastases using adoptive therapy of gamma delta T-cells’

K Tomusange BSc, MSc

‘Evaluation of recombinant human rhinoviruses as a vaccine strategy for HIV’

T Matthews BHthSc(Hons)

‘The clinical analysis of liver function: can portosystematic shunts be measured?’

J Gummow BSc(Hons)

‘DNA vaccine targeting and immunomodulation’

S Noordin BSc(Biotechnol) BHthSc(Hons)

‘The role of Clq in mammary gland development and breast cancer susceptibility’

S Sun BSc(BiomedSc) BHthSc(Hons)

‘TGFB-regulated macrophages in mammary gland development and tumorigenesis’

H Palethorpe B Med Pharm Sci (Hons), B Lab Med, Dip Biomed Sci

‘The regulation of tumour cell behaviour by cancer associated fibroblasts’

Master of Surgery candidates

D Robinson MBBS

‘Outcome modelling in vascular surgery’

A Cameron MBBS BMedSci

‘The role of Flightless in excessive scarring and its potential as a target for a novel therapy’

T Garrod BSc(Hons)

‘The use of natural adjuvants to enhance prophylactic vaccines’

M Wee MBBS

‘The relation of peri-oesophageal fat to adenocarcinoma of the oesophagus’

Postgraduate Scholarships

RACS Foundation for Surgery Scholarship in Surgical Ethics (\$45,000 2013) Smith J.

The Hospital Research Foundation/University of Adelaide Faculty of Health Sciences (\$22,860 2013) Matthews T.

University of Adelaide Discipline of Surgery Postgraduate Research Scholarship (\$11,430 2013) Matthews T.

RACS Foundation for Surgery John Loewenthal Research Scholarship (\$38,078 2012) Cameron A.

Faculty of Health Sciences Divisional Scholarship. (\$24,653 2013) Palethorpe H.

Vacation Students 2012-13

S Moraitis

‘Large scale ex-vivo expansion of Human cytotoxic γδT cells for immunotherapeutic strategies against cancer in bone’ Supervisor A Evdokiou

Y Puan

‘Surgical skills for specialist training position’

Supervisor G Maddern

Vacation Students 2013-14

V Lee

‘The role of fibroblasts in mammographic density and their association with increased risk of breast cancer’ Supervisor W Ingman

I Salna

‘Ex vivo reperfusion of liver; kidneys and spleen prior to transplantation: a systematic review of the literature’ Supervisors G Maddern, M Trochsler

Commercialisation

Gowans EJ. Cellular vaccine and method of inducing an immune response in a subject. PCT/AU2013/000509. Held by Adelaide Research and Innovation.

Grants

NHMRC NBCC. Shared Care Demonstration Project Phase 2. (\$120,000 2013) Walters D, Walsh D, Redman K, Lai C, Parkyn R.

NHMRC. A La Cart trial. Randomised trial of laparoscopic vs. open rectal dissection of rectal cancer (\$932,568 2011- 2013) Hewett P.

NHMRC (Project Grant). Novel vitamin-E-Bisphosphonates: A new therapeutic approach targeting bone loss associated with osteoporosis and bone related malignancies. (\$152,000 2013) 2013-2015 Evdokiou A, Atkins G.

NHMRC Career Development Award (CDA-2). Novel approaches to breast cancer therapy. (\$180,000 2013) 2010-2013 Evdokiou A.

National Breast Cancer Foundation (Novel Concept award 2012). Bone specific delivery of novel vitamin E-bisphosphonate conjugate compounds: A new therapeutic approach targeting breast cancer growth in bone (\$200,000 2012-2013) Evdokiou A.

National Breast Cancer Foundation (Novel Concept award 2012) New and effective immunotherapeutic strategies targeting bone metastasis in breast cancer patients. (\$200,000 2013-2014) Evdokiou A.

The Hospital Research Foundation. Establishment of a centre of excellence in Breast Cancer Research (\$250,000 2013) 2011-2016 Evdokiou A.

The Hospital Research Foundation. (Project Grant) Exploiting Tumour Hypoxia as a Therapeutic Target for Skeletal Malignancies (\$150,000 2013) 2012-2013 Evdokiou A.

National Breast Cancer Foundation. (Early Career Fellowship) Immune system determinants of breast cancer susceptibility (\$150,000 2013) 2011-2014 Ingman W.

National Breast Cancer Foundation. (Novel Concept Award) A novel concept for parity-induced breast cancer protection. (\$50,000 2013) 2013-2015 Ingman W, Hutchinson M.

NHMRC. (Project Grant) TGFB1 is a pivotal regulator of endometriotic lesion development (\$141,262 2013) 2011-2013 Hull L, Ingman W.

The Hospital Research Foundation. (Program Grant) Development and assessment of novel surgical technologies and their introduction into the Australian healthcare system. (\$250,000 2013) 2009–2013, Maddern G, Wormald PJ, Jamieson G, Fitridge R, Hewett P.

NHMRC. (Project Grant) Prospective evaluation of a model to predict outcomes following endovascular aortic aneurysm repair (\$1,036,925 2009–2013) Maddern G, Fitridge R, Boulton M, Golledge J, Thompson M, Barnes M.

Commonwealth Department of Health and Ageing. (Specialist Training Program) – Research Project (\$1,218,000 2011–2013) Maddern G.

Grants (cont.)

ARC (Linkage Grant). On the cutting edge: promoting best practice in surgical innovation (\$48,000 2013) 2011-2014 Rogers W, Johnson A, Townley C, Sheridan J, Ballantyne A, Lotz M, Meyerson D, Tomosey G, Eysers A, Maddern G, Thomson C.

Commonwealth Department of Health and Aged Care. ASERNIP-S. Medical Services Advisory Committee (MSAC) grant, (\$456,746 2012–2013) Maddern G.

NHMRC (Project Grant 1050883). In vivo evaluation of the safety and efficacy of a novel chitosan gel in the reduction of adhesions following abdominal surgery in both animal and human models (\$174,309 2013) 2013-2015 Wormald PJ, Moratti S, Robinson B, Robinson S, Maddern G, Trochsler M.

NHMRC (Project Grant). Advanced imaging to define hepatic and intestinal drug disposition in aging and liver diseases (\$735,820 2013–2015) Roberts M, Crawford D, Maddern G.

HCF Health and Medical Research Foundation. Use of surgical and radiology checklists in Australian hospitals: uptake, barriers and enablers (\$311,195 2013–2015) Runciman W, Mandel C, Schultz T, Munn Z, Maddern G.

The Hospital Research Foundation. Paracrine and juxtacrine signalling between prostate cancer cells and fibroblasts (\$75,000 2013-2014) Smith E, Drew P.

SAHMRI (TCCSA).(Project Grant). Oesophageal adenocarcinoma from patients with or without Barrett's oesophagus: different gene expression and DNA methylation profiles, biomarkers for survival and response to treatment, and cancer biology? (\$87,500 2012-2013) Drew P, Underwood T, Ruzskiewicz A, Jamieson G.

NHMRC. Uncoupled research fellowship (\$130,000 2013) 2009-2014 Gowans EJ.

NHMRC. (Project Grant). Mucosal immunity to human immunodeficiency virus (\$188,000 2013) 2012-2014, Gowans EJ, Suhrbier A, Wesselingh S.

Australia-India Biotechnology Funds. (Project). Towards a vaccine for hepatitis C virus (\$100,000 2013) 2011-2013, Gowans EJ, Torresi J, Das S.

Australian Centre for HIV and hepatitis virology. Development of a cytolytic HCV vaccine and a novel challenge model to test efficacy (\$80,000 2013) 2012-2013, Gowans EJ, Grubor-Bauk B.

The Hospital Research Foundation. Overseas student scholarship (\$26,000 2013) 2013-2015, Tomusange K.

Collaborations

Professor Andreas Evdokiou

Dr Vladimir Ponomarev, Department of Radiology, Memorial Sloan Kettering Cancer Centre, NY, USA

Dr Avi Ashkenazi, Department of Oncology, Genentech Inc, South San Francisco, USA

Dr AndreaniOdysseos, EPOS-IASIS Ltd and University of Cyprus

Prof Andreas Constantinou, Department of Biology, University of Cyprus

Prof Clara Bik-San Lau, Institute of Chinese Medicine, The Chinese University of Hong Kong, China

Dr P Hart, Threshold Pharmaceuticals, Inc. (“Threshold”), California, USA

Prof Nicholas Saunders, University of Queensland, Diamantina Institute (UQDI), Australia

Dr Mike Davies, Heart Research Institute, Sydney, University of Sydney, Australia

Dr Liza Raggatt, Bone and Joint Research Group, University of Queensland, Australia

Professor David Findlay, Discipline of Orthopaedics, University of Adelaide, Royal Adelaide Hospital, Australia

Associate Professor Gerald Atkins, Discipline of Orthopaedics, University of Adelaide, Royal Adelaide Hospital, Australia

Professor Dusan Losic, School of Chemical Engineering, The University of Adelaide, Australia

Professor Andrew Zannettino, Myeloma Research Laboratory, School of Medical Sciences, University of Adelaide, Australia

Professor Stan Gronthos, Mesenchymal Stem Cell Laboratory, School of Medical Sciences, University of Adelaide, Australia

Dr Paul Nielsen, Sarcoma Research Group, Discipline of Medicine, University of Adelaide, Australia

Professor Michael Brown, Cancer Cell Biology, University of South Australia, Australia

Associate Professor Wendy Ingman, Breast Biology Research Group, Basil Hetzel Institute for Translational Research, Adelaide, Australia

Collaborations

Professor Robert Fitridge

PORTRAIT Registry: “Patient-centered Outcomes Related to Treatment practices in peripheral Arterial disease: an International Trajectory”

Professor John Beltrame, University of Adelaide, Australia

Dr John Spertus, Mid-America Heart Institute, Kansas, USA

Dr Johan Denollet, Tilberg University, The Netherlands

EVAR Trial

Dr N Dowson, The Australian e-Health Research Centre, Computational Informatics, CSIRO, Royal Brisbane and Womens' Hospital, Queensland

Ms M Barnes CSIRO Mathematics, Informatics and Statistics, Glen Osmond, South Australia

Professor J Golledge, James Cook University, Townsville, Queensland, Australia

Associate Professor P Walker Royal Brisbane and Womens' Hospital, Herston, Queensland, Australia

Professor M Thompson, St George's Vascular Institute, London, UK

Professor R Sayers, Department of Cardiovascular Sciences, University of Leicester, Leicester, UK

Dr JR Boyle Cambridge University Hospitals, Cambridge, UK

Dr T Forbes Division of Vascular Surgery, London Health Sciences Centre, London, Ontario, Canada

TEDY Trial and Small AAA trial

Professor J Golledge James Cook University, Townsville, Queensland

A/Professor P Walker (Royal Brisbane and Womens' Hospital, Herston, Queensland

National Centre of Research Excellence to improve management of peripheral arterial disease

Professor J Golledge James Cook University, Townsville, Queensland

Associate Professor P Walker (Royal Brisbane and Womens' Hospital, Herston, Queensland

Cooperative Centre for Wound Healing

Professor A Cowin, University of South Australia, Australia

Professor N Voelcker, Mawson Institute, University of South Australia, Australia

Role of HDL in stroke

Professor S Nicholls, SAHMRI and The University of Adelaide, Australia

Professor S Koblar, SAHMRI and The University of Adelaide, Australia

Steering Committee for development of the new International Standards for Vascular Care. (Society for Vascular Surgery, European Society for Vascular Surgery and World Federation of Vascular Societies)

Collaborations

Professor Eric Gowans

Professor Ian Roberts Thomson, The Queen Elizabeth Hospital, Adelaide, Australia

Professor Steven Wesselingh, South Australian Health and Medical Research Institute, Adelaide, Australia

Professor Joseph Altin, The Australian National University, Canberra, Australia

Dr Mirielle Lahoud, Burnet Institute, Melbourne, Australia

Associate Professor Bruce Loveland, Burnet Institute, Melbourne, Australia

Associate Professor Stuart Roberts, The Alfred Hospital, Melbourne, Australia

Professor Andreas Suhrbier, Queensland Institute of Medical Research, Australia

Associate Professor Joseph Torresi, The University of Melbourne, Australia

Professor Saumitra Das, Indian Institute of Science, Bangalore, India

Dr Paul Radspinner, FluGen Inc, Wisconsin, USA

Professor Suresh Tikoo, Vaccine and Infectious Disease Organisation, Saskatoon, Canada

Professor Peter Hewett

Dr Andrew Stevenson, Royal Brisbane and Women's Hospital, Herston, Australia

Mr James Moore, Head Of Unit, Colorectal Surgery, Royal Adelaide Hospital, Australia

Mr Andrew Luck, Head Of Unit, Colorectal Surgery, Lyell McEwin Hospital, Adelaide, Australia

Dr Sid Selva-Nayagam, Consultant Medical Oncologist, Royal Adelaide Hospital, Australia

Associate Professor Tim Price, Consultant Medical Oncologist, The Queen Elizabeth Hospital, Adelaide, Australia

Dr Scott Carruthers, Radiation Oncologist, Royal Adelaide Hospital Cancer Centre, Australia

Collaborations

Associate Professor Wendy Ingman

Professor David Kennaway, University of Adelaide
Associate Professor Mark Hutchinson, University of Adelaide
Professor Sarah Robertson, University of Adelaide
Dr Louise Hull, University of Adelaide
Professor Andreas Evdokiou, University of Adelaide
Dr Marina Kotchetkova, University of Adelaide
Dr Carmela Ricciardelli and Associate Professor Darryl Russell, University of Adelaide
Professor Rik Thompson and Dr Kara Britt, University of Melbourne and Peter MacCallum Cancer Centre, Australia
Professor Fiona Pixley, University of Western Australia, Australia
Professor Malcolm Pike, Sloan-Kettering Cancer Institute, USA
Dr Anne Gompel, INSERM, France

Professor Guy Maddern

Professor Robert Padbury, Flinders Medical Centre, Adelaide, Australia
Professor Bill Runciman, University of Adelaide, Australia
ASERNIP-S, Royal Australasian College of Surgeons, Adelaide, Australia
Royal Australasian College of Surgeons, Melbourne, Australia
Dr John Cockburn, Canberra Hospital, Canberra
Dr Ashley Dennison, Leicester General Hospital, UK
Dr Wen Chung, Department of HPB Surgery, University of Leicester, UK
Dr Ajit Sachdeva, American College of Surgeons, Chicago, USA

Dr Eric Smith

Professor Andrew Ruszkiewicz, SA Pathology, Adelaide, Australia
Professor Greg Goodall, Centre for Cancer Biology, Adelaide, Australia
Mr Tim Underwood, University of Southampton, Southampton, UK
Professor Jun Feng Liu, Fourth Hospital, Hebei Medical University, Shijiazhuang, China

Dr Markus Trochsler

Professor PJ Wormald, Department of Otorhinolaryngology, The Queen Elizabeth Hospital, Adelaide, Australia
Professor S Moratti, Department of Chemistry, University of Otago, New Zealand
Dr Wen Chung, Department of HPB Surgery, University of Leicester, UK

ORTHOPAEDIC AND TRAUMA

The Queen Elizabeth Hospital Orthopaedics and Trauma Unit continues with the research focus on trialling new prostheses and technologies that have the potential to improve patient comfort and longevity of joint replacements while creating new efficiencies for surgical time and reduced costs.

Two new trials have been initiated and a third planned looking at Ceramic versus Polyethylene liners for Total Hip Replacements, a Total Knee Replacement which will potentially reduce the occurrence of anterior knee pain post-surgery and a new type of dual articulating Hip Prosthesis which potentially will reduce wear and increase stability post-surgery.

The results of our Total Knee Replacement Patient Specific Block templating trial have been received favourably, winning best scientific presentation when presented locally. It has since been presented nationally and due to be published early in 2014.

The Research Unit continues the monitoring of metal wear particles from a variety of metal on metal hip bearings in different models and sizes. These results will add to the accumulated data in this area allowing for more informed decisions to be made regarding joint wear and the effects on joint recipients.

The collaborative study with Uni SA looking at knee joint movement post total knee replacement is complete and will be presented and written up in the 2014.

Funding for research in this department has been obtained totally from industry contributions to the Orthopaedic and Trauma Research Fund. In 2013 contributions have come from Corin (\$22,680), Biomet (\$7,520) and Johnson & Johnson (\$25,890).

Acknowledgement is given to these companies for their ongoing support for research within the Department.

Staff

Director

J van Essen MBBS FRACS (Ortho) FAOrthA

Deputy Director

N Cullen MD FRCS(C) FRACS FAOrthA

Visiting Specialists

P Lewis MBBS FRACS FAOrthA
L Ferris MBBS BSc (Med) FRACS
W Duncan MBBS FRACS (Orth)
G Nimon MBBS FRACS (Orth)
C Begg MBBS FRACS (Orth)
N Pourgeizis MBBS FRACS (Orth)
C Gooi MBBS FRACS (Orth)
A Bajhau MBBS FRACS (Orth)
M Selby MBBS FRACS (Orthopaedics) FAOrthA
D Campbell BMBS PhD FRACS (Ortho A) FA

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G Morrison MBChB FRCS (Ed) FRACS FAOrthA
T Stevenson MBChB FRCS FRACS FAOrthA

Medical Cover

Geriatric Team

Arthroplasty Fellow

A Smith

Hand and Upper Limb Fellow

S Putalapattu (6 months)
P Dizon (6 months)

Arthroplasty Outcomes Officer

G West B PHYSIO

Executive Secretary

B Stoddard

Secretaries

E Smythe
J Whatling
E Parker

Nursing Staff

L Thomas – Nurse Manager, Orthopaedics
N Yates CSC – Ward N2, Orthopaedics



THERAPEUTICS RESEARCH CENTRE

UNIVERSITY OF SOUTH AUSTRALIA

THERAPEUTICS RESEARCH CENTRE UNIVERSITY OF SOUTH AUSTRALIA>THERAPEUTICS R

Research Focus

The Therapeutic Research Centre's (TRC) research interests cover a spectrum of therapeutics from the chemistry of drugs, the effects drugs have on the body and the effects the body has on drugs, through to how drugs can be best used to treat disease. Current special interests include defining drug disposition and effects by in vitro and in vivo by chemical analysis using chromatography and mass spectrometry as well as bio-imaging using confocal and multiphoton reflectance, fluorescence and Raman spectroscopy.

The Director of the Centre, Professor Michael Roberts, is an Australian National Health & Medical Research Council Senior Principal Research Fellow based at both The Institute (Basil Hetzel Institute for Translational Health Research; affiliated with the University of South Australia School of Pharmacy) and the University of Queensland School of Medicine at Princess Alexandra Hospital in Brisbane. The TRC was established by Professor Roberts at the University of Queensland in 1989, to support his major interests of topical drug delivery, pharmacokinetics and quality use of medicines. In 2009, a new initiative led to expansion of the TRC, with the establishment of a second University of South Australia branch at the Basil Hetzel Institute for Translational Health Research. Research staff and students in the TRC now have a unique opportunity to access facilities and expertise at both universities. There are also strong clinical ties with the Princess Alexandra Hospital in Brisbane and The Queen Elizabeth Hospital in Adelaide.

Research Activities

Intensive care

Inappropriate doses of antibiotics are likely to contribute to poor outcomes for ICU patients. Emerging data describes how clinician-led dosing frequently results in inappropriate serum antibiotic concentrations. Such inappropriate concentrations

- The focus of the Therapeutics Research Centre is to improve patient outcomes by improved diagnosis and treatment with medicines. Our work, in collaboration with a number of medical specialties, includes:
- **Intensive care:** improved use of antibiotics, antifungals and other medications in the severely ill.
 - **Skin cancer & other skin conditions:** better diagnosis and treatment using advanced non-invasive imaging technologies and topical products.
 - **Liver disease:** understanding how liver diseases affect medicines and how to treat patients.
 - **Nanomedicines:** exploring the therapeutic potential and safety for nanomedicines.
 - **Medicine efficiency & safety:** exploring how well medicines work and if other products are safe.
 - **Clinical & Regulatory Toxicology:** assessing safety of medicines, consumer products, pesticides and herbicides and managing poisonings associated with exposure to them.

can lead to antibiotic failure, antibiotic toxicity and/or the development of antibiotic resistance. The question confronting clinicians is – what is the appropriate antibiotic dose to use in the individual patient to achieve the best outcome for this patient. Our project aims to develop dosing guidelines to achieve serum concentrations that optimise antibiotic exposure in these patients. This work also involves the Lyell McEwen Hospital and the Royal Brisbane and Women's Hospital.

Skin cancer, skin ageing & other conditions

Many products are applied to the skin to prevent skin cancer or to treat skin diseases. Our work seeks to better understand how we can make such products more effective, safer and appropriate for conditions such as psoriasis. One major component is concerned with the evaluation of nanotechnology products applied to the skin. Although milk has been acknowledged as a good nutrient and is used in skin care formulations, a systematic study of the benefits of milk on the skin has not been carried out. We are defining rules governing the delivery of peptides (especially those derived from milk) to the different layers of the epidermis using different formulations and certain delivery devices. This project will also define the distribution patterns of milk peptides in terms of both the properties of the peptides and the delivery systems used.

Medicine efficiency

Multimodal microscopy and spectroscopy offer the exciting prospect of non-invasive imaging of human skin *in vivo* in high resolution, in three dimensions and in time. Our ability to image the skin to a depth of 200µm (papillary dermis) with this technology will enable us to use it as a potential window to study and treat cardiovascular problems such as those arising from diabetes complications, cardiovascular disease, arthritis and smoking.

Liver disease

The liver is the main organ in the body for drug metabolism and detoxification. Our work in this area seeks to address the poorly understood question: what is the *in vivo* disposition and response in liver of the drugs for treatment of liver diseases? The results of this work will help us better design new drugs and choose the most effective drugs for liver disease. The research may also help us find a better strategy for liver transplantation and thus improve success rates.

Nanomedicines

Nanomaterials are defined as having at least one dimension within the range 1-100 nm. Commercial applications that use nanomaterials include sunscreen (zinc oxide) and clinical imaging agents. We are investigating what happens to commercially available and therapeutic nanoparticles if they pass through the skin and enter the blood.

Safety of occupational and environmental chemicals

Assessment of skin absorption is a major regulatory requirement in registering any product that presents potentially harmful or therapeutic skin exposure. While the rigorous assessment used in regulating therapeutic drugs is well established, the main tool used for dermal regulatory human health risk assessments on potentially harmful chemicals needs further validation and refinement to provide a more reliable assessment of *in vivo* bioavailability, effects and decontamination.

Grants

NHMRC. (Project grant # 1049906) Specific targeting of nanosystems by cutaneous delivery. (\$951,201 2013-2015), Roberts MS, Kendall M.

NHMRC. (Project grant # 1049979) Advanced imaging to define hepatic and intestinal drug disposition in aging and liver diseases. (\$735,820 2013-2015), Roberts MS, Crawford D, Maddern G.

NHMRC. (Project grant # 1044941) Robust antibiotic dosing for critically ill patients receiving renal replacement therapy. (\$1,034,978 2013-2015), Roberts J, Lipman J, Roberts MS, Paul S, Peake S, Turnidge J.

Grants commencing in 2014

NHMRC. (Program grant # 1055176) An integrated research program in human toxicology to ensure rapid translation of results into practice and regulation. \$6,846,800, 2014-2018, Buckley N, Isbister G, Dawson A, Roberts M).

Staff

UniSA Research Chair: Therapeutics & Pharmaceutical Science

MS Roberts BPharm PhD DSc MBA FACP

UniSA Research Fellows

TA Robertson BSc PhD

Q Zhang BPharm PhD

PhD Candidates

A Amarasekera BPharm

'Does vitamin D deficiency contribute to endothelial dysfunction in diabetes patients with obesity?'

R To-a-nan BPharm MCLinPharm

'Does bioequivalence reflect therapeutic equivalence in the real population?'

R Kuswahyuning BPharm

'Role of Formulation in Skin Delivery'

MG Sinnollareddy BPharm

'Dose optimization of antimicrobial agent: pharmacokinetic and pharmacodynamic approach'

FB Sime BPharm

'Therapeutic drug monitoring in high risk patients: pharmacokinetic and pharmacodynamics considerations for dose optimisation'

Collaborations International

Professor Gordon Flynn University of Michigan, USA

Professor Robert Hoffman, University of California, San Diego, USA

Professor Howard Maibach, University of California, San Diego, USA

Professor Peter So, MIT, USA

Professor Majelle Lane, University College, London UK

Professor Steven Abbott, University of Leeds, UK

Dr Klaus Suhling, Kings College, UK

National

Professor Andrew Dawson, University of Sydney

Professor Mark Kendall, University of Queensland

Professor Darrell Crawford, University of Queensland

Professor Ian Frazer, University of Queensland

Associate Professor Jeff Grice, University of Queensland

Professor Nick Buckley, University of New South Wales

Professor Zoltan Endre, University of New South Wales

Professor John Horowitz, University of Adelaide

Professor John Beltrame, University of Adelaide

Professor Sepher Shaikab, University of Adelaide

Associate Professor Sandra Peake, TQEH

PUBLICATIONS 2013

RESEARCH PUBLICATIONS>RESEARCH PUBLICATIONS>RESEARCH PUBLICATIONS>RESEA

AGED AND EXTENDED CARE SERVICES

Papers

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Yu S, Visvanathan T, Field J, Ward L, Adams R, Chapman I, Wittert G and Visvanathan R. Lean body mass: development and validation of prediction equations. *BMC Pharmacology and Toxicology* 2013; 14:53.

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Adikari GS, Khoo A, Stewart L, Visvanathan R. Characteristics and circumstances of inpatient falls: A retrospective audit. *Aus J Ageing* 2013; 32 (Suppl 1): 39.

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ANAESTHESIA, Department of

Papers

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CARDIOLOGY UNIT

Papers

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CARDIOLOGY UNIT (Cont.)

Papers

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CLINICAL PHARMACOLOGY UNIT

Papers

Drury NE, Licari G, Chong C-R, Howell NJ, Frenneaux MP, Horowitz JD, Pagano D and Sallustio BC. Relationship between plasma, atrial and ventricular perhexiline concentrations in humans: insights into factors affecting myocardial uptake. *Br J Clin Pharmacol* (published online: 10 OCT 2013; DOI: 10.1111/bcp.12254).

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ENDOCRINOLOGY UNIT

Papers

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GASTROENTEROLOGY & HEPATOLOGY Department of

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**RESPIRATORY MEDICINE UNIT &
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INVITED PRESENTATIONS

AT INTERNATIONAL AND NATIONAL MEETINGS 2013

RESEARCH PUBLICATIONS>RESEARCH PUBLICATIONS>RESEARCH PUBLICATIONS>RESEA

Conference Title and Date	Title of Presentation/Poster	Attendee Name
AGED & EXTENDED CARE SERVICES (GERIATRIC MEDICINE)		
IEEE RFID International Conference Orlando, Florida May 2013	Sensor Enabled Wearable RFID Technology for Mitigating the Risk of Falls Near Beds	Shinmoto R
The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, NSW June 2013	Sarcopenia In Community Dwelling Older Australians	Yu S
The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, June 2013	Intermittent Walking:A Potential treatment Strategy For Older People With Postprandial Hypotension	Nair S
The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, June 2013	Characteristics And Circumstances Of Inpatient Falls:A Retrospective Audit	Adikari GS
The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, June 2013	A Geriatric Medicine Course To Senior Undergraduate Medical Students Improves Attitudes And Self Perceived Competency Scores	Tam KL
The 20th International Association of Gerontology and Geriatrics (IAGG) World Congress of Gerontology and Geriatrics, Seoul, Korea June 2013	Frailty and Functional Decline Indices as Predictors of Poor Outcomes in Hospitalised Older People	Dent E
Aged Care Informatics Conference, Adelaide, SA July 2013	A movement sensor alarm system to aid falls prevention in aged and health care	Visvanathan R
9th Congress of the European Union Geriatric Medicine Society,Venice, Italy October 2013	A movement Sensor System to Identify Bed Exit	Visvanathan R
9th Congress of the European Union Geriatric Medicine Society,Venice, Italy October 2013	Sarcopenia in community dwelling older Australians	Yu S
Australasian Association of Gerontology 40th National Conference, Sydney, NSW November 2013	Nutritional Status in Older People: A mixed Method Study	Preston D
Australasian Association of Gerontology 40th National Conference, Sydney, NSW November 2013	Prescribing Practice Improvements In A Geriatric Evaluation and Management Unit	Cheam D
Australasian Association of Gerontology 40th National Conference, Sydney, NSW November 2013	Religion and Spirituality in Postgraduate Training Programs	Mahajan N
Australasian Association of Gerontology 40th National Conference, Sydney, NSW November 2013	Positive and Health Ageing: Training The Future Aged Care Workforce	Teo J, Bonnin R

Conference Title and Date	Title of Presentation/Poster	Attendee Name
CARDIOLOGY UNIT		
8th International Meeting on Acute Cardiac Care. Jerusalem, Israel, June 2013	ACEi/ARB for all patients after ST-elevation myocardial infarction with preserved LV function	Horowitz JD
8th International Meeting on Acute Cardiac Care. Jerusalem, Israel, June 2013	Stress-induced (Tako-tsubo) cardiomyopathy	Horowitz JD
Soroka Institute, Beer Sheva, Israel, June 2013	Tako-tsubo cardiomyopathy: not rare, not benign	Horowitz JD
Cardiology Dept, Beilinson Hospital, Tel Aviv, Israel, June 2013	Modulation of myocardial metabolism: implications for heart failure therapy	Horowitz JD
Attualita in cardiologia, L'Aquila, Italy, October 2013	Is aortic stenosis preventable?	Horowitz JD
10th International Congress on Coronary Artery Disease, Florence, Italy, October 2013	Stress cardiomyopathy: new clinical and pathogenic insights	Horowitz JD, Nguyen TH, Neil CJ, Singh K, Chong C, Licari J, Raman B

CLINICAL PHARMACOLOGY UNIT		
International Congress of Therapeutic Drug Monitoring and Clinical Toxicology, Salt Lake City, USA, September 2013	Association between intra-renal P-gp expression and cyclosporine concentrations in renal transplantation	Sallustio BC
International Congress of Therapeutic Drug Monitoring and Clinical Toxicology, Salt Lake City, USA, September 2013	Impact of Recipient and Donor Multidrug Resistance Protein 2 Genetic Variability on Mycophenolic Acid Pharmacokinetics Following Kidney Transplantation	MdDom ZI
Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists, Melbourne, VIC, December 2013	Development and validation of an LC-MS/MS method for the quantification of the immunosuppressant mycophenolic acid in human kidney transplant biopsies	MdDom ZI
10th International Meeting of the International Society for the Study of Xenobiotics, Toronto, Canada, September 2013,	Identification of altered protein binding of dexamethasone in the presence of sugammadex	Westley IS

HAEMATOLOGY AND MEDICAL ONCOLOGY, The combined Departments of		
6th Barossa Meeting - Cell Signalling in the Omics Era. Barossa Valley, December 2013	A role for the receptor tyrosine kinases in myeloproliferative neoplasms	D'Andrea R
Lowy Cancer Symposium – Discovering Cancer Therapeutics, Sydney, NSW May 2013	Identification and development of new therapeutics for leukaemia with MLL translocations	D'Andrea R

INTENSIVE CARE UNIT		
ANZICS/ACCCN Intensive Care ASM, Hobart, TAS October 2013	Medical – Sepsis Guidelines: Applying them in the real world	Peake SL
Critical Care on the Coast. Port Macquarie Base Hospital Intensive and Coronary Care Unit. Port Macquarie, NSW, November 2013	Australian Resuscitation in Sepsis Evaluation (ARISE) Trial	Peake SL
Critical Care on the Coast. Port Macquarie Base Hospital Intensive and Coronary Care Unit. Port Macquarie, NSW, November 2013	Pathogenesis of Sepsis – Implications for Novel Therapies	Peake SL

Conference Title and Date	Title of Presentation/Poster	Attendee Name
MEDICINE, University of Adelaide Discipline of		
“Atherosclerosis: Translating the Biology of Atherosclerosis” Gordon Research Conference, Stowe/Flake Resort and Conference Center in Stowe, Vermont (VT) United States June 16- 21 2013	Role of zinc transporters in endothelium and macrophages: relationship to apoptosis: and efferocytosis Abstract	Zalewski P, Hamon R, Homan C, Tran H, Mukaro V, Roscioli E, Jersmann H, Murgia C, Hodge S, Beltrame JF
“Apoptotic Cell Recognition and Clearance” Gordon Research Conference and Symposium University of New England in Biddeford, Maine (ME) United States June 23-28, 2013	Increase in labile zinc and vesicular zinc transporter ZnT4 during PMA-induced macrophage differentiation of human THP-1 cells	Zalewski P, Hamon R, Homan C, Tran H, Mukaro V, Roscioli E, Jersmann H, Murgia C, Hodge S
Arthritis SA, 118 Richmond Road, Marleston February 2013	Chronic inflammation in Sjogren's syndrome	Zalewski P
American Heart Association QCOR Council Meeting & National Heart Foundation Conference, Adelaide, Australia May 2013	The Future of International Collaborations in Outcomes Research	Beltrame J
Coronary Artery Vasospastic Angina Summit Amsterdam, Netherlands September 2013	Vasospastic Angina – An Australian Perspective	Beltrame J
Yale-New Haven Hospital, Yale University, New Haven, USA November, 2013	Chest Pain and ‘Normal Angiography	Beltrame J
American College of Cardiology 62nd Annual Scientific Sessions. Meet the Experts: March 2013. San Francisco, USA.	Ischemia without Stenosis: Diagnosis and Treatment – Cardiac Syndrome X	Beltrame J
Cardiac Society of Australia & New Zealand August 2013. Gold Coast, QLD Australia	The Coronary Slow Flow Phenomenon – from Bedside to Bench!	Beltrame J
Cardiac Society of Australia & New Zealand August 2013. Gold Coast, QLD Australia	Evaluation of Appropriateness Use Criteria for Diagnostic Angiography in the CADOSA Registry	Beltrame J
Coronary Artery Vasospastic Angina Summit September 2013. Amsterdam, Netherlands	When Should Coronary Spasm Testing be Performed?	Beltrame J
Sleep 2013, American Academy of Sleep Medicine Annual Scientific Meeting, Baltimore, June 2013 (oral presentation)	Burden of Undiagnosed OSA on Health-Related Quality of Life (HRQL) Among Men In The Community	Adams RJ, Appleton SL, Vakulin A, Martin S, Grant J, Taylor, A, Catcheside P, McEvoy RD, Antic NA, Wittert G
Sleep and Breathing 2013, Berlin, Germany April 2013	Prevalence and morbidity of undiagnosed OSA in a population cohort of men aged >40 years	Adams RJ, Appleton SL, Vakulin A, Martin S, Grant J, Taylor, A, Catcheside P, McEvoy RD, Antic NA, Wittert G
Australasian Sleep Association Annual Scientific Meeting, Brisbane, QLD October 2013	Quality of Life and Undiagnosed OSA in men	Adams RJ, Appleton SL, Vakulin A, Martin S, Grant J, Taylor, A, Catcheside P, McEvoy RD, Antic NA, Wittert G
Alternative Management Pathways for Sleep Disorders in Adults Symposium, Australasian Sleep Association, Annual Scientific Meeting, Brisbane, QLD October 2013	Burden and prevalence of sleep apnea	Adams RJ

Conference Title and Date	Title of Presentation/Poster	Attendee Name
NEUROLOGY UNIT		
2nd SAHMRI Stroke Symposium, Adelaide, SA October 2013	Chairman and also session speaker: “Stem Cell Therapy in Stroke”	Koblar S
International Society for Stem Cell Research, Boston, USA, June 2013	Invited presenter – ‘Dental Pulp Stem Cells and the Blood-Brain-Barrier’	Koblar S
Australian Neuroscience Society, Melbourne, February 2013	Invited speaker – “Stem Cell Therapy in Stroke”	Koblar S
Australian and New Zealand Association of Neurologists Meeting, Sydney, NSW, May 2013	INROADS: Impact of New Regulations On Assessing Driving Status	Sylvester J, Horn S, Purdie G, Robinson M, Jannes J
Multiple Sclerosis Nurses Association(MSNA) Australasia Annual Conference. Perth, WA September 2013	The Young, Fatigued And The Restless	Cheung P
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	There's almost no such thing as a TIA; High rates of TIA-mimics and minor stroke in a tertiary MRI- and Emergency referral based TIA service.	Kleinig T, Hall J, Jannes J, Dowie G
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	Implementation of an ambulance based stroke early notification system.	Grantham H, Goldsmith K, Hakendorf P, Larsen R, Leyden J, Kleinig T, Lee A, Jannes J
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	Statewide Stroke Clinical Network: South Australia:	Goldsmith K, Jannes J, Hillier S
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	"Npas4 Upregulation in the Corticolimbic System in Stroke - Implications for Post-Stroke Depression"	Lewis MD
SA Rehab Med Annual Scientific Meeting Adelaide, SA November 2013	“Stem Cells and Stroke”	Koblar S
Australian Neuroscience Society, Melbourne, VIC February 2013	Human dental pulp stem cells reduce cortical perineuronal net expression in vitro.	Ellis K, O'Carroll D, Lewis MD, Kwok J, Fawcett J, Koblar SA
Australian Society for Medical Research (ASMR) Annual Scientific Meeting, Adelaide, SA June 2013	Phosphodiesterase 4D (PDE4D) and Stroke – Heterogeneity of Studies	Milton AG, Hamilton-Bruce MA, Jannes J, Koblar SA
Australian Society for Medical Research (ASMR) Annual Scientific Meeting, Adelaide, SA June 2013	Investigation of p75 neurotrophin receptor on human Dental Pulp Stem Cells (DPSC).	Pan WR; Kremer K, Kaidonis XM, Rogers ML, Koblar SA
Australian Society for Medical Research (ASMR) Annual Scientific Meeting, Adelaide, SA June 2013	Isolation, identification and culture of stem cells from human dental pulp of varied ages.	Chew RR, Kaidonis XM, Cathro PR, Koblar SA
Australian Society for Medical Research (ASMR) Annual Scientific Meeting, Adelaide, SA June 2013	Human adult stem cells interact with the blood brain barrier.	Winderlich J, Kremer K, Koblar SA
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	Perspectives on language, medicine and the human body in a multidisciplinary biomedical research group.	Krawczyk VJ , Crichton J, Hamilton-Bruce MA, Koblar SA

Conference Title and Date	Title of Presentation/Poster	Attendee Name
NEUROLOGY UNIT (cont.)		
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	Animal assisted therapy (AAT) for stroke victims: the need for objective assessment.	Hamilton-Bruce MA, Gowland J Hazel S, Koblar SA
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	The relationship between Health Literacy (HL) and stroke, and stroke risk factors in a population sample.	Appleton S, Biermann S, Hamilton-Bruce MA, Piantadosi C, Tucker G, Koblar SA, Adams R
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	“Phosphodiesterase 4D (PDE4D) and Stroke . – Heterogeneity of Studies”	Milton AG, Hamilton-Bruce MA, Jannes J, Koblar SA
Stroke Society of Australasia Annual Scientific Meeting 2013. Darwin, NT August 2013	Human adult stem cells interact with the blood brain barrier.	Winderlich J, Kremer K, Koblar SA
Society for Neuroscience annual meeting, Washington, DC November 2013	Npas4 is up-regulated in the corticolimbic system of the rodent brain following focal cortical ischaemia	Klaric TS, Leong WK, Lewis MD, . Koblar SA

NUCLEAR MEDICINE UNIT		
ANZSNM Annual Scientific Meeting, Perth, April 2013	Is the brain death study just a normal/abnormal result study?	Farnham N
ANZSNM Annual Scientific Meeting, Perth, April 2013	Surgical workup in refractory epilepsy – is nuclear medicine “fit” for the task?	Sotiropoulos P
ANZSNM Annual Scientific Meeting, Perth, April 2013	Value of Myocardial perfusion in renal transplant evaluation	Chew G, Unger S, Shakib S
ANZSNM Annual Scientific Meeting, Perth, April 2013	Shortened scan times in SPECT/CT of the spine – how low can you go?	Smith T, Warner A
ANZSNM Annual Scientific Meeting, Perth, April 2013	Life changing Lutetium-177	Nicholls D

OTOLARYNGOLOGY, HEAD AND NECK SURGERY Department of		
Endoscopic Transphenoid Surgery Forum, Kumam – Japan January 2013	Transnasal Skull Base Surgery & Vascular Injury Management. Managing the frontal sinus in ESS, the surgical field and avoiding complications. Management of Endoscopic Sinus Surgery	Wormald PJ
Hyderabad FESS Workshop, India February 2013	Training in Endoscopic Sinus Surgery for for Residents & Fellows. Integrated Approach to Frontal Sinus. Evolution of Endoscopic Sinus Surgery. Cadaver dissection demonstration – basic techniques; frontal & sphenoid sinuses. Live Surgery: Maxillary Sinus & Ethmoid; Frontal & Sphenoid sinuses. Skull Base Pituitary/CSF leak Surgery	Wormald PJ
Australasian Society of Otolaryngology Head & Neck Surgery, Annual Meeting – Perth, WA March 2013	Essential Surgical Steps for Complete Endoscopic Sinus Surgery. Indications and Technique for Frontal Sinus Surgery – Instructional course. Management of Severely Diseased Maxillary Sinus – Plenary Session. Challenging Sinus Cases	Wormald PJ

Conference Title and Date	Title of Presentation/Poster	Attendee Name
OTOLARYNGOLOGY, HEAD AND NECK SURGERY Department of (cont.)		
2013 Advanced Functional Endoscoic Sinus Surgery Course, Turkey, May 2013	The anatomy and surgical approaches to the frontal sinus. Management of the difficult frontal sinus – the modified Lothrop procedure. The anatomy and approaches to the postnasal space and Eustachian tube. The anatomy and approaches to the infratemporal fossa. The management of the bloody surgical field. Vidian neurectomy. New topical treatments in recalcitrant chronic rhino sinusitis. Powered inferior turbinoplasty. Disease load and irreversible chronic rhinosinusitis – new approaches	Wormald PJ
2013 Skull Base Surgery Course Montreal, Banff – June 2013	Frontal Sinus Anatomy and Surgical Approaches	Wormald PJ
17th Functional Endoscopic Sinus Surgery Course, Montreal – June 2013	Management of Vascular Injuries Workshop Dacryocystorhinology dissection. Sphenopalatine Artery Ligation and Vidian neurectomy. Cutting Edge Rhinology. 3D Anatomy of the Sinuses and skull base. Transnasal Transcribiform Approach. Vascular Surgical Steps in Sheep Model of Vascular Injury. Vascular Controversy Discussion	Wormald PJ
17th Singapore Functional Endoscopic Sinus Surgery Course, Singapore – 29-23 July 2013	Frontal recess dissection.	Wormald PJ
International Rhinologic Innovative Symposium, Kuala Lumpur – August 2013	Endoscopic sinus surgery and Intraoperative bleeding. Management of the surgical field. Pre-dissection 3D Anatomy	Wormald PJ
Endoscopic Skull Base Cadaver Dissection Course, Brisbane, QLD June 2013 –	Frontal recess dissection. Dacryocystorhinology dissection. Sphenopalatine Artery Ligation and Vidian neurectomy. 3D Anatomy of the Sinuses and skull base.	Wormald PJ
17th Singapore FESS Course, Singapore July 2013	Optimizing surgical field for Functional Endoscopic Sinus surgery (FESS). FESS Complications: Avoidance & Management. Hands on Workshop. My Approach to the Frontal Recess. Advanced Frontal Sinus Techniques. Medial Orbital Wall Surgery & Optical Nerve Decompression. Surgery of the Pterygopalatine Fossa and infratemporal Fossa. Hands on Workshop.	Wormald PJ

Conference Title and Date	Title of Presentation/Poster	Attendee Name
OTOLARYNGOLOGY, HEAD AND NECK SURGERY Department of (cont.)		
13th International Course on Endoscopic Sinus Surgery, Marburg, Germany – 4-9 September 2013	Biofilms in chronic rhinosinusitis. Surgery of the frontal sinus. Master Cadaver dissection. Live Surgery. Endonasal Vidian Nerve Neurectomy. Endonasal Skull Base Surgery and Infratemporal fossa.	Wormald PJ
2013 American Rhinological Society, Vancouver – 26th September 2013	Moderator: What is happening in the world of Rhinology: An International forum of Allergy & Rhinology. Panel: On the Cutting Edge: Translation to clinical problems and solutions. Post Endoscopic Sinus surgery disease in the microbiome era: A new role for bacteria in chronic rhinosinusitis and a potential therapeutic target	Wormald PJ
2013 American Society of Otolaryngology Head & Neck Society, Annual Meeting 2013 Vancouver, 27 September - 3 October 2013	Major complications in FESS: Tips from Expert Surgeons. An Endoscopic approach to tumours of the intra temporal fossa. Biofilms in Chronic Sinusitis.	Wormald PJ
2013 Neurosurgical Society of Australia, Annual Scientific Meeting. Coolumb, Qld, 3 October 2013	Techniques for ES control of the surgical field in a major vascular injury. The animal model for training surgeons to manage a major vascular injury. Outcomes for different techniques of repair of major vascular injury.	Wormald PJ
Visiting Professor Program 2013, Hong Kong 30 October - 5 November 2013	CME lecture – Causes and approaches to the management of recalcitrant chronic rhinosinusitis. Advanced FESS Forum – Endoscopic management of sinonasal tumours and skullbase pathologies.	
5th Management of Vascular Injuries Course, Adelaide November 2013	Vascular surgical steps in sheep model of vascular injury. Venous surgical steps. Arterial surgical steps. Controlling the surgical field during vascular injury. Vascular controversy discussion.	Wormald PJ
16th Functional Endoscopic Sinus Surgery Masterclass, Adelaide November 2013	The anatomy and endoscopic approaches to the frontal recess. Medial maxillectomy antrostomy, frontal recess, posterior ethmoidectomy and sphenoidectomy. Sphenopalatine artery ligation and Vidian, Modified Lothrop. Surgical field and controlling major vascular haemorrhage. 3D anatomy of the posterior fossa, cavernous sinus and cranio-cervical junction	Wormald PJ

PSYCHIATRY Discipline of		
National Clinicians Network (NCN) National forum on 13 June 2013, Sydney, NSW	Invited poster: A Statewide Quality Improvement System Utilising Nurse-Led Clinics for Clozapine Management.	Clark, S, Wilton, L

Conference Title and Date	Title of Presentation/Poster	Attendee Name
RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT		
Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Darwin NT, March 2013	Outreach nursing care in COPD	Carson KV
Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Darwin NT, March 2013	The aetiology and management of chronic obstructive airway disease in remote Australian Aboriginal communities	Veale A
RHEUMATOLOGY Department of		
Plenary, Raising Expectations in Rheumatology, Melbourne, VIC 2013 (Invited Presentation)	Sjogren's syndrome.	Rischmueller M
UCBeyond Symposium, Melbourne, VIC March 2013	Translating Trial Data into Clinical Practice	Rischmueller M
Rheumatology 2013, Melbourne, VIC February 2013	Difficult Cases: Panel Discussion.	Rischmueller M
Australian Rheumatology Association in conjunction with the Rheumatology Health Professionals Association 54th Annual Scientific Meeting, Perth, WA May 2013	Musculoskeletal clinical trials in Australia: What trials are being performed, who is funding them and where are they being published? Oral presentation	Bourne A, Whittle SL, Richards B, Maher C, Buchbinder R
European League Against Rheumatism (EULAR) Scientific Meeting, Madrid, Spain June 2013	Identification of multiple Sjögren's syndrome susceptibility loci.	Lessard CJ, Li H, Rischmueller M, Harley J, Moser-Sivils S
American Rheumatology Association Annual Meeting, San Diego, CA, USA. October 2013	Sex bias in autoimmune diseases: Increased risk of 47,XXX in Systemic Lupus Erythematosus (SLE) and Sjögren's Syndrome (SS) supports the gene dose hypothesis.	Liu K, Rischmueller M, Lester S, Scofield RH
American Rheumatology Association Annual Meeting, San Diego, CA, USA. October 2013	Complex functional effects within the HLA contribute to Sjögren's syndrome pathogenesis and may influence both transcriptional regulation and peptide binding.	Lessard CJ, Rischmueller M, Harley JB, Sivils KL
Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2013	Quality of reporting of interventional animal studies in rheumatology.	Ting K, Hill C, Whittle SL
Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2013	Synovial fluid dendritic cells and monocyte derived dendritic cells display similar basal characteristics but differ in prostaglandin D synthase expression and responsiveness to LPS and vitamin D	Moghaddami M, James M, Whittle SL, Cleland LG
Medicines Management 2013, 39th Society of Hospital Pharmacists of Australia Conference, Cairns, QLD September 2013	Defibrotide for treatment or prophylaxis of veno-occlusive disease: What is the evidence?	Hillock N, Ward M, Rolan P, Hill CL
Medicines Management 2013, 39th Society of Hospital Pharmacists of Australia Conference, Cairns, QLD September 2013	A statewide evaluation process for high cost medicines: The challenges of a poor evidence base.	Hillock N, Rolan P, Hill CL
12th International Symposium on Sjögren's syndrome, Kyoto, Japan October 2013	Complex functional effects within the HLA contribute to Sjögren's syndrome and may include both transcriptional regulation and peptide binding.	Lessard CJ, Adrianto I, Rischmueller M, Sivils KL

Conference Title and Date	Title of Presentation/Poster	Attendee Name
SURGERY, University of Adelaide Discipline of		
SA Board of General Surgery, Specialist General Surgery Training Long Course, Adelaide, SA February 2013	Fellowship Tips and Trips	Walsh D
TQEH Grand Rounds,Adelaide, March 2013	How to Image a Breast	Walsh D
University of Adelaide, Masters of Surgical Science Course,Adelaide, SA September 2013	Antibiotics and surgery	Walsh D
Benson Radiology GP Breast Cancer Workshop,Adelaide, SA October 2013	Breaking Bad News	Walsh D
Annual Scientific Meeting of the Australia and New Zealand Society of Vascular Surgery Hobart, TAS October 2013	Evidence for medical therapies and sympathectomy in critical limb ischaemia	Dawson J, Fitridge R
Annual Scientific Meeting of the Australia and New Zealand Society of Vascular Surgery Hobart, TAS October 2013	Comorbidities and interventions in patients undergoing amputation in Australia and New Zealand: an analysis of 9981 patients from the Australasian vascular audit database.	Rana A, Dawson J, Minh D, Le Nguyen, Fitridge R.
Annual Scientific Meeting of the Australia and New Zealand Society of Vascular Surgery Hobart, TAS October 2013	Distal migration of EVAR leading to rupture: open, endovascular and hybrid approaches to a new vascular emergency.	Minh D, Le Nguyen, Dawson J, Rana A, Benveniste G, Subramaniam P, Fitridge R
Annual Scientific Meeting of the Australia and New Zealand Society of Vascular Surgery Hobart, TAS October 2013	Trends in preoperative variables and early death rates by centre, country and time for patients undergoing endovascular aneurysm repair.	Mackillop C, Boulton M, Barnes M, Cowled P, De Loryn T, Fitridge R
2nd Annual NHMRC Research Translation Faculty Symposium – from Bench to Bourke. Sydney, NSW October 2013	Decision tools in Vascular Surgery.	Fitridge R, Cowled P, Dawson N, Boulton M, Barnes M
2013 CSSANZ Spring Meeting, Marriott Hotel Gold Coast, QLD July 2013	Rate of Abdominoperineal resection	Hewett P
Combined Grand Round,TQEH, July 2013	National Bowel Screening Program	Hewett P
Advanced Gastroenterology Course 2013 The Queen Elizabeth Hospital, May 2013	Laparoscopic surgery for colorectal cancer	Hewett P
Darwin surgical/oncology group, Darwin NT March 2013	Advances in the surgical treatment of Rectal Cancer	Hewett P
Health Sciences Postgraduate Research Conference,Adelaide SA August 2013	Targeting Bone Metastasis with Adoptive Transfer of ex vivo expanded Vγ9Vδ2 T-cells	Zysk A, Evdokiou A
Mammary Gland Biology Gordon Research Conference, Stowe, Vermont, USA 2013	Characterisation of immune cell types in healthy breast tissue	Dasari P, Hodson L, Ingman W
Society for Reproductive Biology, Sydney, NSW August 2013	Impaired TGFB signalling in macrophages perturbs mammary gland development	Sun X, Robertson S, Ingman W
Society for Reproductive Biology, Sydney, NSW August 2013	Toll-like receptor 4 regulates LPS-induced inflammation and disease resolution in a new mouse model of lactational mastitis	Glynn DJ, Hutchinson MR, Ingman W
Australian Breast Cancer Conference, Melbourne, VIC November 2013	Human mammary tissues reconstituted after collagenase digestion and FACs isolation in murine tissue engineering chambers	Huo CW, Huang D, Vohora A, Chew GL, Ingman W, Henderson MA, Thompson EW, Britt KL
World Health Organisation Kobe, Japan, February 2013	Systematic review on needs for medical devices for older people in the Western Pacific region	Maddern G

Conference Title and Date	Title of Presentation/Poster	Attendee Name
SURGERY, University of Adelaide Discipline of		
NSW Operating Theatre Association Annual Conference, Sydney, 8 March 2013	Checklists	Maddern G
Safety, Quality and Sustainability Forum, Sydney, May 2013	Identification of candidates	Maddern G
Royal Australasian College of Surgeons Annual Scientific Meeting, Auckland, New Zealand, May 2013	Strategies to reduce blood loss in surgery: The surgeon	Maddern G
Royal Australasian College of Surgeons Annual Scientific Meeting, Auckland, New Zealand, May 2013	Fast-track surgery and enhanced recovery after surgery (ERAS) programs	Maddern G
Royal Australasian College of Surgeons Annual Scientific Meeting, Auckland, New Zealand, May 2013	How will the collection of national mortality data be used to improve quality and health services delivery in Australia: Plenary Session	Maddern G
HealthPACT Disinvestment Workshop, Brisbane, QLD May 2013	Disinvestment reappraisal	Maddern G
Florey Medical Research Foundation, Adelaide, SA May 2014	Diseases, trials and cures: What surgical research at TQEH and nRAH will do for you!	Maddern G
Surgicon Congress, Gothenburg, Sweden, June 2013	Surgical skills, technology and evidence	Maddern G
ANZHPBA Annual Meeting, Sydney, NSW August 2013	Barriers to evidence collection in HPB surgery	Maddern G
Medical Insurance Group Australia, Adelaide, SA 3 August 2013	Q&A	Maddern G
Medical Insurance Group Australia, Sydney, NSW 17 August 2013	Q&A	Maddern G
Medical Insurance Group Australia, Melbourne, VIC 7 September 2013	Q&A	Maddern G
Medical Insurance Group Australia, Barossa Valley, SA 21 September 2013	Q&A	Maddern G
Medical Insurance Group Australia, Adelaide, SA 23 November 2013	Q&A	Maddern G
Royal Australasian College of Surgeons SA, WA & NT Annual Scientific Meeting, Barossa Valley, SA August 2013	New surgical technology: Do we know what we are doing?	Maddern G
International Surgical Week 2013, Helsinki, August 2013	Bile duct stricture and bile fistula	Maddern G
International Surgical Week 2013, Helsinki, August 2013	Barriers to evidence collection in HPB surgery	Maddern G
SimHealth 2013, Brisbane Convention Centre, Brisbane QLD September 2013	Surgical simulation: Has it a future?	Maddern G
Australian Gastrointestinal Week 2013, Melbourne Convention Centre, Melbourne, VIC October 2013	Where are the limits for resection of Klatskin tumours?	Maddern G
JB I Biennial International Convention, Intercontinental Hotel, Adelaide, SA October 2013	Surgical trials and tribulations– Oration	Maddern G

Conference Title and Date	Title of Presentation/Poster	Attendee Name
SURGERY, University of Adelaide Discipline of		
South Australian Clinical Senate, Crowne Plaza Hotel, Adelaide, SA October 2013	ASERNIP-S, a local example of HTA in action	Maddern G
RACS Section of Academic Surgery, Basil Hetzel Institute, The Queen Elizabeth Hospital, Adelaide, SA November 2013	Negotiating the shadowy world of academia	Maddern G
Surgical Research Society Annual Meeting, Basil Hetzel Institute, The Queen Elizabeth Hospital, Adelaide, SA November 2013	Who cares about surgical research?	Maddern G
American Society of Cataract and Refractive Surgery, Annual Congress, San Francisco, USA, April 2013	Toric intra-ocular lenses and MICS refractive outcome, examining for sources of residual astigmatism	Goggin M, Zamora-Alejo K, Esterman A
American Society of Cataract and Refractive Surgery, Annual Congress, San Francisco, USA, April 2013	Differences in ocular residual astigmatism using anterior and total corneal power in eyes without lenticular astigmatism	Goggin M, Greenwell T, Zamora-Alejo K, Athanasiov P, Esterman A
European Society of Cataract and Refractive Surgeons, Annual Congress, Amsterdam, Netherlands, October 2013	Toric IOLs and LRIs: Planning, nomograms and enhancements (Instructional Course presenter)	Goggin M
European Society of Cataract and Refractive Surgeons, Annual Congress, Amsterdam, Netherlands, October 2013	TCorneal astigmatism as measured by anterior and total corneal power	Goggin M
NSW RANZCO Branch Meeting, Sydney NSW 2013	Minimising astigmatism in cataract surgery	Goggin M
European Society of Cataract and Refractive Surgeons, Annual Congress, Amsterdam, Netherlands, October 2013	The Optics of Astigmatism	Goggin M
University of Canberra, Canberra, May 2013	New life from dead cells	Gowans EJ
Department of Gastroenterology, TQEH, Advanced Gastroenterology Course, Adelaide, SA August 2013	New ways to treat hepatitis C 2013	Gowans EJ
BHI Research Day, Adelaide, October 2013	Novel DNA-based vaccine for HCV	Gummow J, Yu S, Grubor-Bauk B, Gowans EJ
BHI Research Day, Adelaide, October 2013	Intranasal vaccination to generate pan-mucosal immunity to HIV	Tomusange K, Gummow JA, Garrod TJ, Yu S, Li J, Grubor-Bauk B, Gowans EJ
Australian Centre for HIV and hepatitis virology meeting, Sydney, NSW May 2013	A novel challenge model to evaluate the efficacy of HCV vaccines in mice	Yu W, Grubor-Bauk B, Gargett T, Gowans EJ
Florey Medical Research Foundation, Adelaide University Friends and Benefactors, Adelaide, May 2013	Vaccines: Cures, Controversies and Current Development	Garrod TJ, Grubor-Bauk B, Yu W, Gowans EJ
Australian Centre for HIV and hepatitis virology meeting, Sydney, NSW May 2013	Inducing necrosis to enhance DNA Vaccination	Garrod TJ, Grubor-Bauk B, Yu W, Gowans EJ
Australian Centre for HIV and hepatitis virology meeting, Sydney, NSW May 2013	Evaluating the immunomodulatory effect of natural adjuvants as a novel vaccine strategy	Garrod TJ, Grubor-Bauk B, Yu W, Gowans EJ
BHI Research day, Adelaide, October 2013	Evaluating the immunomodulatory effect of natural adjuvants as a novel vaccine strategy	Garrod TJ, Grubor-Bauk B, Yu W, Gowans EJ
Coast FM radio interview, Adelaide, SA November 2013	HIV vaccines 2013	Garrod TJ

Conference Title and Date	Title of Presentation/Poster	Attendee Name
THERAPEUTIC RESEARCH CENTRE, University of South Australia		
Physicists and Biologists Working Together – Frontiers of Light Microscopy, Melbourne VIC, November 2013	In vivo multiphoton imaging to define the disposition and safety of medicines and nanotechnologies.	Roberts MS
22nd International Federation of Societies of Cosmetic Chemists (IFSCC), Rio de Janeiro, Brazil, October 2013	Penetration of nano-inorganic and organic sunscreens.	Roberts MS
Australian Competition and consumer Commission: International Consumer Product Health and Safety Organisation – International Conference on Consumer Product Safety, Asia Pacific Symposium, Gold Coast, QLD, October 2013	Nanosafety: precautions, exposure, toxicity and risk.	Roberts MS
The Gordon Conference - Barrier Function of Mammalian Skin, New Hampshire, USA August 2013	Facilitating skin penetration by optimising drug-vehicle-skin interactions.	Roberts MS
8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques - FLIM 2013, Saarbrücken, Germany, July 2013	Non-invasive intravital multiphoton imaging of the transport of solutes and nanoparticles.	Roberts MS
2nd international IVM Symposium Helsinki, Finland, May 2013	Imaging nanoparticle and solute penetration into the skin.	Roberts MS
10th Advanced Imaging Methods Workshop, University of California Berkeley, San Francisco, USA January 2013	In and ex vivo imaging of transport processes in rat and human tissue.	Roberts MS
2013 HIRi Seminar Series, RMIT, Melbourne VIC, October 2013	How drugs and nanoparticles are absorbed and handled by the body.	Roberts MS
Toxicology And Poisons Network Australasia (TAPNA) Conference, Newcastle NSW May 2013	Modelling the Absorption Kinetics of Paracetamol.	Roberts MS

SUPPORT STRUCTURES

SUPPORTING RESEARCH>SUPPORTING RESEARCH>SUPPORTING RESEARCH>SUPPORTING

The Basil Hetzel Institute (BHI) Policy Committee provides strategic advice for the running of the BHI and optimises the available support for research programs across The Queen Elizabeth Hospital (TQEH).

The Institute (BHI) Policy Committee

Current Members, December 2012

Professor Guy Maddern
Professor John Beltrame
Professor Justin Beilby (proxy - Prof Andrew Somogyi)
Professor Pat Buckley
Dr Prue Cowled
Dr Peter Zalewski
Dr Jenny Hardingham
Professor Andreas Evdokiou
Dr Ehud Haubena
Mr Paul Flynn
Ms Kathryn Hudson
Professor Eric Gowans
Associate Professor Wendy Ingman
Mr Peter Adams

Executive Support

Ms Gwenda Graves

Professor Guy Maddern was reappointed to the position of Director of Research in April 2010 for a five-year term. This leadership position has been critical to furthering the aims of research excellence and enhancing the research reputation of TQEH.

Several sub-committees assist the BHI Policy Committee as required, notably the:

- Research Day Organising Committee, chaired by Dr Prue Cowled, University of Adelaide Discipline of Surgery, in the planning and running of the annual Research Day event.
- Scholarship Selection Committee, chaired by Professor Maddern, in awarding a range of scholarships funded by The Hospital Research Foundation.
- BHI Management Committee, chaired by A/Professor Wendy Ingman, University of Adelaide Discipline of Surgery, in managing the Basil Hetzel Institute.

TQEH Research Secretariat undertakes a range of activities to assist the Director of Research in supporting, fostering and administering quality research activity across TQEH.

The Committee is comprised of senior representatives from:

- the two universities with whom the hospital is affiliated, the University of Adelaide and the University of South Australia;
- University of Adelaide academic heads of departments at TQEH (Medicine and Surgery);
- Allied Health
- Chair, Strategic Research Directions Working Group
- BHI Facility Manager and
- the scientific community

Research Training

The BHI Policy Committee aims to support the research capacity within basic and clinical areas through its strategy of providing a number of scholarships at postgraduate, Honours and vacation levels.

Research training promotion

In 2013 research training opportunities and Scholarship support were actively promoted through the Basil Hetzel Institute's Internet site with links to key university research training sites.

The Hospital Research Foundation Vacation Research Scholarships

Eight placements offered in TQEH research settings over the 2013-2014 vacation were generously funded through the National Heart Foundation, The Hospital Research Foundation Program grants or by individual departments, and provided scholars with the opportunity to gain valuable research experience in a clinical/laboratory environment.

Honours Research Scholarships

Honours Scholarships continued to be offered at TQEH in 2013. Six Scholarship recipients undertook projects through a range of Programs including the Health Observatory Breast Biology and Cancer Unit, Haematology - Oncology and Otorhinolaryngology.

Higher Degrees
In 2013 over seventy scholars were undertaking research towards Higher Degrees at TQEH, with several domestic students supported with The Hospital Research Foundation Scholarships. In 2013 The Hospital Research Foundation Scholarships provided for stipends which matched the Australian Postgraduate Award (APA) rate. Since 2010 The Hospital Research Foundation Scholarships have been funded via the Program grants, with primary responsibility for selection of research students devolved to research groups. With the ending of THRF Program grant funding responsibility for the selection of Honours and Postgraduate scholars has returned to the BHI Scholarship Selection Committee. The Committee draws representatives from clinical academics and scientists. Both the University of Adelaide and University of South Australia are represented. Other higher degree students at TQEH have scholarship support from a range of funding bodies, including NHMRC, the University of Adelaide and University of South Australia (International scholarships, APA, and University of Adelaide Faculty 'Divisional' scholarships). The Hospital Research Foundation also supports two international scholars.

Research Day 2013

Research Day 2013 was again held in our research building, with our combined seminar rooms, atrium and common spaces comfortably accommodating the sizeable event. Research Day has been held for 22 years now and continues to be recognized as a significant annual event in the research calendar at TQEH. The long-established purpose of the Day is to provide an opportunity for students and those “in training” to practice and develop presentation skills under conditions that are typical of most professional society congresses. With this experience, it is expected that research quality from TQEH will benefit as researchers deliver their work to national or international congresses. Prizes are awarded in a number of categories for the best presentation and competition is fierce!

Sponsorship for the Day was obtained from many sources, both University and corporate. However our major sponsor for Research Day has for many years been The Hospital Research Foundation and we are very grateful for this long-term support. The Day was very successful, and our winners are identified in the Award section of the report.

Dr Prue Cowled

Chair, Research Day Organising Committee, 2013

Statistical Support Service, TQEH

The Statistical Support Service, jointly funded by BHI and the Faculty of Health Sciences (FHS) at the University of Adelaide, provides 12 hours per week of statistical assistance to staff and students at the BHI and TQEH more generally.

In 2013 the Statistical Service was provided by Dr Stuart Howell, of the Statistics Division of the Data Management & Analysis Centre (DMAC), School of Population Health and Clinical Practice at The University of Adelaide.

The range of services has included:

- Advice to research staff and postgraduate students about
 - o Design of health-related research
 - o Statistical aspects of research programs
 - o Preparing data for analysis
 - o Data analysis
 - o Manuscript preparation
- Analysis of data from research programs based at BHI, TQEH.

We are grateful to DMAC, and the University of Adelaide for their support and commitment to research at TQEH.



Basil Hetzel Institute Management Committee

Current members, December 2013

The Institute Level	Representative
Ground Level	Ms Sarah Appleton
Level 1	Dr Eleanor Need
	Professor Andreas Evdokiou
	Dr Sarah Bray (Deputy Chair)
Level 2	Dr Peter Zalewski
	Dr Ian Westley
	Ms Irene Stafford
Surgical Suite	Mr Matthew Smith
External representative	Dr Tony Cambareri
Postgraduate Representative	Ms Lauren Giorgiou
Chair	Associate Professor Wendy Ingman
BHI Facility Manager	Ms Kathryn Hudson
Executive Support	
Ms Gwenda Graves	

HUMAN RESEARCH ETHICS REPORT

ETHICS REVIEW>ETHICS REVIEW>ETHICS REVIEW>ETHICS REVIEW>ETHICS REVIEW>ET



Associate Professor Tim Mathew - Chairman
Human Research Ethics Committee (TQEH/LMH/MH)

In my last year’s report I outlined the major changes impacting on the Ethics process of doing research in a public health institution in Australia. These changes are Australia wide and have been at least 5 years in the making. The original intent of reducing duplication of the ethics and scientific assessment for multi-centre applications, whilst laudable, has had an unforeseen impact of identifying significant gaps in the governance of research around the country.

The net effect of the changes (now branded by the NHMRC as “National Mutual Acceptance” - finally introduced from 1 November 2013) has been to make the whole process more demanding, more complicated and more expensive than existed originally. From the researcher’s point of view this has proved challenging by requiring more documentation and created a more lengthy process than was anticipated. Has it been worthwhile? From the risk management and financial control point of view the answer is probably yes but at the expense of considerable frustration for the research teams.

A major component of the change was the acquisition of an IT platform by SA Health that was supposed to facilitate the whole Ethics process and in particular the tracking of applications both internally and externally. The introduction of this system has produced its own challenges and disappointments and 2 years after its implementation is still not capable of performing core requirements including talking to other institutions and reporting.

To the credit of the local HREC team we have made better and fuller use of this system than others and the lure of a paperless option for the HREC remains a possibility.

Our own HREC and the Scientific Review Committee (that precedes each HREC meeting) have been a real strength through this challenging time. A dedicated and diverse group of people committed to excellence in research meet monthly and I believe adds significant value to the applications in front of it. There is a balance between polishing the applications to perfection on the one hand and on the other getting them into a useable, practical and ethically appropriate form. I think our HREC achieves this balance and enables sign-off in a timely fashion.

One of the impacts of these National changes has been the reduction in the number of applications submitted for our own Ethical consideration and this combined with the reduced scope of clinical activities at TQEH and the consequent reduced capacity to generate research activity will generate momentum for change to the structure of the Ethics process in the Central Adelaide Local Health Network. This is under consideration at the current time. The next 12 months will likely set in place arrangements that will take us into the new era which includes the regenerated RAH. Many challenges lie ahead to keep a local Ethics process in place and ensure that we have one that can meet the needs of local researchers on a timely and effective basis.

RESEARCH DAY AWARDS

EXTERNAL AWARDS

TQEH RESEARCH DAY 2013>TQEH RESEARCH DAY 2013>TQEH RESEARCH DAY 2013>TQEH EXTERNAL AWARD WINNERS 2013>EXTERNAL AWARD WINNERS 2013>EXTERNAL AWARD



2013 Research Day Award winners - From left: Shalini Sree Kumar, Amanda Drilling, Vikram Padhye, Zacki Malik, Vivek Nooney, Shailaja Nair, Tharshy Pasupathy with Professor Guy Maddern, Director of Research

Best Oral Presentation Honours Students

Zacki Malik, E Roscioli, PJ Wormald, S Vreugde
'Effects of *Staphylococcus Aureus* on nasal epithelial cell transepithelial resistance and morphology'

Best Oral Presentation Junior PhD Students (Laboratory)

Vikram Padhye, Rowan Valentine, Sathish Paramasivan, Camille Jardeleza, Ahmed Bassiouni, Sarah Vreugde, PJ Wormald
'Early and late complications of endoscopic hemostatic techniques in crotid artery injury'

Best Oral Presentation Senior PhD Students (Laboratory)

Amanda Drilling, Sandra Morales, Samuel Boase, Joshua Jervis Bardy, Peter Speck,
Sarah Vreugde, Peter-John Wormald
'The enemy of my enemy is my friend. Assessing bacteriophage treatment of *S.Aureus* biofilms *in vivo*'

Best Oral Presentation Clinical Research Group1

Sivabaskari Pasupathy, Rosanna Tavella and John Beltrame
'A Systematic review of myocardial infarction with non-obstructive coronary arteries'

Best Oral Presentation Clinical Research Group2

Shailaja Nair, D. Gentilcore, R. Visvanathan
'Is postprandial hypotension a possible contributing factor to hip fractures in older people?'

Poster Prize

Shalini Sree Kumar, Timothy Price, Jennifer Hardingham
'Biomarkers of resistance to anti-EFGR in wild type KRAS/BRAF colorectal cancer cell lines'

Best Lay Description

Tamsin Garrod, Branka Grubor-Bauk, Tessa Gargett, Darren Miller, Wenbo Yu, Christopher Burrell, Eric Gowans
'Evaluating the immunomodulatory effect of a natural adjuvant as a novel vaccine strategy'

Ivan De La Lande Award

Vivek Nooney, Nicola Hurst, Yuliy Chirkov, John Horowitz
'Acute effects of clopidogrel are predicted by integrity of prostacyclin signalling'

EXTERNAL AWARDS

AGED CARE SERVICES

S Nair: RM Gibson Prize for her platform presentation 'Intermittent Walking: A Potential Treatment Strategy For Older People With Post-prandial Hypotension' at the Australia and New Zealand Society for Geriatric Medicine Annual Scientific Meeting.

S Nair: Best oral presentation Clinical Research Group 2, TQEH Research Day, October 2013, Basil Hetzel Institute.

The Fellowship to the Australia and New Zealand Society for Geriatric Medicine (FANZSGM) to Associate Professor Renuka Visvanathan in recognition of her research, teaching and clinical contribution to geriatric medicine at the Australia and New Zealand Society for Geriatric Medicine Annual Scientific Meeting.

R Shinmoto: Best Paper Award Finalist (one of five)- for conference paper Sensor Enabled Wearable RFID Technology for Mitigating the Risk of Falls Near Beds. IEEE RFID International Conference in Orlando, Florida, May 2013.

E Dent: University of Adelaide School of Medicine Travel Grant.

N Mahajan: University of Adelaide School of Medicine Travel Grant.

E Dent: University of Adelaide Dean of Graduate Studies Commendation for Doctoral Thesis Excellence.

HAEMATOLOGY AND MEDICAL ONCOLOGY

S Bray: Awarded a European Haematology Association Travel Grant at the 18th annual congress, held in Stockholm, Sweden in June 2013 for the presentation of 'The effects of RPS19 knockdown on Gata1 expression in a cell line model of Diamond Blackfan Anaemia' S Bray, L Wee, M Perugini, R D'Andrea.

S Sree Kumar was awarded a travel grant from the School of Medical Sciences, University of Adelaide and a top-up from Scheme A to present two posters at the European Cancer Congress, Amsterdam, September 2013

MEDICINE University of Adelaide Department of

R Dreyer
Faculty of Health Science Dean's Commendation
Sir Keith Murdoch American-Australian Fellowship Award
State Finalist for Young Australian of the Year Award 2013

Y Du
Ram S Tulsi Research Award

T Pasupathy
Best Oral Presentation – Clinical Research Group 1, TQEH Research Day, October 2013, BHI

A Trotta
Discipline of Medicine Travel Grant

P Zalewski
Discipline of Medicine Travel Grant

NEUROLOGY UNIT

Dr Karlea Kremer
Awarded The Peter Couche Foundation fellowship (2 years)

Dr Wai Khay Leong
Fresh Science 2013 state finals - on DPSC & stroke project:

Joshua Winderlich
Australian Society for Medical Research (ASMR) Best Poster Prize, June 5 2013.

Joshua Winderlich
University of Adelaide School of Medicine Best Poster Prize: August 29 2013.

RESPIRATORY MEDICINE UNIT AND CLINICAL PRACTICE UNIT

M Brinn TSANZ Tobacco Control Prize for best oral presentation

K Carson Young Professionals Group Development Grant Award for 'Leaders in Lung Health and Respiratory Services'

K Carson South Australian Young Investigator Award semi-finalist

K Carson Catherine Helen Spence Memorial Scholarship finalist

K Carson SA and NT TSANZ Young Investigator Award finalist

ACKNOWLEDGEMENTS

ACKNOWLEDGEMENTS 2013>ACKNOWLEDGEMENTS 2013>ACKNOWLEDGEMENTS 2013>ACK

Aberdeen University, UK – Department of Cardiology
Aberdeen University, UK – Centre for Therapeutics
ACAGN (Australian Cochrane Airways Group Network)
Adelaide Women's and Children's Hospital
Alfred Health, Victoria
Alzheimers Australia
AIB Labs
American College of Surgeons, Chicago, USA
American Chamber of Commerce
AMGEN
Anne Marie Trimboli Trust
Arthritis Australia
ARC
ASERNIPS
Austin Health
Austin Hospital
Australian Hotel Association (AHA Hotel Care)
Australian Breast Cancer Research
Australian and New Zealand Intensive Care Society
Australian Prowstate Cancer Research
Australian Red Cross Blood Service (ARCBS)
Australian Research Council
Australian Society for Medical Research (ASMR)
Baker Research Institute
BankSA Staff Charitable Fund
Beat Cancer SAHMRI
Beyondblue
BioInnovationSA AIB Labs
Biomet
Birmingham Heartlands Hospital
Boehringer Ingelheim
Boston University, Department of Medicine, USA
Bradford Royal Infirmary, UK
Burnet Institute, Melbourne
Cambridge Centre for Brain Repair
Canberra Hospital, Canberra
Cancer Australia
Cancer Council of South Australia
Captain Courageous Foundation
Central Adelaide Local Health Network
Centre for Cancer Biology, Adelaide, Australia
Channel 7 Children's Medical Research Foundation of SA
Chiltern International
Commonwealth Dept of Health & Aged Care
Concord Hospital, NSW
Corin
Covance Pty Ltd
Cork University Hospital, Cork, Ireland,
CSIRO
Curtin University, Western Australia
Department of Oncology, Genentech Inc, South San Francisco, USA

Department of HPB Surgery, University of Leicester, UK
Diabetes South Australia
Diamantina Institute, for Cancer, Immunology and Metabolic Medicine
Drake Supermarkets
Dry July
Erasmus University Medical Centre, Rotterdam, the Netherlands
Flinders University of South Australia
Florey Institute
FluGen Inc, Wisconsin, USA
Fourth Hospital, Hebei Medical University, Shijiazhuang, China
Following Footsteps
Garrett Passe and Rodney Williams Memorial Foundation
Gillies Hospital, Auckland, New Zealand
Heart Foundation of South Australia (Tom Simpson Trust)
Hanson Institute
Indian Institute of Science, Bangalore, India
INC Research Australia
Intensive Care Foundation.
Intermune Inc
James Cook University, Townsville, Queensland
Johnson & Johnson Medical Research
Kings College, UK
La Trobe University
Leicester General Hospital, UK
Lewin Stroke & Rehabilitation Unit, Addenbrookes Hospital, Cambridge UK
Lyll McEwin Hospital
Mason Foundation
Medimmune
Memorial Sloan Kettering Cancer Centre, NY, USA
Menzies Institute
Mid-America Heart Institute, Kansas, USA
MIT, USA
Monash Medical Centre
Monash University – Department of Epidemiology & Preventative Medicine
Monash University – Department of Pharmacology
MSNA Australasia Inc
Nagoya University Graduate School of Medicine, Nagoya, Japan
National Breast Cancer Foundation
National Health & Medical Research Council (NHMRC)
National Heart Foundation of Australia (NHFA)
Newcastle University, United Kingdom
Northern Territory Health
Olympic Spirit Greek Friends
Osteoporosis Australia
Otago University, Chemistry Department, New Zealand
Our Lady's Children's Hospital Crumlin, Dublin, Ireland
Oxford University
Peter Couche Foundation
Peter MacCallum Cancer Centre
Pittsburgh University, Department of Medicine, USA

Prostate Cancer Foundation of Australia
PROT-AGE study group
Queensland Institute of Medical Research, Australia
Resthaven
Robinson Institute
Royal Adelaide Hospital
Royal Brisbane and Womens' Hospital
Royal Australian College of General Practitioners
Royal Australasian College of Physicians
Royal Australasian College of Surgeons
Royal Free and University College Medical School, London, UK
Royal Northshore Hospital, NSW
Royal Prince Alfred Hospital Intensive Care Unit
SA Heart Foundation
SAHMRI
Scott Salisbury Homes
Stanford University Medical School, USA
Stroke SA
South Australian Department of Health
St George's Vascular Institute, London, UK
St James University Hospital, Leeds, UK
St Jude's Research Institute, Memphis USA
St Vincent's Institute Melbourne, Department of Medicine
Sydney University, NSW
Tehran University, Iran
The Australian National University, Canberra
The George Institute for Global Health
The Hospital Research Foundation (THRF) (formerly The Queen Elizabeth Hospital Research Foundation)
The Royal Marsden Hospital, UK
The Chinese University of Hong Kong, China
Threshold Pharmaceuticals, Inc. ("Threshold"), California, USA
Tilberg University, The Netherlands
TLC Pharmacy, Hanson
Weill Cornell Medical College, New York, USA
Western Australian Institute for Medical Research (WAIMR)
Women's and Children's Hospital
University of Adelaide
University of Birmingham, UK
University of California, San Diego, USA
University College, London UK
University of Cyprus
University of Eastern Finland
University of Groningen
University of Hannover, Germany
University of Leeds, UK
University of Leicester, Leicester, UK
University of Manchester
University of Marburg
University Medical Centre, Leiden, Netherlands
University of Melbourne
University of Michigan, USA
University of Münster
University of Newcastle
University of New South Wales
University Nijmegen Medical Centre, Nijmegen, Netherlands
University of Otago, New Zealand, Department of Chemistry
University of Queensland
University of South Australia
University of Southampton, UK
University of Tasmania,
University of Würzburg
York District Hospital, UK



CHAIR REPORT 2013

THE HOSPITAL RESEARCH FOUNDATION CHAIR REPORT 2013>THE HOSPITAL RESEARCH FO

In the dynamic and ever changing world of health and medical research The Hospital Research Foundation has proudly kept pace as an active leader and advocate for growth, change and innovation. The Foundation has diversified its operations to ensure it can continue to support key areas of health and medical research that are most relevant to the health needs of the broader population as well as our local communities.



Lee Michaelis - Chair

This planned expansion has seen the development of key research partners: Australian Breast Cancer Research (ABCR) in 2010 and Australian Prostate Cancer (APC) in 2013, as disease specific research entities to ensure individual funds for these high incidence diseases. This strategic direction will see the addition of other research affiliates over the next twelve months to support leading programs in other high incidence areas namely - heart and colorectal research.

We aim to support the very highest level of medical and health research that can be swiftly and successfully translated into tangible treatments and therapies for people in primary healthcare and community settings across Australia.

To be relevant and successful in our endeavours we must also be able to adapt and grow in response to the health needs of our population. This means we need to help cultivate and nurture the very best minds in medical and health research as well as the next generation of research leaders with opportunities to hone their skills in Australia. We aim to support their ingenuity and assist in building flexible, lasting frameworks, to foster their enquiries and fuel their ambition without fear of funding shortfalls. Through establishing these critical and dynamic environments we can grow and retain the research leaders of the future.

In a somewhat unpredictable economic and challenging political environment we have been able to achieve a healthy Funds to Research Ratio of 78.8%. Our staff, volunteers and medical research teams are proud of this achievement and continue to work tirelessly to ensure our mission to find cures and improve care can become a reality.

We have compiled this report for you so you can share with us the many research achievements and milestones that have made 2013 such a success. Thank you for your interest and your support.



Research Grants:

Our Research Grants are targeted at translational research that has potential to provide the greatest benefit to the community via novel diagnostics, new therapeutics, treatments or patient care initiatives. We currently fund long-standing research programs in the key areas aligned with our current research affiliates - breast cancer and prostate cancer research. 2014 will mark the final year for the five year Major Program Grants in the areas of Health Literacy and Healthy Aging through the Health Observatory and the development and assessment of novel surgical technologies and their introduction into the Australian healthcare system.

Three major Project Grants were awarded in 2013. We congratulate the research leaders in the areas of cardiology, virology and ear, nose and throat research on their recent success. We look forward to reporting on the first chapter of their respective research advancements in the next Annual Report.

The Foundation will also provide some 'near miss' funding in the next few months. Near miss represents research that has been highly commended through the NHMRC Grant process but has not received funding. Recipients of this funding round will be announced early in 2014.

Independent Research Review Committee:

We thank our esteemed panel of research leaders who form our Independent Research Review Committee. Together they ensure our grant funding is delivered to the highest quality research programs aligned with achieving our strategic and translational research objectives. The panel consists of Chair, Professor Colin Johnson a Senior Principal Research Fellow at Baker IDI Heart and Diabetes Institute, Honorary Professor of Medicine at Monash University and an Emeritus Professor of the University of Melbourne. The other panel members are Professor Judith Whitworth for the Australian National University and Professor Richard Fox, Director of Research at St Vincent's Hospital in Melbourne.

Patient Support:

We have continued to expand our patient support activities and in the process forged vital long term partnerships for the Foundation. As the South Australian beneficiary of the national Dry July program we have achieved another successful year with over \$220,000 raised. This year the Foundation was able to roll out the campaign to five regional hospitals in addition to TQEH to assist the delivery of cancer services in country centres. It is our aim to secure a three-year contract with Dry July starting in 2014 to continue our growth and support for cancer patient care in hospitals across the state.

We also forged a successful partnership with SuperCycle in 2013. This dynamic group of cyclists rode 1000 kms in 7 days and raised over \$150,000 to support our mission to build accommodation near TQEH for country patients undergoing cancer treatment. The 2014 SuperCycle event will mark the start of a three year agreement with the Foundation.

With the joint proceeds land has been purchased and plans drawn up for two homes to be built close to the hospital. It is anticipated these homes, the first in the Foundation's Under Our Roof project, will be completed by October 2014.

Revenue Activities:

We have continued to grow and develop our regular supporters through the Community of Care program. This has been a strategic objective to foster a reliable low or cost neutral flow of funding to our research teams. In exchange we aim to ensure our generous donors feel engaged and informed about their philanthropic contributions to health and medical research. The trust they place in us to direct funds to help find cures and improve care is of the utmost importance. We invite our donors to visit the research facility to see firsthand where their investments are being put to work.

Our major Hospital Home Lottery program has performed well in 2013. With external forces such as record Lotto campaigns and economic challenges acting at times against us, ticket sales have been most encouraging. Challenging times can often lead to innovation and with lottery partner SO Asher we have sought to reinvigorate the programs for 2014.

The small lottery program has been well supported and given us greater exposure at a national level and an opportunity to connect with donors who prefer to make donations via the phone.

We have also boosted our revenue streams via a presence on third party charitable sites such as Everyday Hero, Donate Planet and Just Giving. These sites allow engagement with people who are more inclined to show their support for health and medical research by participating in organised events across Australia. It has given us a vital connection and interaction with new donors and additional support on a local, national and even international level.

Supporter Communication:

We seek to engage and correspond with our donors and supporters across a wide variety of communication streams. We also aspire to foster the next generation of supporters by utilizing a variety of social media platforms such as Twitter, Facebook, YouTube, Instagram and Pinterest. This has resulted in considerable exposure and dialogue with new and established audiences.

Governance:

We strive to achieve the highest level of transparency and rigorous governance in our multi-faceted operations. Our planned expansion has meant operating across different jurisdictions, often with very different regulatory and licensing requirements. I acknowledge Paul Flynn for his judicious leadership in these matters to ensure we meet these necessary obligations.

I am most grateful to the exceptional Board of Directors with whom I have the great pleasure to work. Their wise counsel, strategic direction and dedication is invaluable to the organization and its aspiration to be a leader in the growth and support of health and medical research in Australia. I am indeed grateful to you all for your continued passion and hard work over the past year.

Summary:

2013 has been a tremendously exciting and rewarding year for the Foundation and for health and medical research in South Australia. We extend our grateful thanks to Professor Richard Ruffin as he retires from the Board of Directors after more than 15 years' service. The Emeritus Professor of Medicine at the University of Adelaide will continue to contribute to the respiratory health of the population through various research projects.

We also thank Professor Richard D'Andrea for his three years service to the Board. We wish him well in his new role at the University of South Australia.

We extend a warm welcome to our new board members – Professor Peter Hewett, Head, Colorectal Surgery at TQEH; Dr Stephen Rodda, Chief Executive of ITEK, the technology commercialisation arm of the University of South Australia and John Woodward, a senior technology executive at SA Health.

In closing, it is with sadness that we acknowledge the recent passing of John Michell AM who served on The Foundations' Board of Directors for 24 years, nine of those as chairman. In 2010 THRF named a Breast Cancer Fellowship in Mr Michell's honour; along with fellow board member Ray McGrath, for their long standing advocacy and support of medical research. The inaugural \$1.2 million Michell McGrath Fellowship was awarded to Professor Andreas Evdokiou for his research into the metastatic spread of breast cancer. Mr Michell was also well known for his decades long contribution to the Australian wool industry – as part of GH Michell & Sons.

On behalf of the Board of Directors I would like to thank our family of donors and supporters. To our Chief Executive Officer Paul Flynn and his team our sincere thanks for your vision, drive and enthusiasm – together we are helping to improve the health and wellbeing of all Australians.

CEO REPORT 2013

THE HOSPITAL RESEARCH FOUNDATION CEO REPORT 2013>THE HOSPITAL RESEARCH FOU

*Action is the foundational
key to all success.
Pablo Picasso*

I'm pleased to say 2013 has been a year of action and success for The Hospital Research Foundation (THRF). We have been able to deliver a record amount of funds to research which equates to a great achievement for our principle key performance indicator: 78.8% Funds to Research Ratio despite a challenging economic cycle. It has also been a year of significant expansion, diversification and innovation. We have built upward and outward from our core foundations to ensure we can deliver successful medical research outcomes and continue, where possible, to lead from the front in areas of good governance and transparency.

Our challenges remain however, with the not-for-profit sector a large number of worthy organisations all seeking a share of voice and financial support from donors. It is therefore essential that we focus our attention on the key areas of health and medical research that are most relevant to our community. This has been a key driver in the mission to establish and grow our national disease specific research affiliate program, aligned with key areas of medical research. These affiliates sit beneath the THRF umbrella and reflect the high incidence diseases and conditions relevant to our population.

We continue to work with the Basil Hetzel Institute for Translational Health and Medical Research, The Queen Elizabeth Hospital and The University of Adelaide to ensure the medical research bar is continually raised and funding is targeted at the very best personnel and translational research outcomes. To articulate the tangible benefit of translational medical research we have included in this report a compilation of actual patient stories. We thank both the patients and clinicians for their generosity and assistance in recounting their experiences for this important document.

Disease Specific Research affiliates

The first two affiliates are Australian Breast Cancer Research and Australian Prostate Cancer and are administered similarly to a trust structure to ensure funds go directly to those disease areas when donations are made. In 2014 two new disease specific affiliates will be launched nationally to allow donors to support research specifically into heart disease and bowel cancer.



Paul Flynn - CEO



We are excited to add these to our already successful national disease specific affiliate program, where 100% of donations go directly to the cause. This affiliate program also enables us to target funds to both specific research and patient care projects such as our recent collaboration with national research partner, Australian Prostate Cancer Research. We joined them as a roll-out partner of PROSTMATE a web-based, personalised support system for men and their families dealing with prostate cancer. We hope this will be the first of many such projects we are able to support via our disease specific brands.

Patient Care

Whilst we continue to provide support to health and well-being initiatives as well as patient care at The Queen Elizabeth Hospital, we now also support a number of other public hospitals throughout South Australia.

The state wide awareness program 'Dignity in Care' has continued to expand into hospitals and community service areas under the leadership of Dr Faizal Ibrahim and a team of dedicated 'Champions'. The program is the first of its type in Australia and works to reinforce the importance of treating all patients with dignity and respect. In 2013 the first Dignity in Care Conference took place at TQEH and was a much acclaimed success. Next year the Conference moves off-site to cater for an even larger audience of healthcare professionals and providers from around SA. We are delighted to be involved in pioneering enterprises that enhance the patient experience in and out of our hospitals.

2013 also marked the 5th consecutive year we have been involved with the national Dry July program as the state beneficiary. The online campaign requires people to sign up and raise funds to support a month of abstinence from alcohol. Funds raised are directed to cancer patient care at TQEH. In 2012 we expanded the SA program to incorporate Mt Gambier, Whyalla and Port Lincoln Hospitals all of which have cancer care facilities. The success of the expanded campaign allowed us to also include Berri and Murray Bridge Hospitals in 2013.

Dry July funds raised in the metropolitan area will be directed to the Under Our Roof project that will be completed in 2014. Under Our Roof will provide much needed family accommodation for country cancer patients receiving treatment in Adelaide. The two 3 bedroom homes to be built will be within walking distance of TQEH and local schools. We have had solid support from the local community for this project.

With the success of the 2013 SuperCycle event we have been fortunate to secure a further three year arrangement as event beneficiary partner. The projected revenue for the 2014 will be in excess of \$400,000 which will be directed into the Under Our Roof project at Woodville. We thank this energetic and philanthropic group of cyclists who are working towards this amazing project outcome with the Foundation and providing a dynamic element to our community engagement and fundraising activities across the state.

Research Equipment

World class researchers require and deserve the very best equipment available so they can push ahead in their quest to find cures and improve care. Each year the Foundation facilitates the purchase of laboratory equipment to enhance the speed and accuracy of research experiments. While equipment with demonstrable capacity to be shared across various research groups is often given preference, it is our aim to fund as many applications as possible to ensure the facility and its laboratories maintain their leading edge.

THRF contributed over \$192,255 to the purchase of vital research equipment this year including a Cardiopulmonary Exercise (CPX) Testing Suite, an IVIS Imaging System and an ELLspot Plate Reader.

Research Reserve

In 2010 a Medical Research Reserve was established to guarantee ongoing funding to long term research programs. It ensures our financial commitment to ongoing research is quarantined against harsh economic conditions and the flow on effect to our donor support. We are very pleased that due to our ongoing success and your support we have been able to build this reserve to \$6.6 Million which will guarantee long term viability for our future medical research investments.

Donor Engagement and Fulfilment

2013 has been a pivotal year for donor commitment to research outcomes. We have increased our conversations with our supporters across a variety of communication streams. We have targeted subtle changes to our donor communication via various direct response campaigns, which has provided valuable feedback on donor preferences and activity. It has also enabled some fine-tuning of our communication and conversations with supporters to ensure we fulfil their philanthropic aspirations.

We have given donor's greater access to information regarding the advances of medical research only made possible through their support. This has been achieved via research interviews and patient stories, published via hardcopy newsletters, web content, eNews bulletins and various social media platforms. Working with third party providers we have been able to tap into sectors of the community that prefer to support charitable groups via organised activities. This has been a key area of growth for THRF and its affiliates.

Active friend raising has been achieved through some lateral and creative thinking in tandem with hard work and determination. Held in October the first Longest Table event has helped fire our imagination and capacity for thinking outside the square; simultaneously bringing 500 supporters to dine together in a 'virtual' sense on the one night. The Longest Table will be a major event on the fundraising calendar in 2014.

Major Lotteries

The Hospital Home Lottery entered its 10th successful year in 2013. While there have been challenging fluctuations in both our local South Australian market and further afield, the lottery campaigns continue to be a great contributor to world class medical research and advancements in patient care in hospitals.

The launch of the next lottery will see the very first metropolitan beachside property to be offered as a major prize. It has been a long and scrupulous process to secure the ideal 'in-fill' location in beautiful West Beach. We are continually responding to changing market trends to ensure the Hospital Home Lottery remains the charity choice for South Australians.

Grants

We have recently announced the recipients of our 2013 Project Grants. The two year grants have been awarded to research teams headed up by chief investigators Professor Eric Gowans (Virology), Professor John Beltrame (Cardiology) and Professor PJ Wormald (ENT). Congratulations to these outstanding researchers who each received high praise from our Independent Research Review Committee. Early in 2014 we will be announcing some further support for applicants who narrowly missed the last NHMRC funding round.

These grants fill out our research support of two major breast cancer programs, two major prostate cancer programs as well as a major surgical evaluation and trial program.

Acknowledgements

In closing I would like to thank our retiring THRF Board Directors Professor Richard Ruffin and Professor Richard D'Andrea and welcome Dr Stephen Rodda and Mr John Woodward who have joined us in 2013. I would like to acknowledge the hard work and dedication of the Board under whose prudent direction we continue to be given the faith and latitude to expand and flourish.

I am blessed to work with a talented team who are all experts in their chosen fields. I would like to make particular mention of our CFO Ms Anna Nolan, our Director of Fundraising Ms Briony Marshall and our Director of Communications Ms Fiona Smithson and their respective staff all of whom have made such a major contribution to the success of the Foundation over the past year.

Thank you to the researchers, clinicians and their respective teams who give us reason to do what we do. They are the true heroes who give us all hope for improved care and cures into the future.

BOARD MEMBERS 2013

THE HOSPITAL RESEARCH FOUNDATION BOARD 2013>THE HOSPITAL RESEARCH FOUNDAT



Lee Michaelis (Chair) is the Principle at The Organik Store in Glenelg, SA. Lee has extensive background within the media, having spent over 20 years with senior management experience in sales and marketing roles. Lee has also spent over four years within the insurance category as State Manager of SGIC. Bringing a diversity of opinion and experience to the board derived from the benefit of dealing with many businesses during her career Lee is passionate about The Hospital Research Foundation and the tireless work undertaken by the staff and researchers, all with the aim of delivering first class medical research.



John MacPhail (Deputy Chair) is a partner of Finlaysons, one of Australia's oldest commercial law firms where he heads the Intellectual Property, Technology & Commercialisation group. John has more than 25 years experience working in law firms in London, Sydney and Melbourne. He is a past President of the Copyright Society of Australia, and taught part-time as a postgraduate university law lecturer and professional examiner on intellectual property subjects. As a practicing lawyer he advises clients working in a wide range of industries, particularly biotechnology, wine, retail, sports marketing and sponsorship, ICT and the medical/healthcare area.



Paul Flynn (Chief Executive Officer) is an innovative and entrepreneurial Executive who has earned a stellar reputation for achievement during a multifaceted career in both the Finance and Not for Profit sectors. He has been acknowledged for his contribution by being awarded the 2005 Ernst & Young Social Entrepreneur of the Year in SA/NT and was also awarded the 2006 Equity Trustees Australian CEO Award for Innovation. Paul is passionate about the opportunity to help medical and scientific researchers in their important voyage of discovery which will benefit all Australians. Paul brings advanced skills to The Hospital Research Foundation in the areas of Leadership, Sales Management, Property Development and Management, Change Management, Financial Risk Management, Employee and Organisation Development and Employee Relations. He is delighted to be working with the team at THRF and The Institute, contributing to the health and well-being of all Australians.



Leading cardiologist **Professor John Beltrame** brings a medical perspective to the board. He has degrees in both science and medicine, and is a Fellow of the Royal Australasian College of Physicians, the European Society of Cardiology, the American College of Cardiology and the Cardiac Society of Australia and New Zealand. He is the Michell Professor of Medicine and a senior consultant cardiologist at The Queen Elizabeth Hospital.



Professor Peter Hewett is a Clinical Professor of Surgery with the Adelaide University Discipline of Surgery and is Head of Colorectal Surgery at The Queen Elizabeth Hospital. He has published more than 100 articles in peer reviewed journals and has held three NHMRC grants. Prof Hewett is also currently chairman of the Calvary North Adelaide Hospital Clinical Review Committee and teaches at the Adelaide University Masters Course in Minimally Invasive Surgery.



Ken Milne is the Director of Milne Architects Pty Ltd and adds a different aspect to the board. He received a Diploma of Architecture at the University of South Australia and is a Fellow of the Royal Australian Institute of Architects. Until recently, he was also a board member on the Chapter Council of the Royal Australian Institute of Architects.



Melinda O'Leary commenced working for Nova Defence in 2002. As Human Resource Manager she has used her extensive experience to assist Nova with recruitment, introducing Human Resources procedures, workforce planning and the development and implementation of new business systems. Prior to joining Nova Aerospace, Melinda held senior positions in several recruitment firms. She has been the State Operations Manager for Select Staff, and State Manager for both Manpower Services and Kelly Services. Melinda completed the company director course in 2008 and joined the board of The Hospital Research Foundation in 2010.

BOARD MEMBERS 2013

RESEARCH ACHIEVEMENTS



RESEARCH ACHIEVEMENTS 2013>RESEARCH ACHIEVEMENTS 2013>RESEARCH ACHIEVEMENTS 2013>

STOP SMOKING SUCCESS STORY

A recent stop-smoking study targeting in-patients across three Adelaide hospitals has resulted in benefits for patients as well as the healthcare system.

Researchers from the Respiratory Medicine Unit at The Queen Elizabeth Hospital (TQEH) recruited 392 patients who were current smokers admitted to hospital with smoking related illnesses such as heart attacks, strokes, vascular disease and lung disease.

The study looked at the effectiveness of using the smoking cessation aid Champix combined with Quit SA counselling (8-week call back service), compared to a group that just received the counselling alone.

It also examined any improvement in the quality of life for patients who managed to quit.

Results showed over 31 per cent of participants who received the combined treatment had not returned to smoking in the following 12 months.

The group receiving counselling alone also benefitted with around 21 per cent smoke free after the same period.

For TQEH Researcher and PhD Scholar, Kristin Carson, the results were most encouraging.

"We know that generally unassisted quit attempts in the community have only around a three per cent success rate, so this is a wonderful outcome," she said.

Patients receiving the combined intervention also reported a significant improvement in their quality of life over the 12-month period.

Previous studies have shown that stopping smoking after an admission to hospital is associated with reduced readmissions, up to 31 per cent less hospital admission bed days, 13 per cent less outpatient visits and 50 per cent less bed days compared to those continuing to smoke.

"Our study found a potential cost saving through a 37 per cent reduction in occupied bed days over the first 12-months of continuous abstinence (no smoking at all over 12-months)," said Ms Carson.

"By not smoking over that 12-month period our study

participants produced an average saving of \$9,966 per person, just over that first 12-month period, compared to the people who continued to smoke."

Professor Brian Smith, Director of TQEH Respiratory Medicine Unit said from a public health point of view, even a few per cent reduction in smoking translates to a tremendous cost saving to the health system.



Signing up for the study was an opportunity heart attack victim and now reformed smoker Angus Redford knew he couldn't refuse.

"It is scary because I wasn't ready to die; I had a lot to do."

In a year the father of four went from smoking up to 60 cigarettes daily to none. His health dramatically improved, along with his outlook on life.

"I think these people saved my life. I think the program saved my life. I mean if I continued to smoke 60 a day, I would have had another heart attack in all probability," he said.

"Probably the best years of my life have been since my heart attack and I think the very best years of my life are still ahead of me."



John Hender is the State Manager of Perpetual Ltd Private Wealth Division. He has worked extensively in the financial services industry for over 25 years. He has been involved in sales and marketing, consulting and business development as well as management. John has a long history of community work and has been a board member of the The Hospital Research Foundation for eight years.



Luciana Larkin is a respected partner of Tregloans, an established Chartered Accountancy practice. Her key expertise is financial analysis and evaluation of complex tax & business transactions and application of business acumen & experience in accounting & taxation to deliver effective outcomes. Luciana brings this professional expertise & strong focus on accountability & governance to THRF Board together with experience from other not-for-profit boards.



Dr Stephen Rodda is currently Chief Executive of ITEK, the technology commercialisation arm (TTO) of the University of South Australia. He also serves in the dual role as Director: Research and Innovation Services at the University of South Australia. He was educated at the University of Adelaide gaining a first class honours degree, a PhD in Biochemistry and was awarded the University Medal. Subsequently he was awarded the prestigious CJ Martin and Arthritis Foundation fellowships for a post doctoral position at Harvard University.



John Woodward is Director of Program Services at SA Health in eHealth Systems. John has more than 25 years experience in technology related change programs, projects and consulting services across industries including the health, water, energy, and entertainment sectors. He holds an MBA specialising in technology management, is a graduate of the Australian Institute of Company Directors and a certified Project Management Professional through the Project Management Institute. John is also a member of the Technology Strategy Standards Steering Committee within the SA Government ICT Governance framework.

BOARD MEMBERS 2013

RESEARCHING AROUND THE CANCER

If a prostate cancer diagnosis wasn't bad enough, many men are then faced with the possibility that the disease has, or will spread to other parts of their body.

Dr Grant Buchanan and the Cancer Biology Group based at the Basil Hetzel Institute, are looking to determine the best treatment options for these men.

"If the cancer is truly localised to the prostate, men can be cured very easily by surgical approaches or radiation approaches where we actually take out the prostate or use radiation to destroy the cancer cells," Dr Buchanan said.

"Unfortunately for a number of men the cancer cells have already spread, but we can't really tell why this is the case."

"We can identify the cancer but we can't determine which cancers are going to be lethal. That makes it very challenging for men to understand what their future risks are and for the clinicians it makes it difficult to determine what the best treatment options are going to be for those men."

Instead of focussing solely on the cancer cells, the group is looking at the whole prostate. They've been granted \$42,000 by Australian Prostate Cancer in partnership with The Hospital Research Foundation for their latest project; 'Unlocking the Prognostic Potential of the Prostate Cancer Micro Environment'.

This study will look at tissue surrounding the prostate and whether it can be enhanced to ensure that prostate cancer cells don't migrate to other parts of the body.

"Cells that surround the cancer are actually very informative, telling us how those cancers are going to behave, and whether they're going to spread beyond the prostate to be actually threatening to the health and the life of the men who have it."

"We're using cutting-edge technology to look at the genetics of cells which surround the cancer cells and identify how they're

behaving, what they're doing and how they're effecting the growth and movement of the cancer cells, and which ones are going to be lethal. Nobody's done this before"

"We're really close to making big inroads; we're looking at how these cells control the structure of the prostate and identifying small molecules that we can target with new drugs. We're looking at ways that food and diet impacts on how the cancer cell behaves by interaction with the structural matrix containing these cancer cells."



"If we can crack those then we are able to rationally design approaches for men who fit these particular profiles, prevent the cancers from spreading and treat the ones that have already spread."

If the Cancer Biology Group can unlock some of these secrets, the information could then be applied to different types of cancer.

"All of the research that we're doing tries to look at things more holistically than just the cancer. This is also applicable to breast cancers, and a lot of other solid tumours and gastro intestinal tumours which are also contained in this matrix environment."

SPECIALIST ONLINE SERVICE TO BENEFIT PROSTATE CANCER PATIENTS

PROSTMATE

Australian Prostate Cancer (APC), a research partner of The Hospital Research Foundation, is proud to be a roll-out partner of a national online prostate cancer support service PROSTMATE.

Launched in November 2013, PROSTMATE provides men with personalised, specialist support through a private portal where they can track their progress from diagnosis through the treatment phase and even after therapy.

"We have been very pleased to work with Australian Prostate Cancer Research in Victoria and their principal project partners to provide support and a major grant for this very exciting and much needed service," said The Hospital Research Foundation CEO Paul Flynn.

"One in four men will face a prostate cancer diagnosis in their lifetime. Having a dynamic resource like this available online will provide great benefit for men across Australia," he said.

PROSTMATE is the culmination of years of meticulous research, interpreting the needs of patients and finally bringing together leaders in each discipline of prostate cancer to provide a broad range of support strategies for men with the disease.

The revolutionary system will enable men to participate in interventions that will enhance wellbeing and provide vital research information to shape care for men with prostate cancer now and into the future.

"Systems like this can only serve to enhance understanding so men feel more supported and even direct their own learning in the privacy of their homes," said Mr Flynn.

"We can only thank the many people involved for all their hard work in making this a reality."

SCHOLARSHIP TO BOOST VACCINE RESEARCH

The Hospital Research Foundation's newest research scholarship recipient Khamis Tomuasange joined The Basil Hetzel Institute for Translational Health Research (BHI) with passion and purpose in 2013.

"HIV is a global pandemic – it's a virus that is associated with lifelong chronic illness for which there is no cure," says Khamis.

"In Africa about 23 million people die from HIV every year and about 11,000 get new infections every day. In Australia this disease is obviously still devastating for sufferers, but nowhere near as prevalent – around 1000 people are diagnosed each year."

HIV does not discriminate from the young to the old and greatly impacts the productivity of Africa. For that reason it is often classified as a poverty related illness. "Ultimately, my goal is to help create a vaccine to end the devastation which HIV brings not just to Africa, but worldwide."

As a shining star in the field of Virology research Khamis previously studied at Duke University in the USA, and won a scholarship at The University of Manchester in the UK. He now joins the Virology Laboratory at the BHI led by Professor Eric Gowans where he will be working with the team to develop an intranasal vaccination for HIV.

"The intranasal vaccine would be administered via the mucosal surface of the nose; so it involves no injections or tablets, just 'breathing in' the vaccine," explains Khamis.

"We believe intranasal may be an effective way to vaccinate against HIV because the major contraction sites of HIV are also mucosal. Our body's mucosal lining is a continuous lining throughout the body, so by vaccinating via the nose we should provide protection to all other mucosal surfaces, including where HIV is contracted."

The approach Khamis and the team is taking to develop this vaccine is not like anything attempted before.

"I have been given a wonderful opportunity to come to this Institute to work with experienced scientists and have access to resources I would never have in Africa."

"At the end of three years I hope to surface with some quality information to contribute to the scientific community worldwide," he says.

"I hope the findings will identify a potential vaccine that will help reduce the impact of HIV in my country, and also benefit communities around the world, including my now 'local' community in South Australia."

The Hospital Research Foundation is proud to provide Khamis' University of Adelaide Scholarship of \$85,500 over 3 years.

USING OUR OWN CELLS TO BEAT CANCER

The Breast Cancer Research Unit is investigating the use of patients' own immune cells to fight cancer.

Head of the Unit and Michell McGrath Breast Cancer Fellow Professor Andreas Evdokiou last year spent three months studying this possibility at the Memorial Sloan-Kettering Cancer Centre (MSKCC) in New York.

His visit was an opportunity to build on a collaboration developed after hosting a fellow from MSKCC at the BHI.

"The project we embarked on is again targeting cancer, specifically breast cancer. These are new innovative ideas where we are using our own immune cells," said Professor Evdokiou.

He says everyone has T-cells to fight for their immune system. A rare population of those cells are known as gamma delta T-cells

"When there is a cancer these cells will move around targeting cancer cells and killing them before they have the ability to grow into tumours."

However, of the millions of T-cells in our bodies, only 1-5 per cent are the cancer fighting gamma delta T-cells.

Researchers are using patients' blood and increasing the numbers of the rare cells into millions.

"Now that we have expanded them in the dish we can put them back into patients that have certain cancers such as breast cancer and monitor their ability to kill breast cancer either in the breast or breast cancer that has metastasised into the bone," Professor Evdokiou says.

"We are able to view the gamma delta T-cells if they go directly to a tumour mass then we can image what happens to that tumour progressively over time."

Whilst in New York, researchers were able to label those T-cells in the dish and track them in vivo, a technique Professor Evdokiou has brought back to the BHI.



"Some of the work we've been doing with these T-cells is novel and unique with the potential to be translated into the clinical setting in a short time."

He has now written a National Health and Medical Research Council grant proposal based on his work with MSKCC's Dr Vladimir Ponomarev.

"At this level of research it is so important, almost imperative to do this sabbatical. It really provides new opportunities for funding, new opportunities for collaborative research and the exchange of students and research fellows."

Professor Evdokiou says the unit is also collaborating with universities in Arizona and Cyprus, which he visited during his sabbatical.

TRIALS PROGRESS SCIENCE AND LIVES

The Queen Elizabeth Hospital (TQEH) is always trialling new cancer treatments. In the Haematology and Oncology Unit, doctors are continuously reassessing the techniques and drugs they use to improve patients quality of life. However to do this they need trial participants, and so far the hospital has been able to attract an higher than average number of people willing to take part.

Director of Medical Oncology, Associate Professor Ken Pittman has been involved primarily in lung and genito-urinary cancer studies, including renal and prostate cancer. Other members of his team are also researching other tumours types including colorectal and breast cancer. Over time he has seen major changes in the way metastatic cancer is treated.

"Personally, I can say that the area I've been directly involved with for a long time where there has been a major change is in the management of metastatic kidney cancer," he said. Just 10 years ago there was no useful treatment for this disease. "Now we've got lots of treatments that patients can access as a matter of routine."



Although they are not curative treatments, A/Prof Pittman said patients are living up to six or seven times longer with these new therapies. Other members of his team have documented a greater survival time for patients with metastatic colorectal cancer. "Another area where there has been a recent change is in metastatic melanoma, which similar to kidney cancer, was pretty dire not that long ago."

"There are now a number of agents, some which are specifically targeted to particular types of melanoma where there is a particular type of mutation and the response rates for those patients have been very dramatic."

"The only way we get information about benefits of such therapies is by doing the appropriate studies."

"For example, we were involved in the international registration study of one of the drugs that we now use routinely in metastatic kidney cancer." By being involved in both national and international trials doctors at TQEH are also able to utilise treatments not yet routinely available in their hospital.

A/Prof Pittman said there is a collaborative group across Adelaide helping to treat patients with different therapies.

Not only can he refer patients to other hospitals that may have access to clinical trials not available at TQEH, many patients from other cancer services across town are referred to TQEH.

"For example, I get a lot of renal cancer referrals from other sites because we have an extensive renal cancer trial interest. The cancer clinical trial referral network functions across town so that there is always access to new trials no matter where you start." However, he said that he understood that not all patients are willing to be involved in trials. But others are keen to help the development of cancer treatments, while potentially improving their own lives.



BANKING ON BREAST TISSUE

A unique resource for breast cancer prevention research is being created, which has the potential to accelerate research findings.

Establishing a Breast Tissue Bank is a goal Associate Professor Wendy Ingman, Head of the Breast Biology and Cancer Group at the Basil Hetzel Institute for Translational Health Research, has wanted to develop for a number of years to help understand the cellular mechanisms that underpin breast cancer risk. "It is a challenge to construct a living tissue bank like this but we are keen to have something that will continue to provide information over the next 20 or so years," A/Prof Ingman said.



In traditional tissue banks, the tissue is preserved in a special fixative - it can be used for certain types of experiments but there are always limitations. "Collecting fresh tissue allows researchers to do much more. You can actually study the biology and look at the different cell types within the tissue," she said. The team can isolate the different cell types that are inside the breast tissue and prepare them in a special way that means they can be stored frozen in liquid nitrogen. The cells and tissue can then essentially be brought back to life as needed.

Having ready access to the tissue would give breast cancer researchers the chance to complete work in six months that might previously have taken them up to five years. "We are seeking tissue from women who are having elective breast surgery, for example breast reduction surgery where tissue would normally be discarded. We can also use unaffected tissue from women who are having cancer related surgery," she said. Educating both clinical and surgical staff, as well as recruiting women prior to their surgery, has been quite an undertaking for

the research team. They are now expanding the program into more facilities including private hospitals.

"We have forged very close relationships with hospital staff who, in turn, are helping us to identify women who might meet the criteria for inclusion in the study and who might like to be involved," she explained.

"Of course for many women having breast surgery, particularly when it is cancer related, their diagnosis is a life-changing event that is often too overwhelming. Other women just simply want to do whatever they can do to help."

"We meet the women and have a good chat about what we are doing, what participating in the study would involve for them and answer any questions they might have about the study." The team has very strict protocols and guidelines in place that ensures set processes are followed and women can exit the study at any time.

"We follow up about two weeks post-surgery where a research nurse will interview each woman for an hour about their personal history and risk factors. It's a comprehensive 16 page questionnaire that details a woman's general health and lifestyle factors as well as things such as menstrual history, childbearing, breast-feeding, contraceptive use and HRT use," she said. This gives the research team a comprehensive personal history, which they match with the biology to see what's happening in the breast. Blood samples are used to measure hormone profiles.

In the future A/Prof Ingman said there may be other diagnostics that might be early detectors of breast cancer. "If we have blood samples stored these could be used to retrospectively study whether or not a particular factor in the blood could be associated with breast cancer."

"The current investment in each patient involved in the study is around \$500, but it is creating a resource that will keep paying back, even in 20 years' time."

"In the future it will dramatically accelerate our results and our ability to investigate the underlying mechanisms in breast cancer, and that's really going to be an enormous advantage in the field." A/Prof Ingman says the tissue bank is a huge undertaking with equally huge potential. "We have started with Patient 1 and currently have 30 women on board, but we think we will need 1000 patients."

"We have built solid foundations for the concept - what we are now working on is taking this out to engage other doctors, researchers and surgeons to help expand and grow this resource - these are the challenges ahead."

MAJOR PROJECT



UNDER OUR ROOF>UNDER OUR ROOF>UNDER OUR ROOF>UNDER OUR ROOF>UNDER OUR R



Nicholls Terrace, Woodville West is set to become a temporary home for country patients receiving cancer treatment at The Queen Elizabeth Hospital.

The Hospital Research Foundation purchased the property in June. "It's a great start for the 'Under Our Roof' project," said THRF CEO Paul Flynn.

"People who have to come from the country for life-saving treatment often have to leave their families and support networks behind and until now have had to find accommodation kilometres away."

"Being able to provide accommodation for the patients and their families, this close to the hospital, means so much to their treatment and their ability to recover from cancer."

Plans for two semi-detached 3-bedroom homes are now being prepared by AREA Construction, and Mr Flynn said they hope to have the building completed by mid-2014. "It's fantastic to see this project coming to fruition," he said.

"It will provide comfortable and convenient accommodation for country cancer patients, who currently have to find their own place to stay."

"Cancer specialists at The Queen Elizabeth Hospital had identified this as being one of the major stressors for country patients. By having suitable accommodation and family members close by we hope it will help improve their level of comfort at a crucial time," he said.

Funds for this project have come from some wonderful community based activities including SuperCycle 2013 and Dry July. "With the support of some amazingly energetic and community-minded people we have come a long way and will soon be able to provide a much anticipated home base for those most in need. We thank them all for their wonderful efforts," said Mr Flynn.



The Under Our Roof Sign installed at the Nicholls Terrace Property

BANKSA

In 2013 The Hospital Research Foundation recognised ongoing support from the BankSA and Staff Charitable Fund by mounting a plaque at the Basil Hetzel Institute.

BankSA staff make contributions to the fund by donating a percentage of their salary. So far they have donated more than \$109,000 to The Hospital Research Foundation since 1990.

A contingent of BankSA staff enjoyed a tour of the BHI after the plaque was unveiled.

"The charitable fund loves to see that the money is benefitting our state (SA) and it was great to hear The Hospital Research Foundation CEO Paul Flynn speak about how more research in the state leads to better informed medical staff and therefore a better standard of health care," said the Charitable Fund's Tara Glennie.



A plaque was hung at the BHI earlier this year to recognise BankSA's support.

PHARMACY

TLC Pharmacy Hanson was also a proud supporter of The Hospital Research Foundation this year.

The Hospital Research Foundation Events Coordinator Chloe Camilleri manned the barbeque at the pharmacy's open day and managed to raise \$170 through donations.

DRAKES FOODLAND

Drakes Foodland donated more than \$17,000 to The Hospital Research Foundation in 2013.

Thank you to Roger and Wendy Drake who chose The Hospital Research Foundation as one of the beneficiaries of their 2012 Drakes Showbags campaign.



THRF CEO Paul Flynn accepting a cheque from Drakes Foodland.

AMERICAN CHAMBER OF COMMERCE



The Hospital Research Foundation has again enjoyed a strong relationship with the American Chamber of Commerce (SA). In 2013 THRF was again the charity of choice for the AMCHAM Business Lunch Series.

Throughout the year the lunch series provides THRF with the opportunity to engage with South Australia's corporate community and provide them with an insight into the vital medical research being undertaken at the Basil Hetzel Institute.

This year more than \$7,300 was raised throughout the lunch series from sales of donated auction items and raffle.

FOLLOWING FOOTSTEPS FOR AUSTRALIAN PROSTATE CANCER



It's been 70 years since 14 commandos embarked on Operation Jaywick, a daring attack on Japanese ships anchored in Singapore's harbour. To mark the anniversary six men followed their footsteps in September 2013 to raise money for THRF research partner Australian Prostate Cancer (APC) and Help for Heroes (a UK charity).

The six retraced the 200km route paddled by the members of Z Special Unit, into Singapore's harbour, then back again to Batam Island. It was a journey showing the amazing feat in modern terms, taking six, average men and pitting their wits against heroes of World War II.

"The training is good we've stepped it up to about four times a week, with three kayak sessions about three hours a day, and then two gym sessions," said Daniel Mourad one of the organisers before the journey.

The group completed the journey the way it was done 70 years ago, carrying their own food, water and sleeping in hammocks amongst mangroves.

"The hardest thing is going to be spending six to seven hours in a kayak. Your back and your legs tighten up and the islands can look like they're next door to you, but can take two hours to get to."

"It's getting a bit more realistic at the moment."

A support boat filmed a documentary of the trip, and helped keep the kayakers safe while they passed through one of the region's major shipping lanes.

Mr Mourad said whilst discussing charities to support, the group had the realisation that, if statistics are correct, one or even two of them should expect to be diagnosed with prostate cancer some time in their life. So they decided to raise money for APC.



The group out on a training session

CAROLS FOR CANCER

Congratulations and a big thank you to Alexandra Vakitsidis and her wonderful group of friends for raising \$6417.50 for cancer research over the 2012/13 Christmas period.

Alex and her dedicated group raised funds by cheerfully Christmas Carolling at hundreds of homes across Adelaide. The group also held its annual cake stall and raffle at TQEH raising more than \$1,750.

"We are indebted to Alex and her supporters for their tireless and generous support of medical research here in South Australia and we sincerely thank them for their continual support," said THRF CEO Paul Flynn.

LOVERS HELP RESEARCH

Congratulations to Sandra Vancuylenberg and her helpers for raising more than \$6,000 for THRF research partner Australian Breast Cancer Research in 2013.



Sandra Vancuylenberg and her son Cameron

A Valentine's Day Ball was held at The Grand Ballroom at the Epping RSL in NSW on February 8 2013.

The event included a performance from international band 'Flame', a silent auction and raffle, as well as information about breast cancer research.

Organisers say guests enjoyed the fantastic music and a great meal whilst being able to support such a worthy cause.



Alexandra with her group at their annual cake stall

DINNER AND DANCING IN THE NAME OF CANCER RESEARCH

Maria and Chris Giannoudis' annual Cancer Support Dinner Dance was a magnificent affair with delicious food and dancing into the night. The event raised over \$17,000 and the amount of work Maria and Chris had put into the event was evident throughout the evening. The couple has been raising money for The Hospital Research Foundation since 2001.

This year THRF mounted a plaque at the entrance of the Basil Hetzel Institute in recognition of their efforts.

There was further celebration at the event when Evangelia Stangas presented a \$6000 cheque to Michell McGrath Breast Cancer Fellow Professor Andreas Evdokiou in memory of her late husband Fotios.



Chris and Maria Giannoudis with Professor Andreas Evdokiou, Evangelia Stangas, THRF CEO Paul Flynn and Evridiki Tomopoulos at the plaque presentation

The Basil Hetzel Institute for Translational Health Research (BHI) provides a dynamic, state-of-the-art research environment. The Hospital Research Foundation is proud to support the health and medical researchers in their ground-breaking collaborative research programs and to assist in providing the tools and equipment they need to deliver improved treatments and patient care to our community.

In 2013, The Hospital Research Foundation contributed over \$192,255 to the purchase of vital research equipment for the research teams at the BHI.

ELISpot plate reader

The ELISpot machine is designed to count specific cells which are necessary in an immune response or to help ensure the immune response is effective. The results measure the degree of immunity a subject has to a viral or bacterial antigen. The machine reduces the cost to researchers and speeds up the process of vaccine development. It will not only be used in the Virology Department, but in breast cancer research, surgery and haematology/oncology.



Virology Department researchers with the new ELISpot Plate Reader

Cardiopulmonary Exercise (CPX) Testing Suite

This equipment provides measurements of how hard the body is working during exercise and how oxygen is delivered to and used by working muscles. The information allows researchers to monitor adaptations associated with exercise therapy. It will be used to prescribe exercise in a more specific manner for heart disease patients. The benefits of exercise for these patients has been widely reported.

qPCR Machine

This machine is used to study differences in protein expression between different treatments. These techniques are an essential tool for a wide range of research projects investigating the basis of disease and evaluating potential therapies.

PC2 Upgrade

In an effort to increase the capacity of pre-clinical animal model experiments, a change station was purchased. Access to pre-clinical disease animal models contributes significantly to the breadth of translations medical research collaborations with clinicians at The Queen Elizabeth Hospital.

GelDocEZ

This equipment will be used to detect DNA and proteins in samples of cells, blood and tissues from both laboratory experiments and clinical samples from patients. It will also be used to discover abnormal levels of proteins in blood and tissues that may predict the development and progression of many different diseases.

Freezer

The emergency replacement of a freezer was made to Level 2 of the BHI.

IVIS Imaging System

Researchers are able to tag cancer cells with proteins which turn a fluorescent colour when placed under an imaging light. The equipment is so sensitive it can detect even one cancer cell. The machine can also measure bacterial growth and the location of antibodies and proteins.



Professor Andreas Evdokiou with the IVIS Imaging System

Patient Chair

An infusion chair was purchased for the Neurology Department to use in Dementia and Multiple Sclerosis (MS). Trials for experimental treatments require intravenous infusions and for patients to be observed closely.

FUNDRAISING EVENTS 2013



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THE LONG TABLE TO SUCCESS

Australia's first virtually connected dinner The Longest Table saw hosts and guests across the country combine to raise money for medical research.

More than \$50,000 was raised by 65 hosts and more than 500 guests at dinner party events held on Saturday 26 October.

"People had a really good time; everyone loves to be with their friends and they also like to be generous, so to combine the two as a virtually connected dinner is a really unique idea," said THRF CEO Paul Flynn.

All money raised will go towards breast and prostate cancer research through THRF and research affiliates Australian Breast Cancer Research and Australian Prostate Cancer.

"We hope that over the next 20 years breast cancer won't be a threat to life," Mr Flynn said.



The Basil Hetzel Institutes's Longest Table

"It might not be a chronic disease but we are confident through research new ways to treat breast cancer will be delivered."

"Our aim therefore is to continue to treat breast cancer but help shift a similar focus onto prostate cancer; because 1 in 4 Australian men will face a prostate cancer diagnosis during their life."



Saint Louis Nursing Home's Longest Table

THRF plans to hold the event again next year, with Mr Flynn encouraging everyone to keep an eye out for a Save the Date for the 2014 event.

If you would like to find out more about The Longest Table or to be involved in our next event visit

www.thelongesttable.com.au

MOTHER'S DAY HIGH TEA

Our sold out Mother's Day High Tea was an elegant affair enjoyed by mothers, daughters, fathers and sons.

Held at the InterContinental Adelaide on Saturday the 11th of May, generations of family members were treated to a sumptuous menu while accompanied by the melodic tunes of the pianist. It was a perfect afternoon for family and friends to enjoy.

Professor Andreas Evdokiou from The Basil Hetzel Institute for Translational Health Research gave a fascinating presentation about breast cancer research being undertaken in South Australia.

"When I heard about the event I couldn't think of a better present for my daughter, who is a new mother. We have had a lovely day with our family and supported breast cancer research at the same time," said guest Cathy.



Deborah Connolly, Donna Connolly, Rebecca Carslake and Ann Carslake

LADIES LUNCH FOR A CAUSE

Almost 200 guests gathered at The Sanctuary, Adelaide Zoo for The Hospital Research Foundation's inaugural Winter Fashion Luncheon, hosted by Cherylee Harris.

Guests were treated to a fashion parade followed by a panel of South Australia's top researchers sharing their latest medical progress. The funds raised will go toward vital medical research being undertaken in South Australia at the Basil Hetzel Research Institute and The Queen Elizabeth Hospital.

COMMUNITY TOURS

The Hospital Research Foundation is focused on increasing awareness amongst the community about health and the world-class medical research undertaken at the Basil Hetzel Institute for Translational Health Research (BHI) at The Queen Elizabeth Hospital.



Sunshine Coffee Morning Group heard from diabetes researcher Sue Shanley about her latest trial and donated \$400 to diabetes research at the BHI and TQEH in 2013

As part of our Community Awareness Program we host a number of community groups, such as Lions and Rotary, at the BHI

for informative research presentations and tours. One of our researchers will give an interesting presentation on their area of expertise, and then treat the community group to a tour of the outstanding Research Institute, including the labs.

Additionally we also provide a program which allows community groups the opportunity to have a researcher attend their club and give a presentation on their area of research. Our researchers are passionate about sharing their knowledge and in 2013 there were 34 community groups that had a research come and share with them.

If you would like to book a community tour or presentation please visit www.hospitalresearch.com.au/events for more information.



Juliette Brittan-Jones, Caroline McClure, Moira Dawson, Louise Cornelius and Geraldine Opie

FUNDRAISING EVENTS



SUPERCYCLE A CYCLING SUCCESS

SuperCycle 2013 raised more than \$160,000 for The Hospital Research Foundation.

A total of 24 cyclists rode the first day, and from there 10 riders and volunteers finished the 1000 kilometre journey around country South Australia. Money raised will benefit the Under Our Roof project - building accommodation for country cancer patients receiving treatment at The Queen Elizabeth Hospital.

"On behalf of all riders, volunteers and the committee I can safely say that we are thrilled that the wheels are turning to buy the land, and once that's done, commence building the accommodation project," said SuperCycle Chairman Mark Day.

"It's a very tangible way for all involved in the SuperCycle ride to contribute to the wellbeing of our community and help those who have contracted this terrible and insidious disease."

Retired BHI Professor Ray Morris was among those who completed the weeklong event.



The SuperCycle team in action

"We're just so excited about the money we raised for this fantastic cause and we look forward to being there at the opening of the accommodation," Prof Morris said.

In 2014 Mercer SuperCycle will visit Kangaroo Island, and plans to raise \$500,000 to complete the project.

To find out more go to www.supercycle.org.au



SuperCyclists riding through rural South Australia

BASIL HETZEL SOCIETY LUNCHEON

Members of the Basil Hetzel Society gathered for their annual luncheon on October 3, 2013 at Kooyonga Golf Course.



Donald and Rhonda Gilmore with THRF's Ann Cleaver (centre)

More than 100 guests heard from Professor Peter Hewett, Head of Colorectal Surgery, Professor Robert Adams, Director of the Health Observatory, and Dr Pallave Dasari from the Breast Biology and Cancer Unit.



THRF's Jerry Witkowski with John Hockley and Merle Western

Thank you to everyone who joined us this year and for your continuous and generous support to vital medical research in our community.

HELPING THE COMFORT OF CANCER PATIENTS

The Hospital Research Foundation (THRF) raised almost \$220,000 through Dry July this year.

There were 1128 participants in South Australia, with many representing their local hospital after THRF extended the program to five regional hospitals.

Port Lincoln, Whyalla and Mount Gambier joined the campaign for a second year, while Berri and Murray Bridge participated for the first time.

Collectively almost \$25,000 was raised by the five regional hospitals, but THRF decided to increase their amounts by about \$4000 each.

There was also some sadness in this year's campaign. Dry Julyer Bindi Simpson, who raised a massive \$9,700 last year and continued this year raising almost \$2000, lost her battle with ovarian cancer at the end of September.

The majority of funds raised will go towards the Under Our Roof Project.



Anne Castle, Jenni Eyles, Ali Martin, Kate Wilson, Anna Nolan and Chloe Camilleri at the Under Our Roof site

LOTTERIES



HOSPITAL HOME LOTTERY 2013>HOSPITAL HOME LOTTERY 2013>HOSPITAL HOME LOTTER

HOME LOTTERY

The Hospital Research Foundation Lottery program has been supporting vital South Australian medical research conducted at the Basil Hetzel Institute for Translational Health Research (BHI) since 2004. In that time the Hospital Home Lottery (HHL) program has contributed in excess of \$11M to medical research in South Australia as well as direct and very real benefit to the overall health of our community.

The Hospital Research Foundation is now the state's largest lottery provider after SA lotteries. The Hospital Home Lotteries give you the best winning odds of any major lottery in Australia.

For the first time this year the Grand Prize Showhome was located in Victor Harbour. The beachside property generated much interest, and was won by Lisa of Adelaide.

"It truly was a life-changing moment when I got the call about my winning ticket," she said.

Lisa bought her ticket in support of the cause not really thinking too much about the potential for winning a prize.



Lisa from Adelaide collects the keys to her Victor Harbor home



Alice from Woodville Park is being handed the keys to her Lightsview home

"I did my nursing training at The Queen Elizabeth Hospital so I knew about the wonderful work being done – it is such a great reason to be involved in the lottery as medical research helps all of us," Lisa said.

Alice of Woodville Park has been buying tickets in the Hospital Home Lottery for eight years. In fact she was the first person to sign up as a ticket subscriber.

That decision won her the Grand Prize Showhome at Lightsview in the second HHL for 2013 with her lucky number 5 ticket.

We look forward to launching our incredible 2014 program early next year.



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