



The Institute

basil hetzel institute for translational health research

Research Report 2012



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Research Report 2012

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Experience, Youth, Diversity

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Research Director's Report

Progress in 2012 has been outstanding for the Basil Hetzel Institute. 17 NHMRC grants in excess of \$17,179,663 are based within The Institute. Over 260 peer reviewed publications were produced and a record number of higher degree students completed during the year.

At the same time, productive negotiations of developments in association with SAHMRI continue and the University of Adelaide is also beginning discussions of possible future expansion of the BHI. With many groups moving to the new Royal Adelaide Hospital in 2016, a pressure on high quality research space in close proximity to an active clinical centre positions the BHI well to grow over the next 2–3 years. Challenges remain to adequately develop the Experimental Surgical Facility. There are increasing requirements within this area for expanded PC2 holding facilities and the considerable cost of such redevelopments will need to be addressed over the next twelve months.

The Policy and Management Committees of the BHI have refined their processes enabling prompt and decisive decisions, with leadership being now provided by Associate Professor Wendy Ingman as Chair of the Management Committee which has helped maintain focus and appropriate direction for the Institute.

The Foundation has continued to provide strong financial support to the research community through its support of the research centres. The future will see a return to a more diffuse funding approach including Post-doctoral Fellowships, "near miss" funding, postgraduate scholarships, and small project support.

The medical research environment remains dynamic and uncertain. The BHI must continue to be flexible, innovative and decisive if it is to continue to expand and flourish for the benefit of the community and the researchers it serves.

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

Experience

Mentoring tomorrow's researchers



Research Funding

In the past 10 years Professor Wormald has been awarded over \$4.3 million from the Garnett Passe and Rodney Williams Memorial Foundation, NHMRC, Adelaide Research and Innovation, private industry and other competitive granting bodies.

Professor PJ Wormald

Professor Wormald has been Chairman of the University of Adelaide's Department of Otolaryngology Head and Neck Surgery since 1998. He obtained his MD from the Chinese University of Hong Kong. He leads a high-profile clinical department and large research group focusing on the pathogenesis of chronic rhinosinusitis (one of the most common chronic diseases), wound healing and on endoscopically managing large vessel vascular injury. He currently is the principal supervisor for 9 PhD students and 1 Master of Surgery and 2 Honours students. He co-ordinates the departments research and mentors 4 full-time scientists and a number of academic consultants. He is considered to be one of the world's foremost innovators in endoscopic sinus surgery. He has pioneered a large number of the currently used surgical techniques in endoscopic sinus surgery since its inception in the late 1980s. His research and technical abilities have led to a paradigm shift in the way chronic rhinosinusitis (CRS) is treated with a new emphasis on endoscopic techniques. Recently he has also continued to lead the world in this field as he stays at the cutting edge of endoscopic skull base surgery with the development of his highly innovative animal model for the endoscopic management of large vessel injury. Professor Wormald has been researching CRS for over twelve years and has been involved in many significant breakthroughs in this field. Most recently he has been directly involved in research into the role of biofilms in CRS which has opened a new possible underlying cause for this condition. The role of biofilms is a significant, recent paradigm shift in thinking about CRS.

Awards and Recognition: Professor Wormald's research has won numerous national and international awards. These have included being recognised by the American Rhinologic Society for his contribution to teaching and research (Golden Head Mirror Award) as well as presenting their most famous lecture in 2009 (The David Kennedy Lecture). He has been the senior author on 6 research papers that have won the prestigious Maurice Cottle Award at the American Rhinology Society's Annual Fall Meeting. His department has won this award for the last 4 consecutive years – a previously unheard of achievement. In addition he was the senior author on the study that won the Best Scientific Paper at the 2011 American Rhinological Society's Meeting. In 2007 he was honoured by the Australian Medical Association and was presented the award for "A significant contribution to Medicine". That year he was also awarded the major impact award by Adelaide Research and Innovation for the "Most exciting new disclosure" for his research on anti-adhesion dressing for wound healing - \$250k. In 2011 he again won the major impact award from the Adelaide Research and Innovation for "Best New Invention" - \$150k - for his continued work in wound healing. Professor Wormald has also been awarded The Distinguished Service Award at American Academy of Otolaryngology - Head and Neck Surgery Foundation in September 2012 for his work that is presented at the Academy meetings. He has also been presented with Faculty of Health Sciences Representative for Excellence in Research Supervision – 2012, Faculty of Health Sciences at The University of Adelaide for his work in mentoring and supervision of research students within his Department.

Professor Wormald has been appointed to numerous editorial and advisory boards: he is an associate editor on the International Forum of Allergy and Rhinology, editorial board member of The Laryngoscope, International Rhinology, and Skull Base Surgery. He is a reviewer for a large number of journals around the world. He is a past president of the Australasian Rhinology Society and has had the Research Prize of that society named after him. He is a member of Rhinology Committee of the American Academy of Otolaryngology Head and Neck Surgery. At the annual American Academy meeting he runs 3 instructional courses and has for the last 5 years presented on average at 3 mini-seminars per meeting.

Professor Wormald is one of the most frequently sought-after keynote and invited speakers around the world in the field of CRS pathogenesis and endoscopic sinus surgery, presenting annually over 30 lectures on surgical technique, wound healing after sinus surgery and CRS pathogenesis.

Publications and Productivity: Professor Wormald has published over 270 peer-reviewed articles with a large majority of these articles been published in the highest impact journals of his specialty (The Laryngoscope, Otolaryngology Head and Neck Surgery, American Journal of Rhinology and Allergy, International Rhinology). For the last 5 years his publication rate has averaged at about 20 publications per year. Professor Wormald had authored 6 books including sole author of one of the most popular textbooks on endoscopic sinus surgery now in its 3rd Edition. This book "Endoscopic Sinus Surgery: anatomy, 3-dimensional reconstruction and surgical techniques" published by Thieme was awarded the prize for the best medical textbook by the British Medical Association in 2005. He has also authored over 24 book chapters in the most prestigious textbooks in ENT.

Professor Wormald's 2012 Publications and Presentations can be found in the Otolaryngology, Head and Neck Surgery section (page 109) of Publications and Otolaryngology, Head and Neck Surgery section of Invited Presentations listed on page 124.

Current Higher Degree Students

Professor Wormald's current Higher Degree Students and their projects are detailed in the Otolaryngology, Head and Neck Surgery section of this report (page 78).

Grants 2011 onwards

| | | |
|---|---------|-----------|
| The role of Staphylococcus aureus superantigens and fungal antigens in chronic rhinosinusitis. | | |
| Garnett Passe and Rodney Williams Memorial Foundation Research Scientist Fellowship | 2010-12 | \$294 448 |
| The role of Nitric Oxide in Staphylococcus Aureus biofilm formation in Chronic Rhinosinusitis. | | |
| Garnett Passe and Rodney Williams Memorial Foundation Research Scientist Fellowship | 2010-12 | \$225 000 |
| Novel anti-biofilm therapies in chronic sinusitis (formerly 'The aetiology, significance and treatment of Staph Aureus following sinus surgery) | | |
| Garnett Passe and Rodney Williams Memorial Foundation Research Scientist Fellowship | 2010-11 | \$225 000 |
| Haemostasis and wound healing in sinus surgery SEAT – Project Grant | 2011 | \$22 500 |
| Characterising fungal biofilms in chronic rhinosinusitis | | |
| Garnett Passe and Rodney Williams Memorial Foundation Research Scientist Fellowship | 2011-13 | \$225 000 |
| Neurosurgical Anti-adhesion dressing for wound healing | | |
| Adelaide Research Ins | 2011-13 | \$150,000 |
| The role of <i>Staphylococcus aureus</i> in recalcitrant Chronic Rhinosinusitis and clinical applications of new treatment protocols | | |
| Garnett Passe and Rodney Williams Memorial Grant Foundation | 2011 | \$275.50 |
| CAS Round 8 2011: Chitosan gel on Haemostasis and Wound Healing in Sheep Model. | | |
| Adelaide Research Ins | 2012 | \$169,600 |
| 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 | | |
| NH&MRC | 2013-15 | \$514,976 |
| A novel nitric oxide-based treatment for recalcitrant Staphylococcus aureus-associated chronic rhinosinusitis | | |
| NH&MRC | 2013-15 | \$522,957 |

Experience

Mentoring tomorrow's researchers



Professor Gowans was awarded a NHMRC Fellowship in 2004 and started work on HCV vaccines, supported by a grant of \$1.3Million from the National Institutes of Health in the USA.

Professor Eric Gowans MAppSci PhD Virology

Professor Eric Gowans completed his early training in Edinburgh in diagnostic Bacteriology and Virology through Napier College (now Napier University). He then spent some time as a full time electron microscopist in Edinburgh, with emphasis on Virology and was recruited to work with Professor Barrie Marmion and Dr (now Professor) Christopher Burrell to investigate the cause of an outbreak of hepatitis in the renal dialysis unit that killed 11 patients and staff. It took several years, but the cause was eventually determined to be a dual infection with hepatitis B virus (HBV) and hepatitis C virus (HCV), although HCV was not discovered until many years later.

When Professor Barrie Marmion took up the position of Senior Director, Institute of Medical Veterinary Science, Adelaide (IMVS) in 1978, Chris Burrell and Eric Gowans also moved to the IMVS in 1979. Eric Gowans subsequently completed a PhD on aspects of the replication strategy of HBV. He was awarded a Senior Research Fellowship from the National Health and Medical Research Council (NHMRC) in 1993, but forfeited this when he was appointed to the position of Director, Sir Albert Sakzewski Virus Research Centre, Brisbane in 1995. He built up his own laboratory at the Centre, and was appointed Honorary Professor in the University of Queensland. As a result of a contract from the Federal Government, showed that hepatitis G virus was not pathogenic. As a result of this work, the Federal Government decided against the introduction of HGV testing in the Blood Banks, at an annual saving of \$30Million (1998).

Professor Gowans then took up the position of Senior Principal Research Fellow in the Burnet Institute, Melbourne and continued his work on HCV. He was once again awarded a NHMRC Fellowship in 2004 and started work on HCV vaccines, that was supported by a grant of \$1.3Million from the National Institutes of Health in the USA. This work culminated in a clinical trial in HCV patients that was completed in 2008, immediately before he moved back to Adelaide. Since he moved back to Adelaide as a NHMRC Fellow, he was appointed as Honorary Professor in the Discipline of Surgery, University of Adelaide and has established his laboratory at the Basil Hetzel Institute, the research wing of The Queen Elizabeth Hospital. He has continued his work to design novel vaccines for HCV, and because many of the problems and issues related to a vaccine for human immunodeficiency virus (HIV) are similar, he and his laboratory staff also study HIV vaccine design. The Adelaide laboratory is currently supervising a clinical trial to treat HCV patients who have failed conventional therapy.

Throughout his career, Eric Gowans has supervised 15 PhD graduates and is currently the principal supervisor for 5 PhD students, 3 of whom are expected to submit their theses this year. His laboratory is currently funded by grants from the National Health and Medical Research Council, from the Australian Centre for HIV and Hepatitis Virology and from the Australia-India Biotechnology Fund.

He was a also member of the NHMRC working party on HCV, convened a few years after the virus was discovered, and was a member of the International Organising Committee of the annual Meeting on HCV and Related Viruses from 1995-2007. This meeting, the premier meeting for virologist and immunologist who work on HCV was held in Australia in 1995, 2000 and 2006, and will be held in Melbourne in 2013, although Professor Gowans has handed over responsibility for the meeting to a number of colleagues. He was the Chairperson of the Local Organising Committee for the 1995, 2000 and 2006 meetings held in Australia and the founding President of the Australian Centre for Hepatitis Virology (ACHV). ACHV is an incorporated society dedicated to the study of hepatitis viruses (hepatitis A, B, C, D and E) that organises annual meetings and provides travel grants to young scientists. He was a member of the ACH2 Executive; ACH2 (Australian Centre for HIV and hepatitis virology) is funded by the Federal Government Department of Health and Ageing to oversee project funding for translational research into HIV and hepatitis C virus. He was a member of the Scientific Advisory Boards of Viralytics and Avexa, and is currently a consultant to Biodiem Inc. In 1997, he received the Fenner Prize from the Australian Society for Microbiology.

Youth

Profiling young researchers in the Basil Hetzel Institute



“the collaborative environment at the BHI fosters intellectual exchange of ideas and opportunities for scientific collaboration and mentorship”

Rachel Dreyer BHSc (Hons) PhD Candidate Basil Hetzel Institute Coordinator, VIRGO Study

Following First Class Honours in laboratory based cardiovascular physiology; Rachel Dreyer was inspired to progress into clinical research, with a focus on health outcomes in women in a range of cardiovascular disorders. She has played pivotal roles as the Australian coordinator for two international studies that have formed part of her doctorate as well as two local databases, which focus on stable coronary disease, acute myocardial infarction, and peripheral artery disease.

Rachel's PhD projects have been epidemiologically based whereby she has established and coordinated various databases involving patient recruitment (including revision of the medical acumen), medical abstraction from case notes, the administration of population questionnaires as well as extensive data cleaning and statistical analysis.

One of the main studies she has been working on is the VIRGO study (Variation In Recovery: Role of Gender on Outcomes of Young Acute Myocardial Infarction Patients). This Yale University project is examining the characteristics of young women who have myocardial infarction as it has been shown that women, particularly under the age of 55 have a three times greater risk of dying in hospital compared with similar aged men. She has successfully coordinated this study at three of the main teaching hospitals in South Australia and will be working on an extension of this project for her postdoctoral term commencing in April 2013.

Over the course of her doctorate she has been fortunate to receive several distinguished research awards and travel grants including The University of Adelaide Best Poster Presentation, the Barbara Crase Bursary, the De la Lande Travel Award, the South Australian Heart Research Foundation Prize, the Faculty of Health Science Postgraduate Travel Fellowship, the National Heart Foundation Travel grant and more recently, the American Australian Association Fellowship, which will support her post doctoral position at Yale University.

In terms of career highlights, receiving the American Australian Association Fellowship at the awards ceremony New York last year was such a fantastic experience. Rachel said “To be among the top young researchers in this country was both a privilege and an honour. In addition, being notified as a national finalist in the running for Young Australian of the Year for 2013 was an emotional time for me but such a humbling experience and a true testament to hard work”.

Rachel also said “Working at the Basil Hetzel Institute (BHI) over the last 3 years has been a very rewarding experience particularly in terms of its translational potential and ‘bench-to-bedside’ research opportunities. Through this philosophy I have been able to see how my research may be able to advance clinical practice, which will ultimately relieve patient suffering. In addition, the collaborative environment at the BHI fosters intellectual exchange of ideas and opportunities for scientific collaboration and mentorship”.

Irene Zinonos (Phd) BHSc (Hons) Postdoctoral Research Fellow Metastatic Breast Cancer

Irene Zinonos studied Biology at the Aristotle University of Thessaloniki, Greece and in 2007 completed her Honours in Health Sciences at the University of Adelaide. Irene then undertook a PhD at the University of Adelaide and in 2011 moved to the Discipline of Surgery (TQEH) Basil Hetzel Institute (BHI) when her primary supervisor, Professor Andreas Evdokiou was appointed the inaugural Michell – McGrath Breast Cancer Research Fellow at BHI.

On completing her PhD in 2012 Irene has been working as a Postdoctoral Fellow in Professor Evdokiou's Breast Cancer Research Unit at the BHI. Irene's research interests focus on identifying therapies that will be effective against metastatic breast cancer in the bone. Her main focus in the laboratory is to evaluate the efficacy of such novel anticancer therapies using the Unit's well established animal models and its expertise in animal imaging.

Irene said “Studying at the BHI was one of the best experiences I had in my research life. The shared facilities provide the best environment to work in, not only because of the latest equipment and the cutting edge technology, but also because they provide opportunities for collaborations and new friendships to be made. I have met the most wonderful people and have made friends for life in the past year. I was also given the opportunity to meet and even work with some great researchers that I admire and respect. It's been a fantastic experience”.

AWARDS

- October 2012: Oral Presentation, Research Day, Basil Hetzel Institute, The Queen Elizabeth Hospital, Central Adelaide Local Health Network.
- September 2012: Metastasis Research Society Travel Award to attend the 14th International Biennial Congress of the Metastasis Research Society, Brisbane-Queensland.
- August 2012: Best Poster Presentation. Faculty of Health Sciences Postgraduate Research Expo, University of Adelaide, Adelaide-SA.
- October 2011: Best Oral Presentation, Research Day, Basil Hetzel Institute, The Queen Elizabeth Hospital, Central Adelaide Local Health Network.
- August 2011: Best Poster Presentation. Faculty of Health Sciences Postgraduate Research Expo, University of Adelaide, Adelaide-SA.
- April 2011: Faculty of Health Sciences Postgraduate Travelling Fellowship, University of Adelaide, SA.
- February 2011: ECTS/IBMS Travel Award, 3rd Joint Meeting of the European Calcified Tissue Society and the International Bone and Mineral Society, Athens, Greece.
- September 2010: NH&MRC Grant-funded Supplementary Scholarship.
- September 2010: Roger Mellick Young Investigator Award, 20th Annual Scientific Meeting of the ANZBMS, Adelaide-SA.



“(Working at the BHI) has also given me the opportunity to meet and work with some great researchers that I admire and respect. It's been a fantastic experience.”

2012 First Author Student Publications

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

AGED AND EXTENDED CARE SERVICES

Dent E, Visvanathan R, Piantadosi C, Chapman I. Nutritional screening tools as predictors of function and mortality in older people: a systematic review. *Journal of Nutrition in Gerontology and Geriatrics*. 2012;31(2):97-145.

Dent E, Visvanathan R, Piantadosi C, Chapman I. Use of the Mini Nutritional Assessment To Detect Frailty In Hospitalised Older People. *Journal of Nutrition Health and Ageing*. 2012;16(9): 764-767.

Dent E, Yu S, Visvanathan R, Piantadosi C, Adams R, Lange K, Chapman I. Inflammation cytokines and appetite in healthy people. *Journal of Ageing Research and Clinical Practice*. 2012;1(1): 40-43.

Abstracts

Dent E, Visvanathan R, Piantadosi C, Chapman I. Nutritional Status at Admission Predicts Functional Decline in Older South Australians Admitted to a Higher Acuity Geriatric Evaluation and Management Unit (Abstract). *Aus J Ageing*. 2012;31(Supplement s1):46.

CARDIOLOGY UNIT

Chan A, Horowitz JD. Thrombospondin-1 in pulmonary arterial hypertension: what ails NOS? *Cardiovasc Res*. 2012;93(4):540-2.

Neil CJ, Chong CR, Nguyen TH, Horowitz JD. Occurrence of Tako-Tsubo cardiomyopathy in association with ingestion of serotonin/noradrenaline reuptake inhibitors. *Heart, Lung and Circ*. 2012;21(4):203-5.

Neil CJ, Nguyen T, Kucia A, Crouch B, Sverdlov A, Chirkov Y, Mahadavan G, Selvanayagam J, Dawson D, Beltrame J, Zeitz C, Unger S, Redpath T, Frenneaux M, Horowitz JD. Slowly resolving global myocardial inflammation/oedema in Tako-Tsubo cardiomyopathy: evidence from T2-weighted cardiac magnetic resonance imaging. *Heart*. 2012;98(17):1278-84.

Neil CJ, Nguyen TH, Sverdlov AL, Chirkov YY, Chong CR, Stansborough J, Beltrame JF, Kucia AM, Zeitz CJ, Frenneaux, Horowitz JD. Can we make sense of Tako-Tsubo Cardiomyopathy? An update on pathogenesis, diagnosis and natural history. *Expert Rev Cardiovasc Ther*. 2012;10(2):215-21.

Sverdlov AL, Ngo DT, Chan WPA, Chirkov YY, Gersh BJ, McNeil JJ, Horowitz JD. Determinants of aortic sclerosis progression: implications regarding impairment of nitric oxide signalling and potential therapeutics. *Eur Heart J*. 33(19): 2012;2419-25.

Sverdlov AL, Ngo DT, Horowitz JD. Redefining the natural history of calcific aortic stenosis: lessons from Laennec. *J Intern Med*. 2012;271(6):569-72.

GASTROENTEROLOGY AND HEPATOLOGY UNIT

Fauser JK, Donato RP, Woenig JA, Proctor SJ, Trotta AP, Grover PK, Howarth GS, Penttila IA, Cummins AG. Wnt blockade with dickkopf reduces intestinal crypt fission and intestinal growth in infant rats. *Journal Pediatric Gastroenterology Nutrition*. 2012;55:26-31.

HAEMATOLOGY AND MEDICAL ONCOLOGY, The combined Departments of

Rao N, Butcher CM, Lewis ID, Ross DM, Melo JV, Scott HS, Bardy PG, D'Andrea RJ. Clonal and lineage analysis of somatic DNMT3A and IAK2 mutations in a chronic phase polycythemia vera patient. *Br J Haematol*. 2012 Jan;156(2):268-70.

NEUROLOGY UNIT

Leong WVK, Henshall TL, Arthur A, Kremer KL, Lewis MD, Helps SC, Field J, Hamilton-Bruce MA, Warming S, Manavis J, Vink R, Gronthos S, Koblar SA. Human Adult Dental Pulp Stem Cells Enhance Post-Stroke Functional Recovery through Non-Neural Replacement Mechanisms. *Stem Cells Translational Medicine*. 2012;1(3): 177-187.

Leung ES, Hamilton-Bruce MA, Price C, Koblar SA. Transient Ischaemic Attack (TIA) knowledge in general practice: a cross-sectional study of western Adelaide general practitioners. *BMC Research Notes*. 2012;5(1): 278.

OTOLARYNGOLOGY, HEAD AND NECK SURGERY, Department of

Bassiouni A, Naidoo Y, Wormald PJ. Does mucosal remodelling in chronic rhinosinusitis result in irreversible mucosal disease? *Laryngoscope*. 2012;122(1):225-9.

Bassiouni A, Naidoo Y, Wormald PJ. When FESS Fails: The inflammatory load hypothesis in refractory chronic rhinosinusitis. *Laryngoscope*. 2012;122(2):450-6.

Foreman A, Boase S, Psaltis A, Wormald PJ. Role of Bacterial and Fungal Biofilms in Chronic Rhinosinusitis. *Curr Allergy Asthma Rep*. 2012; (2):127-35.

Foreman A, Wormald PJ. Biofilms in chronic rhinosinusitis: What's the evidence? *ENT & Audiology News*. 2012;(21)2:60.

Ha T, Wormald PJ, Valentine R, Moratti S, Robinson S, Hanton L. A blinded randomized controlled trial evaluating the efficacy of chitosan gel on ostial stenosis following endoscopic sinus surgery. *Int J Allergy & Rhinol*. 2012;122(10):2148-53.

Jervis-Bardy J, Boase S, Psaltis A, Foreman A, Wormald PJ. A randomized trial of mupirocin sinonasal rinses versus saline in surgically recalcitrant staphylococcal chronic rhinosinusitis. *Laryngoscope*. 2012;122(10):2148-53.

Jervis-Bardy J, Wormald PJ. Microbiological outcomes following Mupirocin nasal washes for symptomatic, S.aureus-positive chronic rhinosinusitis following endoscopic sinus surgery. *Int Forum Allergy Rhinol*. 2012 Vol 2(2) March/Apr:111-5.

Padhye V, Naidoo Y, Alexander H, Floreani S, Robinson S, Santoreneos S, Wickremesekera A, Brophy B, Harding M, Vrodos N, Wormald PJ. Endoscopic Endonasal Resection of Anterior Skull Base Meningiomas. *Otolaryngol Head Neck Surg*. 2012;147(3):575-82.

Tan NC, Foreman A, Jardeleza C, Douglas R, Tran H, Wormald PJ. The multiplicity of Staphylococcus aureus in chronic rhinosinusitis: Correlating surface biofilm and intracellular residence. *Laryngoscope*. 2012;122: 1655-60.

Tan NC, Tran H, Roscioli E, Wormald PJ, Vreugde S. Prevention of false positive binding during immunofluorescence of Staphylococcus aureus infected tissue biopsies. *J Immunol Methods*. 2012;384(1-2):111-7.

RENAL UNIT

Collins MG, Teo E, Cole SR, Chan C-Y, McDonald SP, Russ GR, Young GP, Bampton PA, Coates PT. Screening for colorectal cancer and advanced colorectal neoplasia in kidney transplant recipients: a cross-sectional prevalence and diagnostic accuracy study of faecal immunochemical testing for haemoglobin and colonoscopy *BMJ*. 2012; 25:345:e4657. doi: 10.1136/bmj.e4657

PSYCHIATRY, University of Adelaide Discipline of

Wheeler A, Beltrame J, Tucker G, Air T, Ling L, Schrader G; Depression and 5-year Mortality in Patients with Acute Myocardial Infarction: Analysis of the IDACC Database. *Australian and New Zealand Journal of Psychiatry*. 2012;46, 669-675.

RESPIRATORY MEDICINE UNIT

Carson KV, Brinn MP, Peters M, Veale A, Esterman AJ, Smith BJ. Interventions for smoking cessation in Indigenous populations (Review). *Cochrane Database of Systematic Reviews*. 2012;Issue 1. Art. No.: CD009046. DOI: 10.1002/14651858.CD009046.pub.2.

Carson KV, Labiszewski NA, Brinn MP, Esterman AJ, Peters MJ, Wood-Baker R, Smith BJ. Consumer guidelines for chronic disease management: Protocol. *Cochrane Database of Systematic Reviews*. 2012;Issue 9. Art. No.: CD010096. DOI:10.1002/14651858.CD010096.

Carson KV, Labiszewski NA, Brinn MP, Veale A, Chang AB, Esterman AJ, Smith BJ. Interventions for tobacco prevention in Indigenous youth. *Cochrane Database of Systematic Reviews*. 2012;Issue 8. Art. No.: CD009325. DOI: 10.1002/14651858.CD009325.pub.2.

Carson KV, Verbiest MEA, Brinn MP, Crone MR, Esterman AJ, Assendelft WJ, Smith BJ. Training health professionals in smoking cessation (Review). *Cochrane Database of Systematic Reviews*. 2012;Issue 5. ART. No.: CD000214. DOI: 10.1002/14651858.CD000214.pub.2.

SURGERY University of Adelaide Discipline of

Tiong LU, Field JB, Maddern G. Bimodal electric tissue ablation (BETA) compared with the Cool-Tip RFA system. *ANZ Journal of Surgery*. 2012;82:269–274.

Tiong LU, Finnie JW, Field JB, Maddern G. Bimodal electric tissue ablation (BETA): A study on ablation size when the anode is placed on the peritoneum and the liver. *Journal of Surgical Research*. 2012;176:114–120.

THERAPEUTICS RESEARCH CENTRE

Sinnollareddy M, Peake SL, Roberts MS, Playford EG, Lipman J, Roberts JA. Pharmacokinetic evaluation of fluconazole in critically ill patients. *Expert Opinion on Drug Metabolism & Toxicology*. 2011;7:1431-1440.

2012 First Author Student Presentations

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

AGED AND EXTENDED CARE SERVICES

The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012.
A Prediction Equation To Aid The Diagnosis of Sarcopenia In Primary Care. S Yu

The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012. The Effects Of A Postprandial Blood Pressure Decline Following A Glucose Drink On Gait Parameters In Healthy Older Volunteers. S Nair

The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012. Nutritional Status At Admission Predicts Functional Outcomes In Older South Australians Admitted To A Higher Acuity Geriatric Evaluation And Management Unit. E Dent

Optimum Health and Nutrition For Our Ageing Population Symposium, Melbourne, October 2012 Sarcopenia In Older People. S Yu

The 5th Biennial Australian and New Zealand Falls Prevention Conference, Adelaide, November 2012 AMBIGeM: Innovative use of technology to monitor humans and reduce risk of falls in acute care. R Shinmoto

Australian Society of Medical Research (ASMR) state conference, Adelaide 2012. Nutritional Screening Tools and Hospital Discharge Outcomes in Older People. E Dent

Australian Association of Gerontology National Conference, Brisbane, Nov 2012. Frailty Risk Factors and Outcomes in Hospitalised Older Persons. E Dent

CARDIOLOGY UNIT

ADMA 2012, London, UK, August 2012 (Plenary). Tako-Tsubo Cardiomyopathy is associated with "paradoxically" low ADMA concentrations. [Nguyen TH](#), Neil CJ, Sverdlov AL, Ngo DT, Chan WP, Heresztyn T, Chirkov YY, Tsikas D, Frenneaux MP, Horowitz JD

Joint ASCEPT-APSA Conference, December 2012 Poster: Is insulin-mediated sensitisation effects of platelets to nitric oxide in diabetics Txnip-dependent. Chong C-R

American Heart Association, Scientific Sessions 2012, Los Angeles, USA. Brain Natriuretic Peptide (BNP) Suppresses Neutrophil Superoxide Release: Attenuation in Patients with Congestive Heart Failure (CHF). [Liu S](#), Ngo DT, Chirkov YY, Sheikh AR, Licari G, Stewart S, Horowitz JD

American Heart Association, Scientific Sessions 2012, Los Angeles, USA. The Nitric Oxide Redox Sibling Nitroxyl Partially Circumvents Platelet Nitric Oxide Resistance In Patients With Ischaemic Heart Disease. [Dautov RF](#), Chirkov YY, Ngo DT, Sverdlov AL, Kemp-Harper BK, Ritchie RH, Horowitz JD

European Society of Cardiology Congress 2012, Munich, Germany Paradoxical preservation of NO signaling in Takotsubo cardiomyopathy. [Nguyen TH](#), Neil C, Sverdlov A, Ngo D, Chan W, Chirkov Y, Tsikas D, Frenneaux M, Horowitz JD

American Heart Association (AHA) November, 2012 Los-Angeles, USA. The Nitric Oxide Redox Sibling Nitroxyl Partially Circumvents Platelet Nitric Oxide Resistance In Patients With Ischaemic Heart Disease. Dautov RF

Cardiac Society of Australia and New Zealand, August 2012. Cardiac denervation in chronic heart failure: Relationship to changes in LV function and to arrhythmogenesis. Nguyen TH

European Society of Cardiology, August, 2012. Paradoxical preservation of NO signalling in Tako Tsubo cardiomyopathy. Nguyen TH

American Heart Association, Los Angeles, USA. November, 2012. Potential role of a "TTC score" to facilitate early diagnosis of Tako-Tsubo cardiomyopathy. Neil CJ

Cardiac Society of Australia and New Zealand (CSANZ), August, 2012. Determinants of platelet response to nitric oxide in association with atrial fibrillation: evidence for an acute suppression of response. Procter N

American Heart Association (AHA) November 2012 Los-Angeles, USA. Brain Natriuretic peptide suppresses superoxide release in neutrophils: attenuation in congestive heart failure patients. Liu S

HAEMATOLOGY AND MEDICAL ONCOLOGY

Lorne Cancer Conference, Lorne, Victoria, February 2012. Biomarkers of resistance to anti-EGFR therapy in colorectal cancer. [Kumar SS](#), Price TJ, Hardingham JE

Australasian Gastro-Intestinal Trials Group Annual Meeting, Sydney, Sept 2012. KRAS G13D mutant colon cancer cell lines - sensitive or resistant to anti-EGFR antibody? [Kumar SS](#), Hardingham JE, Price TJ

Australian Society for Medical Research, Adelaide, June 2012. The isolation and characterisation of circulating cancer stem cells (CSC) in colon cancer. [Rajenthiran R](#), Grover K, Price TJ, Hardingham JE

Australian Health & Medical Research Congress, Adelaide, November 2012. Determination of biomarkers of colon cancer stem cells. [Rajenthiran R](#), Grover K, Price TJ, Hardingham JE

Australian Health & Medical Research Congress, Adelaide, November 2012. Validation of predictive biomarkers of resistance to anti-EGFR in wild type KRAS/BRAF colorectal cancer cell lines. [Kumar SS](#), Price TJ, Hardingham JE

DISCIPLINE OF MEDICINE, UNIVERSITY OF ADELAIDE

60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012. Performance of the Aldrich and Wilkins Electrocardiographic Methods in Assessing Area at Risk in Acute ST Elevation Myocardial Infarction. [Du YT](#), Pasupathy S, Neil C, Beltrame JF

60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012. Correlation of Electrocardiographic and Cardiac Magnetic Resonance Imaging Indices of Infarct Size in Acute ST Elevation Myocardial Infarction. [Du YT](#), Pasupathy S, Neil C, Beltrame JF

60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012. Thromboxane A2-mediated L-type Calcium Channel Activation in the Vasculature. [Chan Y](#), Beltrame JF, Wilson DP

60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012. Sex-difference in Vascular Reactivity of Internal Mammary Artery and Subcutaneous Microvessels. [Jaghooori A](#), Beltrame JF

Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012. "Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells." [Klaric T](#), Thomas P, Dottori M, Leong WK, Koblar S, Lewis M

NUCLEAR MEDICINE

Eng Phys Sci Med Annual Scientific Meeting, Melbourne, April 2012. Distance dependent resolution correction in SPECT - simple and complex phantoms. Badger D

ANZSNM Annual Scientific Meeting. Cerebral blood flow in the frontal poles is greater in women than men. [Badger D](#), Barnden L

ANZSNM Annual Scientific Meeting. April 2012. Data driven assessment of SPECT with iterative reconstruction that models distance dependent resolution. [Badger D](#), Barnden L

RESPIRATORY MEDICINE UNIT and CLINICAL PRACTICE UNIT

Thoracic Society of Australia and New Zealand, Canberra, March 2012. Training health professionals in smoking cessation: A Cochrane Systematic Review. [Carson KV](#), Verbiest MEA, Brinn MP, Crone MR, Esterman AJ, Assendelft WJ, Smith BJ

Thoracic Society of Australia and New Zealand, Canberra, March 2012. Interventions for smoking cessation in Indigenous populations with a particular focus on Aboriginal Australians A Meta-analysis. Carson KV

RHEUMATOLOGY UNIT

Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012. No association between FCGR3B, TLR4 and South Australian biopsy proven giant cell arteritis patients (oral presentation). [Dunstan E](#), Lester S, Hewitt A, Rischmueller M, Hill CL

Diversity

| THEMES | BENCH (LABORATORY) | | | | BEDSIDE (CLINICAL) | | | POPULATION | |
|--|------------------------|------------------------------|------|--------------------|---|--|-----------------|-------------|-----------|
| | Molecular Technologies | Cells/Tissue - Physiological | Flow | Microscopy Imaging | Medical Technology Development & Assessment | Surgical Technology Development & Assessment | Clinical Trials | Tissue Bank | Data Bank |
| Basis of Disease | | | | | | | | | |
| Cancer | ● | ● | ● | ● | | | | | |
| Drug Development | ● | ● | ● | ● | | | | | |
| Inflammation | ● | ● | ● | ● | | | | | |
| Vascular Disease | ● | ● | ● | ● | | | | | |
| Inflammatory Bowel Disease | ● | ● | ● | ● | | | | | |
| Haematology | ● | ● | ● | ● | | | | | |
| Otolaryngology | ● | ● | ● | ● | | | | | |
| | | | | | | | | | |
| Therapies | | | | | | | | | |
| SEAT Program - The Centre for Surgical Evidence, Assessment and Training | | ● | | ● | | ● | ● | | |
| Intensive Care Unit | | | | | ● | ● | ● | | |
| Vascular Diseases and Therapeutic Research Program | | ● | ● | ● | | | | | |
| Drug & Vaccine Development | ● | ● | ● | ● | ● | | | | |
| Aged Care | | | | | ● | | | | ● |
| Inflammation | ● | ● | | ● | | | | | |
| | | | | | | | | | |
| Evaluation/Assessment | | | | | | | | | |
| Inflammation | | | | | ● | | ● | ● | ● |
| Cancer | | | | | | ● | ● | | ● |
| Vascular | | | | ● | ● | | ● | ● | ● |
| SEAT Program - The Centre for Surgical Evidence, Assessment and Training | | | | | | ● | ● | | ● |
| Respiratory | | | | | | | | ● | ● |
| Health Observatory Program | | | | | ● | | | | ● |
| Gastroenterology Unit | | | | | | ● | | | |
| Intensive Care Unit | | | | | | | ● | | |
| Endocrinology Unit | | | | | | | | | ● |
| Aged Care | | | | | ● | ● | ● | | |
| Anaesthesia | | | | | | | ● | | |



2012 has seen a broad range of publication success highlighting the quality of research being carried out at the Basil Hetzel Institute

Spotlight on Publications

Cardiology

Willoughby SR, Rajendran S, Chan W, Procter N, Leslie S, Liberts EA, Heresztyn T, Chirkov YY, Horowitz JD. Ramipril sensitizes platelets to nitric oxide: implications for therapy in high-risk patients. *J Am Coll Cardiol*. 2012;60(10):887-94. Impact Factor: 14.156

This study demonstrated that ramipril, a drug commonly used to treat high blood pressure and heart failure, increased responses of tissues to nitric oxide, which prevents thrombus formation and spasm of arteries. These results help to explain exactly how ramipril protects high-risk patients against heart attacks. The work was editorialised and has attracted great interest.

J Am Coll Cardiol is ranked first out of 117 in cardiac and cardiac systems journals.

Sverdlov AL, Ngo DT, Chan WPA, Chirkov YY, Gersh BJ, McNeil JJ, Horowitz JD. Determinants of aortic sclerosis progression: implications regarding impairment of nitric oxide signalling and potential therapeutics. *Eur Heart J*. 33(19); 2012:2419-25. Impact Factor: 10.478

This is the first study to use quantitative methodology (developed at TQEH) to evaluate the earliest stages of progression of thickening of the aortic valve, a process which eventually leads to severe valve narrowing and the need for valve replacement. The results demonstrate that this thickening has nothing to do with cholesterol deposition, but is an inflammatory process, probably driven by excess production of angiotensin within the valve as well as lack of nitric oxide. The study results suggest that agents which prevent angiotensin formation or block its effects may slow the progression of aortic valve disease.

European Heart Journal is ranked second out of 117 in cardiac and cardiac systems journals.

Otolaryngology, Head and Neck Surgery, Department of

Tran HB, Lewis MD, Tan LW, Lester SE, Baker LM, NG J, Hamilton-Bruce MA, Hill CL, Koblar SA, Rischmueller M, Ruffin RE, Wormald PJ, Zalewski PD, Lang CJ. Immunolocalization of NLRP3 Inflammasome in Normal Murine Airway Epithelium and Changes following Induction of Ovalbumin-Induced Airway Inflammation. *J Allergy*. 2012;(Article 819176):1-13. Impact Factor: 3.5

The correct functioning of the innate immune system is dependent on its capacity to efficiently detect invading pathogenic microbes as foreign and to eliminate them. Toll-like receptors (TLRs), a class of membrane receptors that sense extracellular microbes and trigger antipathogen signaling cascades, are central to the innate immune system. More

recently, intracellular microbial sensors have been identified, including NOD-like receptors (NLRs). Some of the NLRs, including NLRP3, also sense nonmicrobial danger signals and form large cytoplasmic complexes called inflammasomes that link the sensing of microbial products and metabolic stress to the proteolytic activation of the proinflammatory cytokines IL-1beta and IL-18.

This study is the first to demonstrate NLRP3 inflammasome components in normal airway epithelium and changes with inflammation in a model of allergic airway disease. We propose activation and/or luminal release of the inflammasome is a feature of allergic airway inflammation which may contribute to disease pathogenesis.

Renal Unit

Collins MG, Teo E, Cole SR, Chan CY, McDonald SP, Russ GR, Young GP, Bampton PA, Coates PT. Screening for colorectal cancer and advanced colorectal neoplasia in kidney transplant recipients: cross sectional prevalence and diagnostic accuracy study of faecal immunochemical testing for haemoglobin and colonoscopy. *BMJ*. 2012; 345: e4657 (Published 25 July 2012). Impact factor 14.093

The risk of developing cancer – including colorectal cancer – is increased in kidney transplant recipients, perhaps due to the effects of long-term immunosuppression. However whether screening for colorectal cancer in this population would be of benefit is unknown. This study was designed to determine the prevalence of malignant and pre-malignant colorectal disease (advanced colorectal neoplasia) in stable transplant recipients at otherwise average risk, and the accuracy of faecal haemoglobin screening to detect this. 229 transplant patients aged over 50 years (mean 9 years post-transplant) completed faecal immunochemical testing for haemoglobin followed by colonoscopy; this is the first study to report such data in a transplant population. There was a high prevalence of advanced colorectal neoplasia observed (13%, 95%CI 9-18%); faecal haemoglobin screening had poor sensitivity (31%; CI 15-51%) but reasonable specificity (91%; CI 86-94%) to detect this, similar to its performance in the general population. Given these findings, and poorer outcomes reported for transplant recipients who develop colorectal cancer, surveillance colonoscopy may be the most appropriate approach in this population.

This study was highlighted by an editorial (*BMJ* 2012; 345: e5081) published simultaneously with the paper. The *BMJ* is ranked fifth in the category of general and internal medicine journals, and provides open access to all original research articles.

Respiratory Medicine

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 in Patients (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*. 2012;00: 1-2. doi:10.1136/thoraxjnl-2012-202484

Impact Factor: 7.014

Substance related morbidity and mortality, particularly through tobacco use, is estimated to cost the government in excess of \$193 billion dollars per year world wide. Subsequently, evaluation of evidence based tobacco cessation interventions that may prove efficacious and cost effective when implemented into clinical practice, such as varenicline tartrate (Champix), is a key national health priority. The STOP (Smoking Termination Opportunity for inPatients) trial is the first randomised controlled study to effectively evaluate varenicline tartrate in the inpatient setting for smokers admitted with tobacco related illnesses. Inpatient admissions offer an opportunistic environment for intervention, where a smoker has time to reflect on their illness and the lifestyle choices that lead them there, access to a bedside phone to initiate best practice counselling and a period of observation for any medication related adverse effects. Twelve month efficacy data revealed a statistically and clinically significant benefit for the intervention arm with 31% of subjects reporting continuous smoking abstinence (n=196) compared to 21% in the control arm (n=196). As such, this publication in Thorax provides researchers, policy makers and consumers with an evidence base that can be used to advocate for implementation of similar tobacco cessation programs as part of routine inpatient care, which subsequently have the potential to reduce health care expenditure and improve patient health and wellbeing.

Rheumatology

Whittle SL, Colebatch AN, Buchbinder R, Edwards CJ, Adams K, Englbrecht M, Hazlewood G, Marks JL, Radner H, Ramiro S, Richards BL, Turner IH, Aletaha D, Bombardier C, Landewe RB, Muller-Ladner U, Bijlsma JW, Branco JC, Bykerk VP, da Rocha Castelar Pinheiro G, Catrina AI, Hannonen P, Kiely P, Leeb B, Lie E, Martinez-Osuna P, Montecucco C, Ostergaard M, Westhovens R, Zochling J, van der Heijde D. Multinational evidence-based recommendations for pain management by pharmacotherapy in inflammatory arthritis: integrating systematic literature research and expert opinion of a broad panel of rheumatologists in the 3e Initiative. *Rheumatology* (Oxford), 2012. 51(8): p. 1416-25.

Impact Factor: 4.048

Dr Samuel Whittle first presented the 3e initiative guidelines for pain management in inflammatory arthritis at the European

Congress of Rheumatology in May 2011, which according to published reports, was so popular that "there was standing room only and delegates were battering down the door for the opportunity to hear what is likely to change the clinical practice of 1 in 5 rheumatologists". He subsequently published this work in 2012 in Rheumatology, and this work was considered so important that he was invited to also publish his findings in the prestigious *Journal of the American Medical Association*. (JAMA, impact factor 30). This latter paper was published in February 2013:

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

Stroke Research Program

Holliday EG, Maguire JM, Evans T-J, Koblar SA, Jannes J, Sturm JW, Hankey GJ, Baker R, Golledge J, Parsons MW, McEvoy M, Biros E, Lewis MD et al. Common variants at 6p21.1 are associated with large artery atherosclerotic stroke. *Nature Genetics*. 2012;44(10):1147-1151.

Impact Factor: 36.377

This publication arose from an Australian wide collaboration in genetics and stroke which has been in existence since 2009 and followed from work undertaken by TQEH consultant A/Prof Jannes when he was a PhD student in the early 2000's. The study was the largest genome wide stroke study undertaken in the world and was funded by the NHMRC. It found a new genetic signal for large vessel stroke in an Australian population and was validated in international populations in Europe and USA.

Nature Genetics is ranked second out of 158 in the genetics and hereditary journal category.

Surgery

Bagshaw PF, Allardyce RA, Frampton CM, Frizelle FA, Hewett PJ, McMurrick PJ, Rieger NA, Smith JS, Solomon MJ, Stevenson AR. The Australasian Laparoscopic Colon Cancer Study Group. Long-Term Outcomes of the Australasian Randomized Clinical Trial Comparing Laparoscopic and Conventional Open Surgical Treatments for Colon Cancer: The Australasian Laparoscopic Colon Cancer Study Trial. *Ann Surg*. 2012; 256(6):915-919.

Impact Factor: 7.492

This is a landmark paper defining the role of laparoscopic vs open bowel resection with excellent followup.

Aged & Extended Care Services

Specialist Geriatric Medicine - Positive Ageing Research Group, Health Observatory

Research Focus

- Under-nutrition
- Sarcopenia
- Frailty
- Technology in Healthcare and Falls Prevention
- Post-prandial Hypotension, Mobility and Cardiovascular Mechanisms
- Medication Complexity In Hospitalized Older People
- Medical Education

The academic department has established the University of Adelaide Geriatrics Teaching and Research with Aged Care Centre (Adelaide G-TRAC) in partnership with Resthaven Inc. (an aged care community service) at Resthaven's Paradise campus to support teaching, training and research relevant to consumers of aged care. The department is also associated with the NHMRC funded Centre of Research Excellence (CRE) 'Translating Nutritional Science To Good Health' based at the Royal Adelaide Hospital. The department is associated with the Health Observatory, which is a member of the Global Ageing Research Network and based at the Basil Hetzel Institute.

Technology in Health Care and Falls Prevention In Hospital and Aged Care (A/Prof R Visvanathan, Dr D Ranasinghe, Professor K Hill, Ms N Mahajan, Ms J Wood & Mr R Shinmoto):

The team is developing a technology system that identifies postural transitions associated with increased falls risk and alerts caregivers, enabling them to provide timely supervision to at-risk patients or aged care clients. Dr Ranasinghe was funded by The Hospital Research Foundation to undertake clinical feasibility studies and in-hospital research which commenced in December 2012. Also, funded by this grant, two research Masters students will progress work on this project in 2013.

The Aged & 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 also on clinical education and translational research.

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

This NHMRC funded study will explore the cardiovascular changes associated with post-prandial hypotension in elderly subjects. This study is due to commence early 2013.

Post-prandial Hypotension and Mobility (A/Prof R Visvanathan, Dr D Gentilcore & Dr S Nair):

Dr Nair is using a GaitRite Analysis Walkway purchased by The Hospital Research Foundation through a donation from the Kidman Park Rotary Club to evaluate if there are changes to gait parameters following a glucose drink compared to water in healthy older volunteers. Dr Gentilcore was recently awarded a RM Gibson Research Grant by the Australian Association of Gerontology to undertake further research on the effects of exercise on post-prandial hypotension.

Frailty and Nutrition (FAN) Study (A/Prof R Visvanathan, Prof I Chapman & Dr C Piantadosi):

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

Aged & Extended Care Services

Staff

Nutritional Frailty In Hospitalized Patients (Ms E Dent, A/Prof R Visvanathan, Professor I Chapman, Dr C Piantadosi):

Ms Elsa Dent has been researching the 6 and 12 months health outcomes of hospitalized older patients with under-nutrition or frailty. Ms Dent has to date published or submitted six publications and is expected to submit her thesis in May 2013. In recognition of this, she has been invited to spend two months with Professor Bruno Vellas and Professor Matteo Cesari at the Toulouse Gerontopole Research Centre in France.

Medication Complexity and Health Outcomes In Older People (A/Prof R Visvanathan, A/Prof Simon Bell, Ms E Dent, Dr Michael Wiese, Associate Professor Kristina Johnell, Ms B Wimmer):
Building on the work of Ms Dent, Ms Wimmer will evaluate the association between medication complexity and health outcomes of frail hospitalized older patients.

Sarcopenia Research (Dr S Yu, A/Prof R Visvanathan, Dr S Yu):

Associate Professor Visvanathan represented the Australia and New Zealand Society for Geriatric Medicine (ANZSGM) at the International Protein Intake In Older People Consensus Meeting (Zurich, July 2012). An international consensus guideline is being developed and will be published in 2013. Dr Yu, as part of his PhD, has developed and validated a South Australian prediction equation for appendicular skeletal muscle mass but further work is required to ensure appropriateness for the frail elderly. The prevalence of Sarcopenia in the North West Adelaide Health Study and Florey Adelaide Male Ageing Study cohorts has also been determined providing some preliminary Australian prevalence figures.

The 'Meals on Wheels' Nutritional Intervention Study (Dr N Luscombe, A/Prof R Visvanathan, Prof I Chapman, A/Prof Michelle Miller, Dr S Soenen):

This is an exciting new collaboration between Meals on Wheels South Australia (MOW-SA) and researchers from the Centre for Clinical Research Excellence in Nutritional Physiology, Interventions and Outcomes. Currently pilot work is underway to determine project feasibility.

Orthogeriatric Care and Osteoporosis Management In Patients Presenting With Falls (Dr P Shibu & Ms D Hudson):

In September 2012 Dr Pazhvoor Shibu presented at the Fragility Fracture Global Network Congress in Berlin on the benefits of the audit database that he developed and implemented at TQEH to monitor the outcomes of hip fracture patients. A pilot quality improvement project to improve osteoporosis management in patients presenting to hospital following a fall is underway, funded by Novartis.

Clinical Director & Associate Professor

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

Academic Staff

Research Fellow

Dr Cynthia Piantadosi BAppSci (Hon) PhD

Adelaide G-TRAC (University of Adelaide Geriatrics Teaching and Research with Aged Care Centre)

Centre Coordinator - Ms Rosie Bonin

Centre Academic (Teaching Lead) -

Dr Jeanine Teo MBBS FRACGP

Centre Academic (Research Lead) -

Dr Neha Mahajan PhD MPsych MAPsychol BA

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)

F Cai FRACP MBBS

TQEH Senior Nursing

S Hoskins (CSC- GEM Unit)

L Wakefield (CPC- GEM Liaison)

K Resili (Clinical Nurse- SA Health Masters of Nurse

Practitioner Scholarship Holder)

TQEH Allied Health and Pharmacy

M Rugari (Physiotherapist-GEM Unit)

R Horsell (Occupational Therapist-GEM Unit)

C Hewton (Clinical Pharmacist-GEM Unit)

Community Health Service For Older People (Allied Health and Nursing)

Transition Care Program

Regional Falls Program

Mobile Assessment and Support Team (MAST)

Integrated Complex Care For Older People (ICCOP)

Specialist Registrars in Geriatric Medicine

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

S Adikari MBBS MD

K Flynn MBBS

K Tam MBBS

C Basnayake (Rotating General Medicine Advanced Trainee) MBBS

Administrative Staff

C Falcone

B Cannon

Postgraduate Students

PhD Candidates

E Dent BAppSci (Hon)

An Investigation into Undernutrition and Frailty in Hospitalised Older Persons

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

RL Shinmoto Torres BSc MEng

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

Aged & Extended Care Services

Masters Candidates

Master of Philosophy
S Nair FRACP MRCP (UK) MBBS
Meal Related Blood Pressure Decline In The Elderly

Master of Nurse Practitioner
D Preston Grad Dip CHPC BNurs
Under-Nutrition in Community-Dwelling Older Adults
Attending One General Practice

Master of Advanced Practice Nursing
K Resili

Master of Nursing Science (Gerontological Nursing)
S Hoskins RN BN

Master of Applied Gerontology
M Rogers Master NP BNurs

Collaborators

Professor Ian Chapman, Professor Karen Jones, Ms Kylie Lange
and Dr Natalie Luscombe, 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

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

Associate Professor Simon Bell, School of Pharmacy and
Medical Science, University of South Australia

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

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

Associate Professor Michelle Miller, Nutrition and Dietetics,
School of Medicine, Flinders University, South Australia

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

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), Sydney University, NSW

Professor Ian Cameron, Rehabilitation Medicine, Sydney
University, New South Wales

Awards

The 2012 David Horowitz Memorial Research Prize –
Dr Khai Tam for his research project: 'Dedicated Geriatric
Medicine Teaching Block To Senior Undergraduate Medical
Students Improves Attitude and Competency Scores'.

2011-2012 Premiers Nursing Scholarship - Mr Mark Rogers
"Exploring the Scottish models of nurse lead clinics in providing
ongoing rehabilitation, secondary prevention strategies in
assisting in maintaining good health and hospital avoidance
among the elderly".

2011-2012 Premiers Nursing Scholarship - Ms Karen Hales
'Exploring innovative advanced practice and nursing
frameworks which improve care of the older person within a
health care setting'.

Grants

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 (\$236,500 2012) 2012-
2014, Visvanathan R.

NHMRC. (CRE grant # 1041687) Translating Nutritional
Science to Good Health (\$500,000 2012) 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]
(\$255,938 2012) 2010-2012, 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.
(\$225,500 2012) 2010-2012, 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 2012)
2009-2013, Adams RJ, Wilson D, Hill C, Visvanathan R,
Wittert G, Ruffin R.

Anaesthesia

DEPARTMENT OF

Research Focus

- POISE 2 trial: PeriOperative ISchemic Evaluation-2 Trial
- A comparison of epidural vs TAP block for post operative pain relief after laparotomy
- The effect of sevoflurane on Qtc interval in patients with type 2 diabetes undergoing laparoscopic surgery
- Dexmedetomidine in Functional Endoscopic Sinus Surgery (in collaboration with ENT Surgery)
- The role of sugammadex in developing new anaesthetic strategies to facilitate surgery (in collaboration with Upper GI Surgery)

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.

The Department of Anaesthesia has recently joined the POISE-2 trial, a large, international, placebo-controlled, factorial trial to assess the impact of clonidine and acetyl-salicylic acid (ASA) in patients undergoing non-cardiac surgery who are at risk of a perioperative cardiovascular event. Recruitment of patients has started.

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 is being compared to a standard epidural technique in a randomized controlled trial. This study has been submitted for publication.

The Department of Anaesthesia at TQEH is part of the Division of Critical Care of the Central Adelaide Local Health Network (CALHN). We provide services to Surgery, Cardiology, Gastroenterology, Respiratory Medicine, Radiology, Psychiatry and the Pregnancy Advisory Centre.

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

Dexmedetomidine may significantly reduce the amount of bleeding in the surgical field. Together with ENT Surgery we are investigating this in FESS surgery in a randomized 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 has started to estimate the size and variance of the beneficial effect of deep muscle relaxation on intra-abdominal pressure requirements.

With the advancing age and complexity of our surgical patients, the Department of Anaesthesia will continue to explore new and innovative ideas to improve their safety and wellbeing.

Staff

Head of Department

R van Wijk MD PhD FANZCA FFPMANZCA

Consultants

R Balasingam FANZCA

A Colby FANZCA

A Czuchwicki FANZCA

I Elhalawani FANZCA

K France FANZCA

T George FANZCA

C Hildyard FRCA

J Jeyadoss FANZCA

M Kha FANZCA

G Koo FANZCA

E Krishnappa FANZCA

Z Lagana FANZCA

A Laver FANZCA

R Lea FANZCA

PC Lim FANZCA

R Limb FANZCA

A Michael FANZCA

G Miller FFARCS(I) FANZCA

R Mitchell FANZCA

A Moffat FFARCS

N Nanjappa FANZCA

D Nemeth FANZCA

G Newcombe FANZCA

K Osborn FANZCA

A Rainbird FANZCA

A Rajbhoj FANZCA

V Rao Kadam FANZCA

R Sethi FANZCA

R Steiner FANZCA

V Thiruvankatarajan FANZCA

T Visvanathan FANZCA

R Watts FRACGP

CK Wong FANZCA

Consultant Physician

C Gibb FRACP

Visiting Medical Officers

E Chye FANZCA

J Currie FFARCS

P Naderi FANZCA

A Sen FANZCA

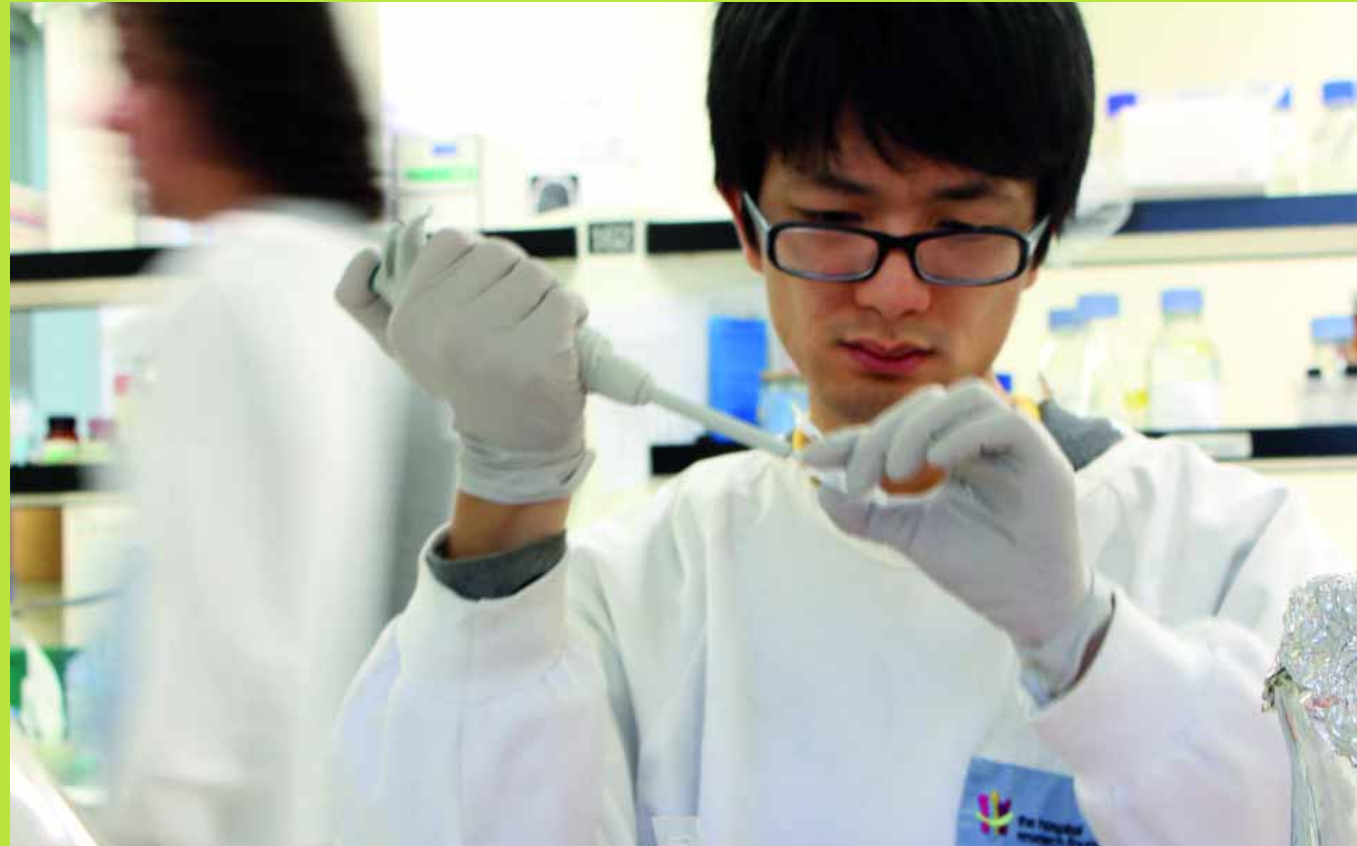
V Niculescu FANZCA

Research Nurses

C-Y Chan RN

L Charlton RN

Cardiology



Research within the Cardiology Unit has an overall translational research focus based upon delineating the pathophysiology of diseases affecting the heart, blood vessels and circulating platelets, particularly in the ageing population and/or in women, and then developing appropriate therapies.

Research Focus

- Nitric oxide signalling in platelets, and blood vessels and heart
- Ageing of the cardiovascular system
- Angina pectoris and heart failure as disorders of myocardial energetics
- Heart disease in women
- Disease states of the coronary circulation
- Valvular heart disease: pathogenesis and therapeutics
- Non-pharmacological management of heart failure

Specific research projects within the Unit are addressing the following issues:-

1. Role of arterial spasm in the pathogenesis of angina pectoris in Australians.
2. Pathogenesis of aortic valve stenosis, now the most common cause of valve disease and valve replacement in the Western world.
3. Disorders of tissue response to nitric oxide, clinical implications, and possible treatment options.
4. Tako-Tsubo cardiomyopathy ("broken heart syndrome"), a cause of disability and death especially in older women.
5. Heart disease associated with polycystic ovarian syndrome.
6. Optimal management of heart failure and atrial fibrillation: potential utility of outreach programmes.
7. Modulation of myocardial metabolism in ischaemia, heart failure and hypertrophic cardiomyopathy to improve myocardial energetics.
8. Pathophysiology of platelet "resistance" to anti-aggregatory agents such as clopidogrel.
9. Pathophysiological roles of thioredoxin-interacting protein (TxNIP) in heart disease and diabetes.

Some recent achievements have included:

1. Demonstration of the roles of impaired NO signalling and of increased TxNIP expression in the pathogenesis of aortic valve disease. (Dr A Sverdlov awarded a CJ Martin Research Fellowship).
2. Delineation of the cost-effectiveness of outreach programmes for the long-term management of heart failure.
3. Development of improved methodologies for rapid diagnosis of Tako-Tsubo Cardiomyopathy.
4. Publications in high impact factor journals including *New England Journal of Medicine*, *Lancet*, *JACC*, *European Heart Journal*, *Blood* and *British Journal of Pharmacology*.
5. Filing of a provisional patent related to potential treatments for Tako-Tsubo Cardiomyopathy.
6. Demonstration of a mechanism for prevention of heart attacks by ACE inhibitors.

Collaborators

Department of Physiology, University of Adelaide
 Department of Medicine, St Vincent's Hospital, Melbourne
 Department of Epidemiology & Preventative Medicine, Monash University, Melbourne
 Cardiology Department, Aberdeen University, UK
 Department of Obstetrics and Gynaecology, University of Adelaide
 Baker Research Institute, Melbourne
 Department of Biochemistry, University of Hannover, Germany
 Department of Pharmacology, Monash University, Melbourne

Staff

Director
Professor JD Horowitz AM, MBBS BMedSc(Hons) PhD FRACP

Senior Clinical Staff
O Akbar Ali MBBS FRACP FCSANZ
MA Arstall MBBS PhD FRACP
P Averbuj MD FRACP
JF Beltrame BSc MBBS FRACP PhD FESC RACC FCSANZ
WP Chan MBBS FRACP
R Dautov MBBS FRACP
D DiFiore MBBS FRACP
ADB Hains MBBS FRACP
JTY Hii MBBS FRACP
SB Limaye MBBS MD MRCP FRACP
D Lypourlis MD FRACP
G Mahadavan MBBS FRACP
K Mishra MBBS MD MRCP FRACP
C Neil MBBS FRACP
D Ninio MBBS(Hons), PhD FRACP
A Philpott MBBS FRACP
S Rajendran MBBS PhD FRACP
PR Sage MBBS PhD FRACP
AL Sverdlov MBBS FRACP FCSANZ
S Unger MBBS PhD FRACP
AS Warner MBBS BMedSc(Hons) PhD FRACP
CJ Zeitz MBBS PhD FRACP OStJ

Senior Research Scientists
YY Chirkov BSc PhD
JA Kennedy BSc(Hons) PhD
D Ngo BPharm BHlth Sc(Hons) PhD FCSANZ
DP Wilson BSc(Hons) MSc PhD

Laboratory Manager
I Stafford BSc

Research Assistants
T Heresztyn BSc
Dan Gavrilouk BSc

Technical Officer
G Murphy BA

Trial Coordinators
C Anderson-Stanford RN
M Black RN
J Rose RN
G Dymmott RN
N Hare RN
E Jansen
J Stansborough
S Castle

Administrative Staff
P Pachen
B Phillippo
S Golding
B Mitchell

Postgraduate Students

Higher degrees awarded
A Sverdlov MBBS FRACP FCSANZ
Pathogenesis of aortic sclerosis
PhD conferred, School of Medicine, University of Adelaide

TH Nguyen MD
Interactions between catecholamines and the human heart:
studies in chronic heart failure in Tako-Tsubo Cardiomyopathy
PhD conferred, School of Medicine, University of Adelaide

NS Kangasingam MBBS
The role of oxidant stress in a cellular model of aortic stenosis
Masters awarded, School of Medicine, University of Adelaide

Cardiology

PhD Candidates
A Chan MBBS FRACP
The polycystic ovary syndrome and coronary risk

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 effect 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

C Zhang BSc
Does metformin ameliorate tissue NO resistance in polycystic
ovarian syndrome?

Grants

Medical Research Council. (Program grant ID G1001536) Effect of inorganic nitrite on cardiac and skeletal muscle: physiology and therapeutic potential. (\$450,000 2011-2012) 2011-2016, Frenneaux MP, Dawson D, Brittenden J, Feelisch M, Horowitz J, Madhani M, Redpath T, Selman C, Speakman J, Welch A, Zanda M.

NHMRC. (Project grant # 627245) Determinants of occurrence and progression of aortic stenosis in bicuspid and tricuspid valves. (\$178,962 2012) 2010- 2012, Horowitz JD. NHMRC. (Health Services Research Program # 418967) Which Heart failure Intervention is most cost-effective and consumer friendly in reducing Hospital care: The WHICH? Study. (\$146,090 2012) 2008-2012, Stewart S, Scuffham P, Marwick T, Horowitz JD, Krum H, Davidson P, Peter M, Reid C.

National Heart Foundation. (Project grant) Assessing of the value of the confirmatory studies required for the widespread uptake of personalised cardiovascular medicine. (\$64,602 2012) Sorich M, Horowitz JD, Kennedy JA, Frenneaux MP.

SA Heart Foundation. Utility of (+)- and (-) perhexiline as model compounds for the development of new myocardial metabolic agents. (\$130,000 2012) Sallustio B, Horowitz JD.

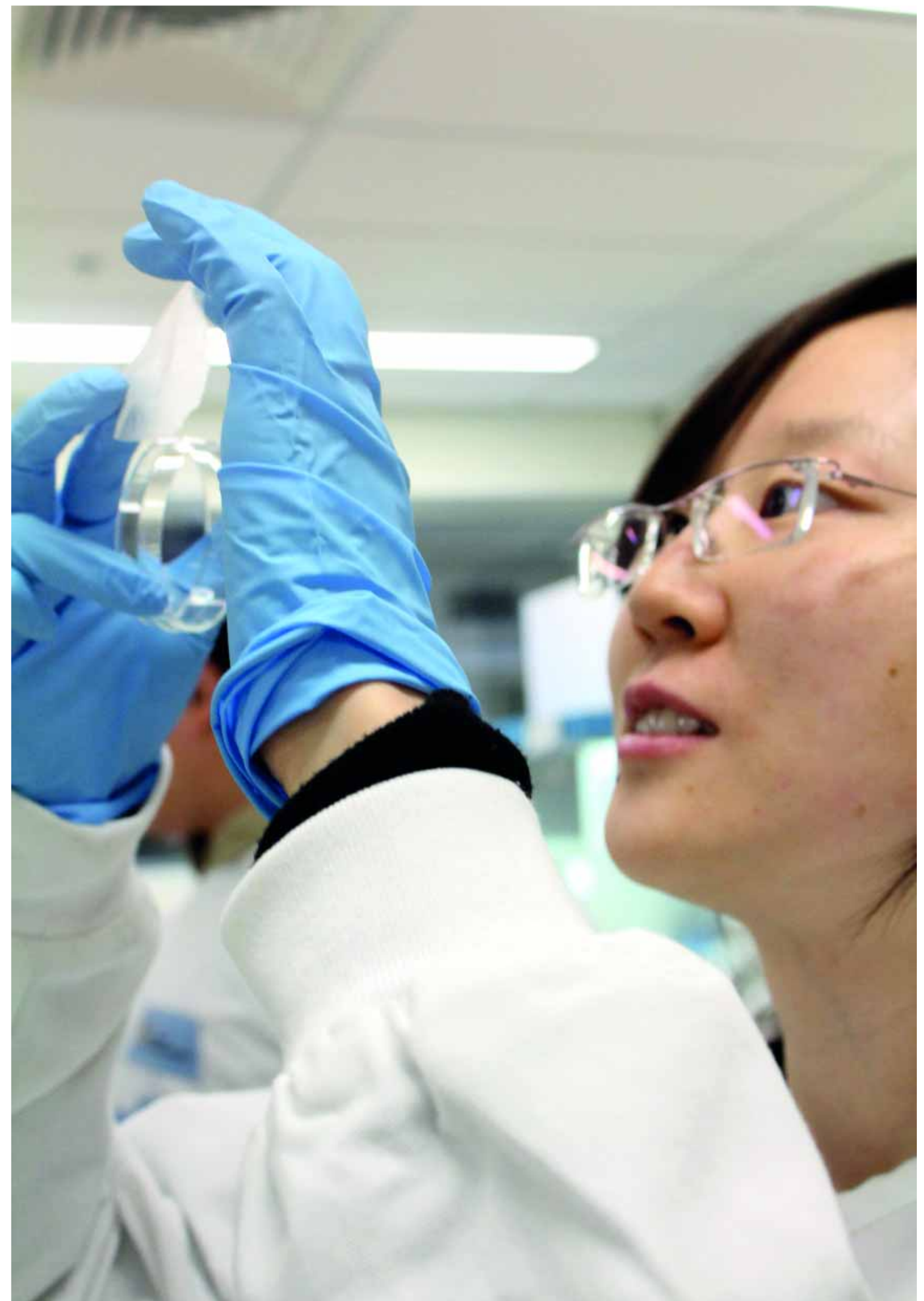
The Hospital Research Foundation Strategic Initiatives Funding. (Program grant) TQEH Vascular Disease and Therapeutics Research Group: towards improved outcomes for vascular disease. (\$250,000 2012) 2009-2013, [Horowitz JD](#), Beltrame JF, Morris RG, Fitridge RA, [Zeitj C](#), Wilson DP, Sallustio BC, [Chirkov YY](#), [Kennedy JA](#), Cowled PA.

New grants commencing in 2013

NHMRC. (Project Grant 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. (\$1,817,824.76 2013–2015) Stewart S, [Horowitz JD](#), Carrington M, Scuffham P, Wong C, Newton P, Rischbieth A.

Acknowledgements

The Cardiology Unit wishes to thank the Anne-Marie Trimboli Trust, the 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.



Clinical Pharmacology Unit

Research Focus

- Personalised Medicine
- Translating laboratory skills in therapeutic drug monitoring to the delivery of optimal testing for clinical care
- Understanding perhexiline genetics and metabolism
- Studies involving the drugs used in organ transplantation to avert rejection
- Therapeutic drug monitoring opportunities for cancer drugs
- Local anaesthetic drugs in post-operative pain management

Angina treatment

The department maintains an active research interest in the treatment of angina, particularly in patients receiving perhexiline, an older and very effective drug. It 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. Our PhD student, Mr John Licari, has been investigating the development of new drugs for the treatment of angina, based on our growing knowledge of how perhexiline works. This work has recently led to the development of a provisional patent application, which has been lodged both in Australia and in the USA. In addition, this research now also involves an international collaboration with Professor M Frenneaux from the University of Aberdeen, Scotland, and has been supported by 2 years of funding from the National Heart Foundation (2012-2013).

Clinical Pharmacology has both a routine diagnostic role and a medical research role. Whilst the two may seem unrelated, our aim is, wherever 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 TQEH.

Transplantation therapy

Clinical Pharmacology, in collaboration with Pharmacology at the University of Adelaide, received major funding from the National Health and Medical Research Council, which this year supported a PhD student Mr Zaipul MD Dom and a research scientist, Mr Ben Noll to assist in a wide-ranging project investigating overall genetic factors that may influence the efficacy of immunosuppressant drugs and, hence, the incidence of rejection or organ toxicity. We have recruited 200 kidney transplant recipients and their donors to assist in this project, and are one of the first laboratories to have measured the amount of immunosuppressant drugs within the transplanted kidneys using residual tissue from routine biopsy sampling. We have also collected clinical, biochemical and genetic data, which will be used to establish whether it may be possible to further reduce the incidence of rejection and loss of transplanted kidneys. Initial results indicate that transporter proteins within the transplanted kidney determine its exposure to some immunosuppressant drugs, and we are currently analysing whether knowledge of the kidney's exposure to these drugs and the (different) genetics of both the transplant recipient and the transplanted organ may guide individualising each patient's immunosuppressant medication. Part of this work was presented at the 2012 meeting of the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists, where Zaipul was a finalist for the Neville Percy Prize (awarded to higher degree students for a poster presentation). 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 with the ultimate aim to reduce the adverse side effects associated with this drug whilst optimising drug actions.

In this same area, a project is currently underway investigating the use of pharmacological agents to prevent the bystander effects associated with radiation therapy, targeting an enzyme involved in apoptosis. The aim of the study is to determine if inhibition can prevent bystander side effects whilst maintaining the efficacy of radiation therapy.

Local anaesthesia – novel clinical usage

We have three projects involving anaesthetic drugs::

- The first is for post-operative pain control that remains an under-treated clinical problem. This project was directed at novel ways of treating such pain after laparoscopic or open surgery. The aim being to pump a continuous trickle of local anaesthetic drug adjacent to the incision site following colorectal surgery. In this way treating the pain at the local site, as an alternative giving patients opioid drugs that can have significant adverse effects and inhibit recovery of the bowel after surgery. This project is now completed and formed the focus of research by Ms Sumithra Krishnan whose PhD was conferred this year, and whose resulting manuscripts have been submitted for publication.

- The second project has been recently completed and involved measuring plasma concentrations of local anaesthetic after a spinal TAP-block in Intensive Care Unit patients. Again 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.

- A third 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.

Staff

Principal Medical Scientist/Professor
(Retired February 2012)

R Morris BSc PhD FFSc(RCPA)

Principal Medical Scientist/Assoc Professor

BC Sallustio BSc PhD

Senior Medical Scientist

IS Westley BMedSc PhD

Grant-Funded Scientists

BD Noll BSc(Hons)

D Mohanasundaram PhD

Senior Technical Officer

FA Wicks BSc

P Dubois BSc(Hons)

Technical Officer

A Kalaitsidis BSc

D Dinow BSc

C de Nichilo BSc

Postgraduate Students

Higher degree awarded

S Krishnan BHSc(Hons)

The clinical evaluation of fast-track surgery including extended local anaesthetic infusion for post-operative pain
PhD conferred, University of Adelaide

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

BSc Honours Candidate

M Khader BSc

Development of high performance liquid chromatography for the detection of metoprolol enantiomers in patients with ischaemic heart disease

Grants

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

Heart Foundation. (Project grant GIA – G11A 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.

NHMRC. (Project grant) Pharmacogenomics of Renal Transplantation (carried over to 2012) 2009-2011, Sallustio BC, Collier JK, Morris RG, Somogyi AA.

The Hospital Research Foundation Strategic Initiatives Funding. (Program grant) South Australian Translational Centre for Renal Research (\$180,000 2011) 2009-2011, Russ GR, Coates PT, McDonald S, [Sallustio BC](#), [Morris RG](#).

The Hospital Research Foundation Strategic Initiatives Funding. (Program grant) Vascular Diseases and Therapeutics Research Group: Towards improved outcomes for Vascular Disease (\$250,000 2011) 2009-2013, Horowitz JD, Beltrame JF, Morris RG, Fitridge RA, Zeitz CJ, Wilson DD, [Sallustio BC](#), Chirkov YY, Kennedy JA, Cowled PA.

University of Adelaide, Faculty of Health Sciences Divisional Scholarship (\$23,728), Chong C-R.

Endocrinology Unit

Research Focus

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

The Unit conducts research in endocrinology, mainly in areas relating to diabetes and osteoporosis. Our research aims at gaining clinical endocrine knowledge through clinical trials and other research. We also conduct research in translational research and patient care quality improvement projects to increase patient care ability.

Currently we are the Adelaide site of a multi-centre double-blind, randomised, placebo-controlled trial (T4DM). This trial aims 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. Additionally, this study is also going to evaluate the effect of Testosterone treatment in their overall health status, such as body weight, waist circumference, body composition, muscle strength and sexual function. The treatment impact of Testosterone on health care expenditure will also be assessed.

The principal investigator of this clinical trial is Prof Gary Wittert of University of Adelaide while Dr David Jesudason is the chief investigator in The Queen Elizabeth Hospital. This study is supported by the National Health and Medical Research Council through a project fund of \$4,822,905; it also receives support from The Hospital Research Foundation and other industry bodies.

Two hundred and forty patients will be recruited in the Queen Elizabeth Hospital, over the next two years, while an overall 1,490 participants will be enrolled in the study from 6 endocrinology units across Australia. 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. Following the recent ethics approval, recruitment has started and 10 volunteers have been screened in The Queen Elizabeth Hospital. Mr Sam Jose, a research nurse has been employed to be the research coordinator. The trial physician, Dr Susan Shanley, has a strong research background in cancer genetics and she will assist with the day to day running of the trial. Recruitment will utilise multiple approaches, including a multi-media campaign in addition to direct participant identification through various networks and the participating sites. It is anticipated that approximately 24,000 men will need to be screened.

Dr David Jesudason has been continuing his research looking at high and normal protein diets in diabetic nephropathy and osteoporosis respectively. This work has been in collaboration with Professor Peter Clifton under the auspices of the CSIRO, and has been presented at International Conferences. Dr Jim Wang has provided statistical advice.

The Diabetes Centre initiated a project on the Self Management and Review Type 1 Intensive Education (SMaRT1E). The SMaRT1E programme is a structured group education programme and designed for people with type 1 diabetes. It aims to assist participants to achieve their own goals relating to diabetes, to learn how to adjust their insulin dose according to their lifestyle. To ensure the successful implementation of SMaRT1E at The Queen Elizabeth Hospital, clinical data was collected from audits of medical charts and responses to questionnaires on dietary assessment, treatment satisfaction using the Diabetes Treatment Satisfaction Questionnaires (status and change) and quality of life using the Problem Areas in Diabetes (PAID Scale) by the Diabetes Educators and Accredited Practicing Dieticians and analysed by Dr Jim Wang. The SMaRT1E programme will be reviewed longitudinally.

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 the community. Our good links with the community organisation Osteoporosis Australia, the Royal Australian College of General Practitioners and the Divisions of General Practice enable us to review the management of osteoporosis in the community. Our combined services now see about 5,500 patients per year and we have a database containing records for over 26,000 individuals. This forms an important source of clinical data for investigating many aspects of the overall bone health of the communities that we service, and of long term trends and changes.

We contribute to the Florey Adelaide Male Aging Study in relation to measuring bone density and body composition in a cohort of men selected from the northern and western regions of Adelaide. This is a longitudinal study where participants are followed up every five years. This study offers the opportunity to assess and analyse changes in both bone density and regional body composition as men age and we are currently accumulating data for future analysis. We will also conduct the body composition measurement for the participants of the T4DM trial.

The above research projects will continue in 2013.

Staff

Head

D Jesudason MBBS FRACP

Endocrinologists

N Laddipeerla MBBS FRACP (Endo)

K Campbell MBBS FRACP

Lucy Gagliardi MBBS FRACP PhD

Registrars

B Woo MBBS,FRACP (Jan 2012-June 2012)

M Roberts MBBS (July 2012-)

A Heish MBBS

C Basynake MBBS

Scientists

J Wang BSc PhD MPH

C Seaborn BSc

E Robinson BSc

T4DM Clinical Trial

S Jose BSc RN PGDCR

S Shanley MBBS, PhD, FRACP

Diabetes Centre Nurses

T Willson RN BNg (Hons) Grad Cert Health (Diab Man and Ed) CDE

R Cox CN BN MN

M Hodgson RN RM BMid Grad Cert (Diab Ed)

D Barrow RN Grad Cert (Diab Ed)

C Nitschke RN RM Grad Cert (Diab Man & Ed)

M Kinasz RN B app sci (Food Science and Nutrition) Cert (Diab Man & Ed)

R Wilson RN

Dietitians

C Stanton BSc DipEd MND

C Roberts BSc MND

Administration

L Roberts

C Bouthémy (Dip.Hlth.Sc)

J Grimsey

A Gazzard

V Watson

J Cocks

Gastroenterology & Hepatology

DEPARTMENT OF

Research Focus

- Pathogenesis of bowel inflammation
- Treatment of ulcerative colitis
- Gastrointestinal Cancer

The major research goals in 2012 have been to refocus our attention on inflammatory bowel disease and to strengthen collaborations with other research groups in Adelaide working on similar problems. One important link is with Professor Ross Butler and his group at the University of South Australia.

Professor Butler has moved some of his staff and equipment to the Basil Hetzel Institute. That group have an interest in inflammatory bowel disease, particularly in children, and they are working with paediatric gastroenterologists at the Women's and Children's Hospital and with other investigators in Christchurch, New Zealand, and Maastricht, The Netherlands. A second focus of the group is the diagnosis of gastrointestinal cancer, particularly oesophageal and gastric cancer, using non-invasive techniques. One of these is the analysis of gases and volatile organic compounds in breath using a variety of instruments including sophisticated mass spectrometers. These techniques may also be applicable to the detection of gastrointestinal inflammation. In the cancer project, two PhD students and one Honours student will be supervised by Dr Roger Yazbeck, an NHMRC post-doctoral research fellow.

Another important link is with Dr Michael Conlon, senior research scientist at the CSIRO Animal, Food and Health Sciences. Dr Conlon has expertise in the analysis of faecal, and in one project, we have completed the analysis of faecal characteristics and faecal organisms in a substantial group of patients with ulcerative colitis in remission. Yet another collaboration involves Professor Gordon Howarth at the University of Adelaide. Professor Howarth has a major interest in animal models of bowel inflammation and the effects on inflammation of prebiotics, probiotics and other nutritional supplements.

In relation to adult inflammatory bowel disease, we have had one PhD student in 2012 and will have two in 2013. Dr James Fon is evaluating the role of special molecules called cytokines in patients with inflammatory bowel disease. These molecules are derived from various cells and either promote or suppress inflammation in the bowel. Studies include changes in the expression of various cytokines as well as the concentrations of cytokines in inflamed mucosa. In 2013, our second PhD student will be Dr Samuel Costello. Dr Costello is interested in the possibility that faecal transplantation can improve bowel inflammation in patients with ulcerative colitis. His research project has already been developed and is based on the assumption that patients with ulcerative colitis have changes in faecal bacteria that promote intestinal inflammation. One possibility is that inflammation can be suppressed by the administration, by colonoscopy, of faecal bacteria from healthy individuals. This form of therapy is of proven benefit in unusual patients with persistent infections caused by *Clostridium difficile* but is of unproven benefit in ulcerative colitis. In this study, the analysis of faecal specimens will be undertaken by the CSIRO.

We also have an interest in other research projects. One area is the possibility that a minor population of cancer cells called cancer stem cells are responsible for the development of metastases in patients with colorectal cancer. This work is being supervised by Dr Jenny Hardingham and involves Dr Phulwinder Grover, Associate Professor Timothy Price and Professor Peter Hewett. Another area involves the development of a vaccine for hepatitis C virus. This work is supervised by Professor Eric Gowans but our role will involve the recruitment and supervision of appropriate patients. Dr Ilmars Lidums also has a continuing interest in the role of capsule endoscopy for gastrointestinal bleeding, coeliac disease and inflammation involving the lower small bowel

Grants

Cancer Council of SA. Investigation of circulating cancer stem cells in the blood of patients with colon cancer as a cause of secondary spread to liver. (\$100,000 2012), Grover PK, Hardingham J, Cummins AG.

BioInnovationSA 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. \$315,000 (2012-2014). Butler RN.

CancerSA. H.pylori and Innate Immunity. \$100,000 (2012). Brooks D, Butler RN.

Beat Cancer Project Grant. New Non-Invasive Breath test for Oesophageal Cancer \$72000 (2012-2013). Yazbeck R, Butler RN, Brooks D.

Staff

Directors

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

Senior Consultant

I Lidums PhD FRACP

Post-doctoral Fellow

R Yazbeck BSc(Hons), PhD

Medical Scientist

WJ Uylaki BSc(Hons)

Post-Graduate Students

J Fon MBBS (PhD student)
M Squire (PhD student)
K Crawshaw (PhD student)
S Jaenisch (Hons student)

Honorary Consultant

A Cummins (MD, PhD, FRACP)

Additional Collaborating Investigators

Dr M Conlon, Senior Research Scientist, CSIRO Food and Nutritional Sciences
Prof G Howarth, School of Animal Sciences, University of Adelaide
Professor P Hewett, Department of Colorectal Surgery, TQEH
Professor E Gowans, University of Adelaide, Department of Surgery, TQEH
Dr J Hardingham, Department of Haematology and Oncology, TQEH
A/Prof T Price, Department of Haematology and Oncology, TQEH

Gynaecology

DEPARTMENT OF

Research Focus

- Aetiology of female pelvic organ prolapse and pelvic floor dysfunction

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.

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 2012 the department continued recruitment to the POMI study into pelvic organ prolapse and related minimally invasive surgical treatments, including mesh vaginal repair; Essure sterilisation and gynaecological oncology. Dr Chris Barry continues to utilise a 4D ultrasound scanner to identify complex prolapse.

Research interests include the use of graft materials in vaginal repair surgery; new approaches to imaging pelvic organ prolapse and recurrent urinary tract infections. Recruitment continues for the study looking at the recurrence of pelvic floor prolapse surgery. This incorporates the use of rapid sequence MRI scanning and 4D ultrasonography before and after surgery.

Dr Barry is the co-author and co-principal of the steering committee to set up international guidelines for the use of vaginal pessary support devices for female pelvic organ prolapse.

Dr John Miller, Senior Visiting Gynaecological Oncologist, has involved our department in multicentre investigations with the University of Adelaide into the psychological aspects of recurrent cancer and the development of patient decision aids as well as continuing to recruit patients for chemotherapy and surgical trials centred at the Royal Adelaide Hospital.

We are completing a study into the outcome following day surgery for endometrial ablation for menorrhagia, which is being conducted by Dr Roy Watson.

Another focus is 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. 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 & Medical Oncology

THE COMBINED
DEPARTMENTS OF

Research Focus

- 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

Clinical research

The clinical trial program involves Phase I, II and III trials of new therapeutics. Ongoing studies are investigating chemotherapeutic agents, new supportive therapies (cytokines, erythropoietic agents), novel molecular targeted agents (EGFR, VEGF, mTOR, BRAF and PARP inhibitors) and antithrombotic agents. Currently there are over thirty active clinical trials available to patients within the unit, including investigator driven, cooperative group and pharmaceutical driven studies.

The Unit consists of Medical Oncologists, Haematologists, Clinical Trials Co-ordinators, a dedicated Clinical Research Fellow and post-doctoral scientists. Trial results from our Unit have been presented by our team at this year's American Society of Clinical Oncology and ESMO meetings, and include results of biomarker studies correlating mutations in the EGFR pathway with prognosis and response to anti-VEGF therapy as part of the large multicentre AGITG MAX study. We have also obtained industry sponsorship for an investigator led phase Ib/II study of the combination of panitumumab, irinotecan and everolimus in advanced bowel cancer, which will include laboratory biomarker studies which will be correlated with clinical outcomes to predict response to therapy.

Data from the cancer registry on small cell lung cancer has been reviewed and statistical analysis performed in-house comparing survival between two large cohorts of patients on differing therapeutic regimes. The results were published earlier this year. Similar studies are now underway for non-small lung cancer and rectal cancer.

The Unit also has a special interest in non-malignant haematology including thrombosis and haemostasis (Dr Simon McRae) with a focus on new anticoagulants. There is also a clinical focus on transfusion, anaemia, iron deficiency and blood conservation (Dr Kathryn Robinson, Dr Uwe Hahn & Associate Professor Peter Bardy). The appointment of Dr Cindy Lee has seen an increase in clinical studies available for patients with Multiple Myeloma.

Laboratory Based Research

Project 1: Determination of biomarkers to predict resistance or sensitivity to monoclonal antibody therapies in colorectal cancer (J Hardingham, J Wrin, A Shivasami, M Bruhn, S Sree-Kumar, T Price, A Townsend)

Metastatic colorectal cancer (CRC) is a leading cause of cancer death in Australia. Recent developments in the use of novel targeted therapies, such as monoclonal antibodies inhibiting the epidermal growth factor receptor (EGFR) or vascular endothelial growth factor (VEGF), offer promise in improving patient outcomes, however, tumour resistance is a significant clinical problem. A major focus of the Molecular Oncology group is to discover and validate biomarkers to predict resistance to these therapies. The hypothesis is 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 in tailoring treatment for each patient to improve efficacy and reduce the toxicity and cost of treatment. We are using Biolex technology to measure 5 different pro-angiogenic biomarkers in protein isolated from FFPE tissue from the MAX study patients. The effect of these factors on response to anti-VEGF therapy is unknown but we hypothesise that they will circumvent the dependency on VEGF for tumour angiogenesis and progression thus resulting in tumour resistance. The correlation of expression of these markers singly or as a group with patient outcomes associated with bevacizumab therapy is currently being analysed by the AGITG statistician. Loss of the PTEN tumour suppressor gene activates the AKT-mTOR pathway, enhancing expression of downstream growth factors including angiogenic factors; however the role of PTEN as a prognostic or predictive marker in CRC is controversial. We developed a copy number PCR assay to measure loss of the PTEN gene and found that PTEN loss did not correlate with tumour response to anti-VEGF therapy, nor did it contribute to effect of wild-type versus mutant KRAS or BRAF on tumour resistance or on prognosis. These findings were presented at the American Society of Clinical Oncology Annual Scientific Meeting, Chicago June 1st to 5th 2012 and at the European Society of Medical Oncology Annual meeting, Vienna September 29th to October 2nd 2012.

To determine biomarkers for anti-EGFR resistance we have used expression profiling arrays (n=24) to determine genes differentially expressed between 3 sensitive and 3 resistant tumour cell lines in all combinations. Several genes were found to be significantly up-regulated in resistant versus sensitive cell lines and data has been validated using qRT-PCR. RNA interference experiments are underway where we will knock-down expression of over-expressed genes in the resistance cells with the aim of reversing the resistant phenotype. This work will identify these genes as potential predictive biomarkers for efficacy of anti-EGFR monoclonal antibody therapy. Another commonly used therapy for metastatic CRC is the anti-VEGF antibody bevacizumab. This year we have investigated the use of the chick embryo vasculature to study tumour induced angiogenesis and the effect of anti-VEGF monoclonal antibody treatment. RNA from both resistant and sensitive tumour cells will be isolated and differential expression of genes determined by microarray analysis. Our collaboration with the Australasian Gastrointestinal trials group (AGITG) resulted in a high impact factor journal publication of the results of KRAS and BRAF mutation detection in the MAX study cohort of 314 patients with advanced CRC (*J Clin Oncol.* 2011;29(19):2675-82).

Project 2: Identification and validation of new markers for circulating tumour cells in early stage colorectal cancer (J Hardingham, K Grover, A Cummins, S Nelligan, PJ Hewett, T Price)

Patients diagnosed with early stage colorectal cancer (CRC) (TNM stage I or II) undergo surgical tumour resection with curative intent, yet up to 30% of these patients suffer recurrent or metastatic disease within five years of surgery. We have reported previously that circulating tumour cells (CTC) detected by immunobead capture and RT-PCR at diagnosis correlate with later relapse. However, not all patients with CTC relapse which makes any decision to treat with cytotoxic chemotherapy and/or biological agent difficult. We hypothesise that it is only the cancer stem cells within the circulating tumour cell pool that are responsible for later relapse. To improve this approach we have studied several new biomarkers identified from laser micro-dissected colon tumours (stem cell compartment enriched) and from the literature. We also developed a method to culture colon cancer stem cells as stem cell spheres and as differentiated crypt-like structures (organoids) and compared expression of stem cell markers: 3 markers were found to be significantly higher in stem cell spheres. We will use these stem cell markers to capture and identify stem cells from patients' blood samples. This year we established a collaboration with Associate Professor Benjamin Thierry, Ian Wark Institute, University of SA. He has developed a novel micro-fluidic device for the capture of tumour cells from blood and proposes to use our stem cell markers to identify the cells on the imaging flow cytometer at Flinders University. Ultimately, detection of circulating stem cells will allow adjuvant chemotherapy to be targeted to those early stage patients at high risk of systemic relapse, while reassuring patients negative for circulating stem cells to be at minimal risk of relapse.

Project 3: Molecular-genetic approaches to identify lesions in myeloproliferative neoplasms (R D'Andrea, P Bardy, C Butcher, N Rao)

The Philadelphia chromosome-negative Myeloproliferative Neoplasms (MPN) are a group of hematological diseases in which the bone marrow produces increased numbers of several haemopoietic cell types (red blood cells, white blood cells and platelets). This disease is of particular interest to us as the multilineage effects are associated with a dysregulation of haemopoietic stem cell growth and normal blood cell growth factor responses. An acquired mutation that affects the activity of the intracellular signaling molecule JAK2 is present in a high percentage of MPN patients. Whilst this mutation is clearly important, several studies indicate additional genetic events are involved in the initiation and progression of disease. To identify other genes important in MPN pathogenesis, we have conducted a NimbleGen exon sequence capture of a total of 657 candidate genes in 15 MPN patients followed by SOLID sequencing to identify gene coding changes. We have validated non-synonymous variants and have confirmed novel somatic variants in DNA binding proteins and receptor tyrosine kinases using Sanger sequencing of matched disease and germline samples. To determine the disease frequency and specificity of these variants we are screening our cohorts of MPN, AML and normal individuals and are utilizing retroviral gene expression in cell lines and primary cells to assess their functional significance using in vitro assays measuring genomic stability, cellular growth and differentiation. Finally, as histone modifications are the target of JAK2 signaling pathways we are investigating the interaction of the DNA methyltransferase (DNMT3A) with specific histone residues as this interaction may be central to epigenetic modulation in MPN.

Project 4: Molecular-genetic approaches to identify lesions in Acute Myeloid Leukaemia (R D'Andrea, J Gray, P Bardy, C Butcher)

The use of higher resolution molecular methods in primary AML samples is proving to be a powerful approach to identification of genes and pathways involved in leukemogenesis and is also providing new biomarkers for molecular classification. It is now particularly important to identify additional recurrent mutations present at diagnosis, and also those present at relapse, after apparent remission, as these will likely affect tumour growth and/or sensitivity to chemotherapy agents. We have used higher resolution genome-wide analysis of an individual leukaemia patient sample series (Normal control tissue, diagnosis sample and relapse sample) to identify point mutations, insertions/deletions and small chromosomal rearrangements in this series of samples. From this we have identified and validated novel changes that have potential to be clinically important in AML as well as providing new insights into AML biology and relapse. Having completed the comparative whole-genome and exome sequencing of this series we now are evaluating the clinical and biological significance of the novel changes. For this we are screening a large panel of AML diagnostic samples derived from the TQEH and RAH sites to determine the frequency of candidate mutations in a sample set of AML cases, to establish the link with other recurrent mutations, including FLT3-ITD, NPM1, IDH1, IDH2, WT1 and CEBPA, and to establish the relationship of these changes to clinical outcomes of these AML cases. A separate collaborative project involves genetic analysis of families displaying inherited predisposition to MDS/AML.

Project 5: Molecular characterisation of Diamond Blackfan Anaemia (DBA) (R D'Andrea, S Bray, A Wee, C Butcher)

Studies of rare inherited diseases have provided important insights into fundamental biological processes and cancer pre-disposition. Diamond Blackfan Anemia (DBA) is a bone marrow failure syndrome characterised by haploinsufficiency for a number of ribosomal proteins associated with specific red cell and congenital defects. DBA is one of an emerging group of disorders known as 'ribosomopathies'. The mechanism of tissue specificity in DBA remains unclear.

We aim to understand how decreased expression of these ubiquitously expressed ribosomal proteins translates to defective erythropoiesis, causing a distinct erythroid phenotype. To achieve this we aim to identify key genes and proteins in erythroid progenitors that are expressed at altered levels in cells with the ribosomal protein (RPS/RPL) defects, and contribute to the disease phenotype. For this we will make use of proteomic technologies, global gene expression profiling and pathway analyses which will allow us to compare the complement of proteins, genes, pathways and regulatory networks in cells with and without the ribosomal protein defect. Key genes and proteins identified in our studies will subsequently be tested in established experimental models to assess their contribution to the defective erythropoiesis.

Staff

Chair of the combined Departments of Haematology and Medical Oncology

T Price MBBS FRACP

Head of Clinical Haematology

PG Bardy MBBS FRACP FRCPA

Head of Clinical Oncology

KB Pittman MBBS MD FRACP

Head of Clinical Research

TJ Price MBBS FRACP

Staff Specialists/Clinical Trials

RM Green MBBS FRACP FRCPA

U Hahn MD FRCPA

S McRae MBBS FRACP FRCPA

J Gray MBBS PhD FRACP

WK Patterson MBBS FRACP

K Robinson MBBS FRCPA FRACP

C Lee MBBS FRCPA FRACP

A Townsend MBBS FRACP

R Roberts-Thomson MBBS FRACP

Chief Medical Scientist and Laboratory Head

RJ D'Andrea PhD

Principal Medical Scientist and Group Leader

JE Hardingham PhD

Grant Funded Scientists

C Butcher MMedSc

J Wrin BSc (Hons)

A Shivasami MMedSc (Biotechnol) until April 2012

M Bruhn BSc PhD

S Bray PhD

A Wee BSc (Hons)

Clinical Trial Manager

S Yeend EN

Clinical Trial Study Coordinators

P Cooper BSc

A Jager BMed & Pharm Biotech (Hons)

S Papacharissiou BBiomedSc (Hons)

A. Phay BMedSc

J Rowe BSc (Hons) PhD (LMHS Collaborators)

J Williams BSc Genetics (Hons) MMedSc

Postgraduate Students

PhD candidates

N Rao BSc (Hons)

Molecular characterisation of Polycythemia Vera

S Sree Kumar BSc MSc

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

Honours Awarded

R Rajenthiran BSc

Awarded 1st class Honours, School of Medical Sciences, University of Adelaide, Nov 2012. Determination of biomarkers of colon cancer stem cells. Supervisor J Hardingham.

3rd year lab placements

J Hardingham hosted four students from the School of Medical Sciences, University of Adelaide: Megan Bleeze, David Jeremic, Karin Mitris, Leonie Rich-Perrett "Determination of Aurora-A kinase amplification in colon cancer by copy number PCR as a biomarker of resistance to chemotherapy".

R D'Andrea and S Bray hosted a third year student, Russell Byrne, from the School of Molecular and Biomedical Science, University of Adelaide. His 12-week project involved characterising the p53 response of the TF1.8 human erythroleukaemic cell line to a variety of stress-inducing drugs.

Collaborators

(1) Internal (TQEH):

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

(2) 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)
- 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
- 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

(2) Other local and National (continued)

- 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 Timothy Hughes and A/Prof Deborah White, SA Pathology
- Associate Professor Benjamin Thierry, Ian Wark Research Institute, University of SA
- Professor Andrea Yool PhD, Head Physiology, School of Medical Sciences, University of Adelaide
- Dr Paul Ekert, Walter and Eliza Hall Institute, Melbourne
- Professor R Hannan, Peter MacCallum Cancer Centre, Melbourne

(3) International:

- Dr C Mullighan, St. Jude Children's Research Hospital, Memphis, Tennessee, USA
- Dr Ari Melnick, Weill Cornell Medical College, New York, USA

Grants 2012

- NHMRC. (Project Grant) Dissecting the role of the IL-3 receptor alpha subunit and beta-catenin in Acute Myeloid Leukaemia. (\$191,061 2012) 2010-2012, D'Andrea R, Ramshaw H, Eckert P, Lewis I, Barry S.
- NHMRC. (Project Grant) "Klf5 Function In Acute Myeloid Leukaemia" (\$189,500 2012) 2010-2012, D'Andrea R, C Mullighan, I Lewis, N Jenkins.
- NHMRC. (Project Grant) GADD45A promoter methylation and poor prognosis in AML: Mechanism and Clinical Significance. (\$227,450 2012) 2012-2014, D'Andrea R, Wei A, Lewis I, To LB.
- NHMRC. (Project Grant) Defining the leukoemogenic mechanism for GATA2 T354M, a new predisposing mutation in familial MDS/AML (\$203,354 2012) 2010-2012, Scott H, Hahn C, Melo J, D'Andrea R.
- SAHMRI – The Cancer Council of South Australia. (Grant #1029851) Investigation of circulating cancer stem cells in the blood of patients with colon cancer as a cause of secondary spread to the liver. (\$100,000 2012) Grover PK, Hardingham JE, Cummins A.
- SAHMRI –The Cancer Council of South Australia. (Grant #1028595) Impact of the activated EGFR-AKT-mTOR signalling pathway on prognosis and tumour resistance to anti-angiogenic targeted therapy for metastatic colorectal cancer. (\$92,678 2012) Townsend A, Hardingham JE, Price TJ, Tebbutt N.
- Captain Courageous Foundation. Diamond Blackfan Anaemia and associated bone marrow failure syndromes. (\$185,000 2012) D'Andrea R, To LB.
- Channel 7 Children's Research Foundation. Molecular characterisation of Diamond Blackfan Anaemia. (\$73,000 2012) D'Andrea R, To LB, Tapp H, Perugini M, Klinken P, Bray S.
- Haematology Research Support. Scheme A funding. (\$65,000 2012) D'Andrea R.
- South Australian Blood Cancer Tumour Bank (SABCTB). (\$500,000 2012) To LB, Hughes T, Lopez AF, Zannettino A, Scott H, D'Andrea R, Kuss B, Lewis I, Cambareri T, White D.
- University of Adelaide. Discipline of Medicine Travel grant (\$2,253 2012) Bray S.
- University of Adelaide, Discipline of Medicine. (RIBG small equipment grant) (\$3,130 2012) Bray S, Grubor-Bauk B, Trotta A, Smith E.

New grants awarded for 2013

- Captain Courageous Foundation. Diamond Blackfan Anaemia and associated bone marrow failure syndromes. (\$200,000 2013) D'Andrea R, To LB.
- NHMRC. (Project Grant) Identification and characterisation of novel FLT3-ITD co-operating mutations. (\$636,662 2013-2015) D'Andrea R, Gonda T, Brown AL, Lewis I.

Awards

- Ranjani Rajenthiran was awarded 1st prize for her poster presentation entitled "The isolation and characterisation of circulating cancer stem cells (CSC) in colon cancer". Rajenthiran R, Grover PH, Price T, Hardingham J. Presented at Australian Society for Medical Research, Adelaide, June, 2012.

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, 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

Research Focus

- 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

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

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.

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 Queen Elizabeth hospital is currently one of the highest recruiting sites.

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.

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. This study by Dr Jacob Abraham commenced recruitment in 2011, and 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 and University of South Australia Pharmacy, and The University of Queensland.

CytoFab in severe sepsis and/or septic shock

A multicentre, randomised, double-blind, placebo-controlled Phase IIb Study to Compare the Efficacy and Safety of Two Dosing Regimens of Intravenous Infusions of CytoFab™ (AZD9773) in adult patients with severe sepsis and/or septic shock. The study randomised 300 patients (100 patients per treatment arm) from approximately 100 centres. The primary objective was to evaluate the effect of two different doses of AZD9773 (CytoFab™) versus placebo on ventilator-free days (VFDs) over 28 days in patients with severe sepsis and/or septic shock, who are receiving appropriate standard of care. The study was completed in 2012.

Procalcitonin Guided Antibiotic Rational Decision Making In ICU Patients (ProGUARD-ICU)

This study is a multi-centre, prospective, single-blinded, randomised, controlled, interventional trial comparing Procalcitonin (PCT) guided antibiotic therapy to conventional guided antibiotic therapy in intensive care unit patients. This study is being performed under the auspices of the ANZICS CTG and commenced in 2012. Recruitment was completed in 2012. Associate Professor Sandra Peake is on the management committee for this study.

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 will commence recruitment at The Queen Elizabeth Hospital in 2013.

A phase IIb randomised controlled trial of continuous beta-lactam infusion compared with intermittent beta-lactam dosing in critically ill patients (BLING)

An NHMRC funded multi-centre, double-blinded, double-dummy, randomised, controlled trial of continuous beta-lactam infusion versus intermittent beta-lactam bolus dose. The aim of the study is to determine if continuous beta-lactam infusion results in increased Intensive Care Unit (ICU)-free days up to Day 28, compared with standard intermittent beta-lactam dosing in critically ill patients with severe sepsis. This study is being performed under the auspices of the ANZICS CTG and will commence 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 2012 audit day included a point prevalence study of patients in atrial fibrillation (AF) and an evaluation of fluid resuscitation practices and sodium intake [as part of a longitudinal research program].

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 patient's 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 units - manuscript submitted for publication. The study is planned to commence in early 2013.

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 to be conducted in 6 adult intensive care units nationally. This study is 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. Planning for this study has been undertaken in 2011 and recruitment has commenced in 2012. Associate Professor Sandra Peake is chief investigator and on the study Management Committee, along with Patricia Williams. This study is funded by an ANZCA grant.

PATIENT SAFETY

Assessing the safety of a continuous potassium chloride infusion in critical care: A randomised controlled trial

Dr Richard Chalwin lead a prospective non-blinded, randomised, controlled trial aimed to ascertain whether administration of potassium chloride is safer by intermittent or continuous infusion. Funding was received from The Queen Elizabeth Hospital Research Foundation to assist with this study. The study manuscript has been published in *Anaesthesia and Intensive Care* (*Anaesth Intensive Care* May 2012;40: 433-441).

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 large NHMRC funded pivotal multicentre, randomised, controlled trial in critically ill patients to determine whether, compared to standard care, transfusion of the freshest available allogenic red blood cells (RBC) decreases 90 day mortality. This study is being performed under the auspices of the ANZICS CTG and is planned to commence recruitment in 2013.

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 Pharmacy 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 12 critically ill patients undergoing SLED will enrol 6 patients receiving fluconazole and 6 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 Pharmacy 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 Pharmacy 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 study is to develop optimised antibiotic dosing guidelines for ICU patients with life-threatening infections. Associate Professor Sandra Peake is a chief investigator. Recruitment is expected to start mid 2013 and will occur over the next 3 years. NHMRC funding will commence in 2013.

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 coordinator, Mrs Patricia Williams 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 FJICM
S Jacobs MBChB FRCA FANZCA
D Clayton BSc MBBS FRCA FANZCA FCICM

Research Coordinator

P Williams RN IntCCert, BN

Research Project Officer

C Kurenda

Senior Registrars / Registrars

K Arpudaswamy MBBS MD
V Biradar MBBS
W Chee MBBS
B Chacko MBBS
H Davuluru MBBS
R Russell MBBS
R Nathan MBBS
K Chekuri MBBS MD
K Chandrasekaren MBBS
P Marella MBBS
B Kath MBBS
D Kumar MBBS
J Ng MBBS
B Emmerson MBBS
R Chalwin MBChB
S Kalgudi MBBS
J Staker MBBS
J Raj MBBS MS
S Kelly MBChB MRCP UK
J Abraham MBBS MD
V Thodur 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
P Habel RN IntC Cert RPN Grad Dip CritCareN
L Sheffield RN IntC Cert
K Quinlan RN IntC Cert Grad Dip CritCareN

Pharmacist/PhD students

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

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.

New grants commencing in 2013

NHMRC. Robust antibiotic dosing for critically ill patients receiving renal replacement therapy. (\$1,034,978.88 2013-2015) 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.



Medicine

University of Adelaide Discipline of

Research Focus

Multi-Disciplinary Research

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

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 Report), geriatrics (see Aged Care Report), neurology (see Neurology Report), and health literacy. The Discipline's research activities involve collaboration with other researchers within the 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.

Professor Bob Adams, a respiratory physician and epidemiologist, 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 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 newly established Geriatrics Teaching and Research with Aged care Centre (G-TRAC) located at the Resthaven Paradise Campus. This centre facilitates research and supports medical student teaching in an aged care setting. Dr Neha Mahajan, an academic health psychologist, is assisting in the development of a research program at the residential aged care site.

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' 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.

Throughout 2012, Dr Grant Buchanan and his team, the Cancer Biology Group continued their work focusing on the molecular aspects of steroids in breast and prostate cancers. In 2012 a Cancer Australia funded study was commenced investigating how androgens influence cells around prostate cancers to allow metastatic spread, a project greatly contributed to by the research of PhD Candidate Mr Damien Leach. Research continuing from previous years included a Prostate Cancer Foundation of Australia funded study investigating the mechanisms of action in prostate cells of a polyphenol compound from the spice, Turmeric, called Curcumin, which has been shown to have potent anti-cancer activity, among many other properties. This work, conducted in collaboration with the Laboratory of Dr Tak Harada from the Chemistry Department at The University of Adelaide, forms the basis of studies undertaken by another PhD student in our Laboratory, Ms Lauren Giorgio. Finally, Ms Erin Swinstead, PhD candidate, continued with her work 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. In April 2012 we welcomed to our team Dr Andrew Trotta, an early career postdoctoral researcher. Dr Trotta's PhD was focused on the role of steroid receptor chaperones in prostate cancer and while his research remains focused on the molecular aspects of prostate cancer, he has quickly been adopted to all of the aforementioned research studies. Dr Eleanor Need returned to work part time in October following maternity leave. In 2012 she was awarded The Hospital Research Foundation Early Career Research Fellowship investigating steroid receptor interplay in Breast Cancer. Publications for the Cancer Biology Group in 2012 include research papers in Endocrinology, Molecular Endocrinology, International Journal of Cancer, Prostate and the Journal of Molecular Endocrinology.

Dr Sarah Appleton was a foundation research officer in the Health Observatory. Her research interests focus 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 has played a key role in quality assurance and health service delivery activities for the Statewide Cardiology Clinical Network, as the Clinical Data Project Manager for the Data and Information Working Group. She also has made a major contribution to 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.

Prof John Horowitz, Dr Rajendran and A/Prof Zeitz have their further research interests detailed in the Cardiology section of this report.

A/Prof Simon Koblar has his research interests detailed in the Neurology section of this report.

A/Prof Renuka Visvanathan has her research interests listed in the Aged Care and Extended Services section of this report.

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

N Mahajan BA MAPsychol PhD MPsych

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 Murgia PhD (Visiting)

C Piantadosi BAppSc (Hon) PhD

E Need PhD

P Grover BSc MSc PhD

Peter Doherty Research Fellow

CJ Lang BSc (Hons) PhD

Hospital Scientists

AG Milton BSc (Hons)

R Jakobczak BSc

Clinical Data Project Manager

R Tavella B Health Sc (Hons), PhD

Research Officer

R Hamon BSc (Hons)

J Q Ng BSc (Hons)

J Licari B Health Sc (Hons)

C Nazar BNurs

A Wee BSc

R Battersby

E Meyer

R Dreyer BSc (Hons)

E Rees

C Cilento

A Tutunkoff

Research Nurses

S Pickering

T Stavropoulos

A Troncone

Research Administrators

R Bonnin (Clinical Coordinator G-TRAC)

L Gallina (CADOSA Administrative Project Officer)

J Sowden

Discipline Secretary

A Brown

L Gallina

Postgraduate Students

Higher degree awarded

V Kopetz

Biological determinants of the coronary slow flow phenomenon

PhD conferred, School of Medicine, University of Adelaide

PhD students

D DiFiore

Health Outcomes in Patients with Vasospastic Angina

R Dreyer

Gender Disparities in Cardiovascular Disease

A Jaghoori

Heterogeneity in Vasomotor Responses

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

G Tucker

Refinements in health status measurement

L Giorgio

Exploring the interaction between fibroblasts and tumour cells in prostate cancer

D Leach

Tumour microenvironment in prostate cancer

E Swinstead

Progesterone receptor signalling in breast cancer cellular processes

Honours Students

L Rimmer BSc(Biomedical Science) – awarded Class I Honours

S Surikov BHSc – awarded Class I Honours

M Wittwer BSc(Biomedical Science) – awarded Class I Honours

Vacation Scholarship Students

C Labroschiano

Comparing the plasma-mediated response of rat mesenteric arteries and caudal arteries of vascular disease patients using a bioassay technique

T Wardle - eResearch SA Summer Scholarship Program

Awards

R Dreyer - Heart Foundation Travel Grant

R Dreyer - Sir Keith Murdoch American Australian Fellowship

R Dreyer - TQEH Research Day Best Oral Presentation in Clinical Research

R Dreyer - Young Australian of the Year (SA) Finalist

A Jaghoori - International Society of Heart Research Student Investigator Finalist

A Jaghoori - Ivan de la Lande Travel Award

A Jaghoori - ASCEPT Cardiovascular Special Interest Group Prize

V Kopetz - University of Adelaide PhD Thesis Letter of Commendation

R Tavella - University of Adelaide PhD Thesis Letter of Commendation

International Visitors

Professor Hiro Shimokawa – Department of Cardiovascular Medicine, Tohoku University, Sendai, Japan (30th April – 2nd May 2012)

Professor Peter Ganz - Maurice Eliaser Jr Distinguished Professor of Medicine at the University of California and Chief of Cardiology at San Francisco General Hospital, San Francisco, USA (2nd-5th October 2012).

Dr R Rudd – Senior Lecturer, Harvard School of Public Health (6th March 2012)

Grants

Australian Research Council. (Discovery Project). Molecular dynamics of steroid receptor crosstalk. (\$116,000 2012) 2011 – 2013, Buchanan G, Need E, Tilley WD, Greene GL, Coetzee GA. Arthritis Australia. (Project Grant) An examination of shoulder pain using MRI in older people. (\$15,000 2012) Gill T.

Arthritis Australia. (Project Grant) Inflammatory effects of immune complexes. (\$20,000 2012) Zalewski P, Tran H, Lester S.

NHMRC. (Project grant #627227) Effect of sex steroids, inflammation, environmental and biopsychosocial factors on cardiometabolic disease risk in men. (\$587,671 2012) 2010-2012, Wittert G, Wilson D, Trivison T, Adams R, Taylor A, McKinley J, Jenkins A, Milne, R, Hugo G, Atlantis E.

NHMRC. (Project grant # 627223) Alveolar macrophage zinc and zinc transporters and their role in phagocytosis. (\$92,917 2012) 2010-2012, Zalewski P, Hodge S, Jersmann H.

NHMRC. 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 2012) 2012-2013, Chew D, Beltrame J, Worthley M, Zeitz C, Aylward P, Quinn S, Astley C.

NHMRC. NHMRC Early Career Fellowship (Australian Public Health) (\$72,508 2012) 2011-2014, Gill T.

Prostate Cancer Foundation of Australia. (Young Investigator Grant) Targeting chemokine signalling in prostate cancer. (\$125,000 2012) 2011–2012, Buchanan G.

Cancer Australia. Androgen receptor action in the prostate cancer microenvironment. (\$141,750 2012) 2012–2015, Buchanan G.

Resmed Foundation. Sleep, sexual health, inflammation and cardiometabolic disease in a large male cohort. (US\$49,925 2012) Adams R, McEvoy D, Wittert G, Araujo A.

SA Heart Foundation. Chronic refractory angina – defining its characteristics and exploring endothelin blockade as a new potential therapy. (\$1,327,652) 2011–2014, Beltrame J, Worthley S, Chew D, Ganz P, Zeitz C, Arstall M.

University of Adelaide. (Faculty of Health Sciences New Appointment Funding) The impact of muscular skeletal disorders on an Australian population. (\$12,500 2012) Gill T.

The Hospital Research Foundation. (Strategic Initiatives Funding Program Grant) TOEH Vascular Disease and Therapeutics Research Group: towards improved outcomes for vascular disease. (\$250,000 2012) 2009-2013, Horowitz JD, Beltrame JF, Morris RG, Fitridge RA, Zeitz CJ, Wilson DP, Sallustio BC, Chirkov YY, Kennedy JA, Cowled PA.

The Hospital Research Foundation. (Strategic Initiatives Funding Program Grant) The Health Observatory. (\$250,000 2012) 2009-2013, Adams RJ, Wilson D, Hill C, Visvanathan R, Wittert G, Ruffin R.

The Hospital Research Foundation. (Equipment Grant) (\$14,030 2012) Zalewski P, Beltrame J, Rischmueller M.

University of Adelaide. (Discipline of Medicine Equipment Grant) (\$10,000 2012) Zalewski P, Beltrame J, Rischmueller M.

University of Adelaide. (Discipline of Medicine RIBG Equipment Grant) (\$10,000 2012) BioRad Trans-Blot Turbo Western Blotting System, a Gel Doc EZ digital transilluminator system and an associated computer. Zalewski P, Cowled P.



Neurology Unit

Research Focus

- 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)

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 undertaking pre-clinical studies investigating how best to deliver Dental Pulp Stem Cells (DPSC) and if improvement can be achieved when DPSC are administered days after stroke, as several possible mechanisms of action may underlie how DPSC improve brain function.

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.

Recently the outcome of a small pilot study on CT Angiography (CTA) in the Assessment of Transient Ischemic Attack (TIA) was published in Stroke. This collaborative research by the Departments of Neurology and Radiology shows the importance of CT brain/CT angiography (CTA) as valuable imaging techniques in the assessment of TIA. PhD candidate Michael Djukic's proteomic biomarker research in transient ischaemic attack (TIA) patients has discovered further biomarkers with potential Intellectual Property applications. Wai Khay Leong's PhD on the functional use and underlying mechanisms of using DPSC in a rat stroke model has been awarded. This has also led to a successful biotechnology business partnership. Dr Elaine Leung continued her PhD defining characteristics of TIA assessment and management, and determining if a community-based rapid access TIA clinic improves patient stroke outcome. PhD candidate Kylie Ellis was a finalist in the 3-Minute Thesis competitions for the Faculty of Sciences at the University of Adelaide with her talk on her research into Stroke Repair.

SRP team members and Stroke Unit staff once again participated at the Conference for the Stroke Society of Australasia in Sydney and team members have continued to present at community meetings to raise awareness about our research and funding needs to support our research.

The Neurology Department has also celebrated the promotions of A/Prof Simon Koblar to full Professor, Dr Jim Jannes to Associate Professor and Dr Anne Hamilton-Bruce to Affiliate Senior Lecturer.

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.

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, randomized, placebo controlled, double-blinded, clinical trial that will be conducted in approximately 20 study sites throughout Australia and New Zealand.

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

The following two trials may commence early next year pending ethics review.

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 utilizing dual target imaging selection. The study will be a multicentre, prospective, randomized, open label, blinded endpoint (PROBE), controlled phase 2 trial (2 arm with 1:1 randomization) in anterior circulation ischaemic stroke patients.

Stop-Aust: The Spot sign and Tranexamic acid On Preventing ICH growth – AUStralasia Trial. A phase 2 randomized placebo-controlled double-blind multicentre investigator-lead academic trial of tranexamic acid within 4.5 hours of intracerebral haemorrhage in patients with contrast extravasation on CT angiography.

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 are also undertaking 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 will clarify the impact of these guidelines on our patients' quality of life and also help review our own practice in terms of assessing 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

Various trials have been commenced, completed or are in extension phase.

Lundbeck compound Lu AE58054, a selective serotonin receptor 6 (5-HT6 receptor) antagonist for patients with moderate Alzheimer's disease completed recruitment in 2011 and is under analysis.

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.

The Medivation/Pfizer sponsored DIM18 (Dimebon) Phase III study for mild to moderate Alzheimer's Disease continues in a Phase III mono-therapy extension study with results awaited.

Servier's CL2-38093-005 protocol for compound S 38093, has now been advanced to phase IIb, with an anticipated add on therapy study due to commence in 2013.

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.

Disease Modifying Trials in Alzheimer's Disease

Recruitment for the Wyeth/Elan -3000/1-VVW APOE-4 non-carrier study extension now ensures ongoing patients receive 4 years of treatment with this monoclonal antibody.

In 2013, the Department is expected to participate in an IVIG phase III study, along with a BACE inhibitor Phase II-III, both indicated for Alzheimer's disease.

Prodromal AD

Roche is studying the effects of RO4919832 on Cognition and Function in Prodromal Alzheimer's Disease for two 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.

Multiple Sclerosis (MS)

The research scene in MS continues to be exciting, with news of several MS treatments that are being trialled, showing efficacy in the reduction of MS relapses. A couple of the oral medications (Teriflunomide and BG12) have been submitted to the TGA Australia for approval and the companies are confident that they will be successful by early 2013. Meanwhile, Fingolimod (Gilenya), the only oral drug for MS treatment which was PBS-listed in September 2011, has seen great demands, with patients switching from the traditional subcutaneous injections. We are pleased to have been involved in the pivotal clinical trial with this medication and we continue with new trials with Fingolimod.

The current MS trials with Fingolimod that we are involved in are: a long term extension trial for patients who were in the pivotal studies (protocol CFTY720D2399); and a year-long trial comparing treatment-naïve patients versus treatment failure patients (protocol CFTY720DES03).

The CAMMS323 and CAMMS324 protocols trialled Alemtuzumab in treatment-naïve and previously treated MS patients respectively. CAMMS323 showed a 55% reduction in relapse at 2 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).

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 on-going.

A new study being considered is a Phase II/III efficacy and safety study on the second-generation Fingolimod which hopefully will have less of the major side effects.

Grants/Scholarships

Adelaide Scholarships International (ASI) (\$23,728 2012), Leong WK.

NHMRC. (Project Grant #1003417) Brain repair following stroke: the role of Npas4, a neural-specific transcription factor (\$196,682 2012) 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, (\$297,524 2012) 2011-2013, Clancy P, Koblar SA, Maguire J, Lincz L.

Peter Couche Foundation. (Fellowship) "Stem Cell Therapy for Stroke" (\$70,814 2012) Kremer K.

Stroke SA. Stem Cell Therapy in Stroke (\$5,000 – awarded December 2011 for 2012), Koblar SA, Hamilton-Bruce MA, Milton AG.

Stroke SA. Stem Cell Therapy in Stroke (\$10,000 2012), Koblar SA, Hamilton-Bruce MA, Milton AG.

Collaborations

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

2) Inflammation and stroke - collaborations set-up with Prof Stefano Pluchino from Cambridge Centre for Brain Repair (formerly University of San Raffael) Milan, Italy.

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

Awards

Stroke Society of Australasia travel award 2012, Simon Koblar

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 MBBS FRACP PhD

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

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

Consultant Neurologist
C Short BSc MBBS FRACP
J Leyden MBBS FRACP
A Tan MBMS 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 Assistants
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

Postdoctoral student, 2012
Syed Raza [postdoctoral scholarship – International Brain Research Organisation (IBRO)] “The neurogenic potential of Dental Pulp Stem Cells: a novel therapeutic in stroke”

Completed PhD theses
Wai Khay Leong BSc(Biotech)(Hons)
Stem Cell and Molecular Investigations Following Focal Cerebral Ischemia;
Thesis submitted and accepted, 2012, School of Medicine, University of Adelaide

PhD candidates
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



Nuclear Medicine Unit

Research Focus

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

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

Dr Thanh Nguyen successfully completed her PhD on cardiac denervation in heart failure in 2012.

During this year, chief medical scientist Dr Leighton Barnden, trainee medical physicist Dr Daniel Badger, and grant funded scientist Benjamin Crouch made a total of 13 oral and poster presentations at national / international conferences. Daniel Badger was awarded his MSc (medical physics) by the University of Adelaide. Dr Barnden has submitted a major paper on the MRI in Chronic Fatigue Syndrome research performed by an interdisciplinary Adelaide-wide group of scientists and physicians.

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 Alzheimers disease and chronic fatigue syndrome, as well as the treatment of rare neuro-endocrine tumours.

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) PhD

B Crouch BSc(Hons)

MSc in Medical Physics

D Badger

B Crouch

Technologists (shared with LMH)

P Ong

G Pandos

T Smith

P Sotiropoulos

N Farnham

E Langeluddecke

J Lawrie

D Maglica

R Edwards

M Patterson

Higher Degrees Awarded

TH Nguyen

Cardiac Denervation in Heart Failure

PhD conferred, University of Adelaide

D Badger PhD MACPSEM MANZSNM

Voxel Based Quantitative Analysis of Distance Dependent Resolution Correction in Single Photon Emission Computed Tomography

MSc conferred by School of Chemistry and Physics, University of Adelaide, October 2012.

Nursing Research

Research Focus

- Fundamentals of Nursing Care continued
- Nutrition
- Clinical Risk Assessment – Bariatric management
- Promotion of the 10 National Standards for Accreditation
- Documentation of Care

A challenging year provided opportunities to enhance our clinical nursing practice utilizing the fundamentals of nursing care as the framework for clinical assessment and care planning. Reviews of these fundamentals have demonstrated improvement in all 12 care components over the past 12 months.

The nursing service refers to evidence or best practice guidelines to achieve effective outcomes for our patients in all settings (inpatients, day patients, out patients and community patients). We have continued to utilise JBI Evidence Guidelines and to work with the Universities to develop research projects on care provisions for the future.

Many of our nursing staff have attended International, National and State Conferences related to their area of expertise and interest.

We continue to provide opportunities for Students of Nursing to develop their nursing and clinical assessment skills. Our Nurse Practitioners continue to demonstrate their expertise in facilitating timely responses and care coordination.

Work continues on improving our management of Bariatric patients focussing on dignity of care and safe manual handling. Nutrition and reduction of malnutrition remains a high focus where nurses are working collaboratively with dieticians and food services staff to achieve better outcomes.

Research Achievements

High Sensitivity Troponin Study, The Queen Elizabeth Hospital Emergency Department, January – September 2012
Principal Investigator Professor Derek Chew

National Hand Hygiene Initiative (NHHI) Evaluation. NHMRC Partnership Program and Australian Commission on Safety and Quality in Healthcare
Mrs Marija Juraja RN Grad Cert Infection Control CICP CSC

Literature Review to identify the key risk factors that contribute to the risk of infection and transmission of disease in residential aged care and community care settings.

NHMRC Grant completed for DoHA in collaboration with University of South Australia School of Nursing and Midwifery
Mrs Marija Juraja RN Grad Cert Infection Control CICP CSC



Otolaryngology, Head & Neck Surgery

DEPARTMENT OF

Research Focus

Clinical and Translational Research of Chronic Rhinosinusitis

Chronic Rhinosinusitis (CRS) is a persistent inflammation of the mucosal surfaces of the nose and paranasal sinuses. 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. Whereas the collective treatment cost for chronic rhinosinusitis in Australia for CRS is not known, 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 is focused on understanding the pathogenesis of chronic rhinosinusitis (CRS), using a multidisciplinary approach, aimed at identifying new diagnostic/prognostic markers and treatment strategies to the benefit of our patients.

The ENT department is committed to excellence in ENT research and education. The research team currently consists of 12 Honours, Masters and PhD students, supported by five scientists and clinical staff and is recognized internationally as one of the leading rhinological research institutions in the world. This is evidenced by the large number of scientific publications produced (35 publications in 2012), and by scientific prizes that were awarded to members of the department at national and international scientific meetings. Professor Wormald was nominated for the 2012 University of Adelaide award for excellence in research supervision.

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 different molecular and cell biology techniques, and apart from a supporting role to different projects, her research focuses on specific TLR response pathways that we have found to be affected in patients with CRS.

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

Dr Neil Tan is finalizing his PhD project, studying mechanisms in which *S. aureus* invades the intracellular compartments of the nasal mucosal surfaces in patients with CRS. His exceptional drive, focus and dedication has so far awarded him with 7 scientific publications in his time spent with us, and more still to come.

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.

Dr Edward Cleland, PhD candidate, is characterising the microbiome in different CRS patient populations and will validate some of the findings in an in vivo model of chronic rhinosinusitis

The host immune response in Chronic Rhinosinusitis (CRS)

Ms Dijana Miljkovic is the department's expert in flow cytometry which she uses to characterise innate immune cells and pattern recognition receptors in CRS patients.

Dr Amy Hughes is working on a 3 year Garnett Passe and Rodney Williams Memorial Foundation Project Grant "The role of *Staphylococcus aureus* superantigens and fungal antigens in chronic rhinosinusitis" awarded to Dr Harshita Pant, Senior ENT Consultant. The team is characterizing mucosal inflammatory cell populations in CRS patients utilizing flow cytometry.

Dr Daniel Cantero, PhD candidate, has set up an in vitro explant model system of sinonasal tissues to study the host immune response to *S. aureus*. He is using the Bioplex Multi Arrayer to study cytokines in the supernatant and a customized RT-PCR array to determine corresponding innate immune mediators in the tissue.

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 thus 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 NO against *S. aureus* biofilms in vitro and in vivo. This work is in collaboration with the group of Professor Clive Prestige and Associate Professor B Thierry, Department of Nanomedicine at the Ian Wark Institute, University of South Australia. Camille's invaluable input in the writing of an NHMRC grant application concerning this collaborative project was rewarded with a positive outcome.

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

Mr Sathish Paramasivan was awarded a first class honours degree in our department this year for his project studying the safety and efficacy of Methylglyoxal augmented manuka honey treatment of *S. aureus* biofilms in a sheep model of CRS.

Ms Rachel Goggin was also awarded a first class honours degree for her project in our department this year. Her project concerned the antibacterial effects of corticosteroids routinely used in CRS patients.

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. Thanh was involved in writing two successful grants this year: an ARI (Adelaide Research and Innovation) grant and an NHMRC grant for her project concerning the use of chitosan-based gel for the prevention of adhesions in abdominal surgery. This project will be done in collaboration with researchers from the University of Otago (New Zealand) and with Professor Maddern's research group, University of Adelaide.

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.

Staff

Professor of Otorhinolaryngology Head & Neck Surgery and Head of Department

PJ Wormald MD FCS(SA) FRCS(Ed)

Senior Lecturer

G Rees MBBS FRACS

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

P Chen MD, BA

ENT Registrar

S Boase MBBS PhD

Chief Scientist, Otolaryngology Head & Neck Surgery

S Vreugde MD PhD

ENT Research Assistants

C Cooksley BSc PhD

D Miljkovic BSc

A Hughes BSc PhD

H Tran BSc PhD

Clinical Nurse Operating Theatres

S Hughes RN

Secretary

L Martin

Postgraduate Students

Completed theses – 2012

J Jervis-Bardy MBBS PhD

Novel anti-biofilm therapies in chronic rhinosinusitis

S Boase MBBS(Hons) PhD

Investigating the role of fungus, and fungal biofilms in CRS pathogenesis

Continuing Postgraduate Students

J Micklen BBTech(Hons)

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

C Jardeleza MD

The Role of Nitric Oxide in the Pathophysiology of

Staphylococcus aureus Biofilm Formation in Chronic Rhinosinusitis

E Cleland MBBS

The relevance of PNAG-producing *S.aureus* in predicting outcomes following endoscopic sinus surgery

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

N Tan MBBS BSc(Hons)

MRCS DO-HNS The role of intracellular *Staphylococcus aureus* in the pathophysiology of Chronic Rhinosinusitis

Continuing Postgraduate Students

T Ha MBBS

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

A Bassiouni MBCh

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

V Padhye MBBS

Managing large vessel injuries in the ENT surgical setting

Honours students

S Paramasivan Methylglyoxal enriched manuka honey for the treatment of *S. aureus* biofilms

R Goggin Antibiofilm properties of routinely used topical corticosteroids

Awards

Professor PJ Wormald - The “Distinguished Service” Award, American Academy of Otolaryngology - Head and Neck Surgery Foundation, September 2012

Professor PJ Wormald - Representative for Excellence in Research Supervision, Faculty of Health Sciences – 2012, Faculty of Health Sciences at The University of Adelaide

NC Tan - Best oral presentation, Clinical Research PhD students, TQEH Research Day October 2012, Basil Hetzel Institute

S Paramasivan - Best oral presentation, Honours student category on TQEH Research Day October 2012, Basil Hetzel Institute

Grants

Garnett Passe and Rodney Williams Memorial Foundation. (Project grant). The role of *Staphylococcus aureus* superantigens and fungal antigens in chronic rhinosinusitis. (\$97,000 2012) 2010-2012, Pant H, Wormald PJ, Foreman A, Tan LW, Macardle P.

Grants (continued)

Garnett Passe and Rodney Williams Memorial Foundation. (Research Scientist Fellowship), The role of Nitric Oxide in *Staphylococcus Aureus* biofilm formation in Chronic Rhinosinusitis, (\$75,000 2012) 2010-2012 \$225,000 Jardeleza C, Wormald PJ.

Garnett Passe and Rodney Williams Memorial Foundation. Research Scientist Fellowship. Non-invasive methods for the detection of biofilms in CRS. (\$75,000 2012) 2010-2012, Cleland E, Wormald PJ.

Adelaide Research and Innovation. Neurosurgical Anti-adhesion dressing for wound healing. (\$50,000 2012), 2011-2013, Wormald PJ.

New grants commencing in 2013

Adelaide Research and Innovation, Chitosan gel on Haemostasis and Wound Healing in Sheep Model, (\$169,600 2013-2014) Wormald PJ.

Garnett Passe and Rodney Williams Memorial Foundation. (Project grant) The clinical significance of intracellular *Staphylococcus aureus* in CRS. (\$299,993 2013-2016) 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. (\$225,000 2013-2015) Padhye V, 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. (\$225,000 2013-2015) Padhye V, Wormald PJ.

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. (\$514,976 2013-2015) Wormald PJ, Maddern G, Moriatti S, Robinson B, Robinson S.

NH&MRC. (Project grant) A novel nitric oxide-based treatment for recalcitrant *Staphylococcus aureus*-associated chronic rhinosinusitis. (\$522,957 2013-2015) Wormald PJ, Prestidge C, Thierry B, Vreugde S.

Psychiatry

Research Focus

- The relationship between depression and cardiovascular disease and its management.
- The development of more efficient and effective strategies for the management of mental illness.

Our projects will help determine whether fish oil dietary supplements will help treat depression in people who have heart disease. Other projects will help determine just how effectively current mental health services in SA are helping people with mental health problems.

During 2012, patients continued to be recruited for a randomised controlled trial of omega 3 fatty acids for depression in patients with ischaemic heart disease. The trial is part of a project funded by the National Heart Foundation and beyondblue.

Dr Schrader continued his collaboration with Professor John Beltrame from the Discipline of Medicine and together they supervise three PhD students - Alexis Wheeler, Rachel Dreyer and Tracy Air whose projects focus on various aspects of the association between cardiac disease and depression. Alexis Wheeler continued a project examining mortality rates in cardiac patients with depression and this work is being carried out in association with the Epidemiology Branch of the South Australian Department of Health. Her work, which demonstrates that depression after myocardial infarction is independently associated with 5 year mortality has now been published. Ms Wheeler continued recruiting patients for a study to determine the effect of mindfulness based meditation on heart rate variability in depressed outpatients at the Centre for the Treatment of Anxiety and Depression. Rachel Dreyer continued a project which will examine gender effects in the presentation and management of cardiovascular disease. Tracy Air continued working on her project which examines the impact of depression on the cost to the community of cardiovascular disease.

Dr Rohan Dhillon, Dr Tarun Bastiampillai, Dr Jorg Strobel and Dr Niranjana Bidargaddi continued to develop their interest in new approaches to the management of mental illness and completed a study into the management of psychiatric patients in the emergency department. Dr Bidargaddi is now manager of the Mental Health Observatory which has been set up by Country Health SA and Adelaide and Flinders Universities. The Mental Health Observatory has several projects in place including a longitudinal follow up of functional outcomes in people from rural SA who have had contact with mental health services and a study of the use of mobile telephony and on-line services in the management of people with complex medical and psychiatric comorbidities. Dr Rohan Dhillon has begun a PhD project into the impact of psychiatric comorbidity in patients with physical illness. Dr Maura Kenny, clinical senior lecturer, continued to develop her interest in mindfulness based cognitive psychotherapy at the Centre for the Treatment of Anxiety and Depression.

Staff

Senior Lecturer

GD Schrader MBBS PhD FRANZCP

Research Fellow

N Bidargaddi PhD

Research Nurse

L Burres RN

Administration

D Alberton

Postgraduate Students

PhD candidates

A Wheeler

Associations between depression and cardiac disease

R Dreyer

Variation in Recovery: Role of Gender on Outcomes of Young Acute Myocardial infarction (AMI) – Patients. The VIRGO Study

T Air

The economic impact of depression in cardiovascular disease

R Dhillon

Impact of psychiatric comorbidity on outcome in physical illness

Renal Unit

Research Focus

- We research the basis of type-1 and type-2 diabetes
- We are developing new transplant treatments including transplants for diabetes and laryngeal transplants
- We are interested in using cells as transplants to repair organs without the need to transplant the organ

The Renal Unit continues to perform research within the Basil Hetzel Institute at The Queen Elizabeth Hospital. As a forerunner to many of the Departments at The Queen Elizabeth Hospital, the Renal Unit was amalgamated with the Renal Unit at the Royal Adelaide Hospital to create the Central Northern Renal and Transplantation Service in 2010.

This resulted in the transfer of much of the clinical service to the Royal Adelaide Hospital site and also much of the clinical and laboratory research. Significant research activity however remains present at The Queen Elizabeth Hospital site. Research highlights of 2012 included the completion and award of the Degree of PhD to Dr Shaundee Sen, who is now an independent researcher and Senior Staff Specialist at Concord Hospital in New South Wales and the completion and submission of PhD thesis by Ms Amy Hughes. In December of 2012, The Renal Unit was delighted to appoint Mr Chris Drogemuller as Principal Hospital Scientist, in recognition of his crucial role in establishing the Human Islet Cell Transplantation program at TQEH. Chris will continue to coordinate and help lead research effort across both RAH and TQEH sites and liaise with other researchers at the TQEH campus. The Hospital Research Foundation research program grant finished in 2012, and exciting new projects deriving from this funding will commence at TQEH in 2013.

Nanoparticle Research for New Drug Delivery Methods in Transplantation

During 2012 Dr Michael Collins continued his PhD studies into mechanisms of Dendritic Cell Tolerance. Specifically Dr Collins developed partnerships with the University of South Australia's Ian Wark Institute with Dr Benjamin Thierry. This project seeks to use novel polymer technology to develop very small particles to deliver a constant supply of immunosuppressive drug compounds. Dr Collins and Dr Thierry have shown that these new particles are capable of suppressing immune

responses in vitro in culture systems. The ultimate hope is to create biocompatible drugs delivery systems that will deliver small amounts of highly effective drug at low concentration using a biodegradable drug scaffold. Ultimately this could reduce the amount of drug needed to be given to patients for transplantation, and reduce the frequency of administration of therapy – both major barriers to compliance with medication.

Basic Research in Type-1 Diabetes and Islet Cell Transplantation

The first islet cell transplant in South Australia was performed at The Queen Elizabeth Hospital in 2010. Since then a further eight transplant procedures have been undertaken, delivering cures for this common condition. Researchers within the renal unit continue to collaborate with the Department of Medicine in ongoing research into factors controlling the pancreatic beta cell in the Islets of Langerhans. Senior Scientist Dr Daisy Mohanasundaram has been investigating how Zinc, a vital trace element, is regulated in human beta cells. Dr Mohanasundaram has described, for the first time, the changes in the pancreas of patients with both Type-1 and Type 2 diabetes. Using donated human pancreas, she has discovered changes in the expression of Zinc transporter proteins, which are present in both of these common conditions. Understanding how these proteins change during the course of the development of diabetes is important as it may provide new pathways for researchers to target for treatment with the aim of stopping patients developing diabetes.

Type 2 Diabetes and Zinc Transporters

This is the subject of PhD student Mariea Dency Bosco's work, which uses models of Type-2 diabetes and is an existing collaboration with Dr Peter Zalewski in the Department of Medicine. Mariea has shown very early changes in Zinc transporters precede the development of glucose intolerance or pre-diabetes. This work has identified changes in Zinc transporters as one of the first protein changes in the pancreas during pre-diabetes. Pre-diabetes may be a crucial time in an individual's life, where the pancreas can be treated to potentially prevent the development of full-blown diabetes later in life. Mariea is now studying how these changes occur and if drug therapy can alter the progression to developing diabetes in these models. Her work was presented at Australian Diabetes Research meetings in 2012.

Kidney Transplant Research saving lives

In a major landmark study published in the prestigious *British Medical Journal*, PhD student Dr Michael Collins showed for the first time that colorectal cancer screening with colonoscopy was effective in detecting early cancers. This research attracted significant local media attention and was highlighted by an editorial in the same issue of the *BMJ*. It was also identified as a critical study at the American Society of Nephrology meeting in October 2012. The study was initiated at The Queen Elizabeth Hospital by Dr Collins and A/Professor Toby Coates in 2008 and took 4 years to complete. There was a major role played by Dr Ed Teo from the Gastroenterology Department at The Queen Elizabeth Hospital, who performed nearly half of the 229 colonoscopies described in the paper. This was an outstanding example of clinical translational research initiated at The Queen Elizabeth Hospital with a truly international outcome. This work was directly supported by funding from The Hospital Research program grants.

Specific Grants for work performed at TQEH

NHMRC. (PhD scholarship) Dr Michael Collins \$35,373 2012

University of Adelaide. (PhD scholarship) Ms Mariea Dency Bosco \$15,000 2012

Amgen. Quality Assurance Award for Colorectal Cancer Screening in Transplant Recipients (\$10,000 2012) Coates PT.

Staff

Renal Unit Staff from Central Northern Adelaide Renal and Transplantation Service undertaking Research at The Basil Hetzel Institute, The Queen Elizabeth Hospital

Medical Co-Director

GR RUSS MBBS FRACP PhD

Renal Transplant Nephrologist

PTH Coates MBBS FRACP PhD

Nephrologists

S Jesudason MBBS FRACP PhD

S McDonald MBBS(Hons) FRACP PhD

Principal Hospital Scientist

C Drogemuller BSc(Hons)

Medical Scientists

D Mohanasundaram PhD

S Kireta BSc

Technical Officer

J Johnston

PhD Students

M Collins MBChB FRACP

Toleronic dendritic cell therapy in kidney transplantation

M Dency Bosco BSc(Hons)

The role of Zinc transporter families in islet cell biology

Respiratory Medicine Unit & Clinical Practice Unit

Research Focus

- **Best Practice/medication /counselling combination intervention for inpatient smoking cessation (STOP study)**
- **Evidence based medicine research (Cochrane meta-analyses)**
- **Nicotine receptor up-regulation with transdermal nicotine patches (NRT study)**
- **Innovative forms of portable oxygen delivery (POC study)**
- **Aboriginal health research**
- **Tobacco cessation interventions for Indigenous populations**
- **Pharmacotherapy for anxiety and depression in patients with COPD (Chronic Obstructive Pulmonary Disease)**
- **Evidence based management of spontaneous pneumothorax**
- **Smoking prevention initiatives for young people**
- **Mandatory reporting of sleep apnoea**

A range of evidence based projects including tobacco, sleep-related, Aboriginal specific and other studies are underway.

The Respiratory Medicine Unit and Clinical Practice Unit (CPU) have collaborated across multiple departments (including Cardiology, Neurology/Acute Stroke, and Vascular) at three Adelaide hospitals to evaluate the potential synergistic benefits of commencing smoking cessation for inpatients, using the latest anti-smoking medication (varenicline tartrate) and best practice counselling compared to the same counselling on its own. In September 2012 we published our statistically significant results for 12-month follow-up in the journal Thorax, with two additional manuscripts expected in 2013 from health economic and psychological perspectives.

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. Multiple workshops have been held across Australia and New Zealand attended by our research staff to improve their understanding of evidence based medicine and Cochrane methodology.

In total, twenty three reviews are being conducted under the supervision of Brian Smith and other members of the Australian Cochrane Airways Group Network across Australia, with collaborations in the UK, USA, Ireland, Netherlands and Iran. In 2012 researchers in Respiratory and CPU have produced seven Cochrane publications with a 2012 impact factor of 5.912 for each.

Respiratory Medicine and CPU have also collaborated with the Therapeutics Research Centre (Professor Michael Roberts and Dr Tom Robertson) as well as with the Professor of Medicine, John Beltrame, to conduct a pilot evaluation of nicotine receptor up-regulation activity through metabolic induction, changes in responsiveness and surrogate evaluation methods. A successful research application through The Hospital Research Foundation has resulted in recruitment of half of the required subjects, with completion expected in mid 2013.

An evaluation to compare portable oxygen units and regular oxygen cylinders in a randomised, controlled cross-over design commenced in 2011 to determine the efficacy and effectiveness of oxygen delivery with the latest, easy to use portable oxygen device for patients with COPD requiring oxygen therapy. Twenty-one of 38 patients have been recruited to date from The Queen Elizabeth Hospital, Lyell McEwin Hospital and the Royal Adelaide Hospital, with the Repatriation Hospital and Flinders Medical Centre both scheduled to come on board in early 2013.

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 inadequacies and accomplishments in current practice and highlight evidence gaps. In particular, this research aims to identify the barriers and facilitators to the implementation of: smoking cessation pharmacotherapies, tobacco prevention initiatives for youth, Doctor and healthcare visits and research conducted with Aboriginal participants.

A multi-centre randomised controlled trial (RCT) has just commenced across five Adelaide hospitals to investigate the role of paroxetine for the treatment of anxiety and/or depression in patients with chronic obstructive pulmonary disease. A total of n=186 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.

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.

Researchers in the Respiratory Medicine Unit's Sleep Laboratory are looking at the diagnosis and therapy for positional sleep apnoea, led by Dr A. Veale. Sleep technician Nathan Elgar is also conducting an evaluation into South Australian government legislation on the mandatory reporting of sleep apnoea by doctors and the subsequent effect on patient diagnosis and care.

The Respiratory Research Unit continues to evaluate a range of new medications for COPD, Asthma, IPF and Bronchiectasis led by Dr Antony Veale, Dr Jon Polasek and Professor Brian Smith.

Achievements of individual researchers

In 2012 a number of staff conducted award winning research including Kristin Carson who received the Thoracic Society of Australia and New Zealand (TSANZ) Tobacco Control Prize in April and in November was the recipient of the SA and NT TSANZ Young Investigator Award. Dr Satya Mysore received the Professor Derek Ferwin AI Citation for Clinical Teaching Excellence in the MBBS as voted by students.

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

S Mysore

K Ramsay

Principal Medical Scientist

M Jurisevic PhD

Pulmonary Function Laboratory

D Keatley BSc (Biomed) (Hons)

A Herrero Adv RSC Cert of Science

N Leonardis BSc

M Storey BSc

Xiao Hui Liu BSc

Pamela Kid BSc

Clinical Trials Unit Coordinator

K Boath Mgt Cert Adv Cert BHlthSc

Research Nurse

P Gluyas RN RM CC Cert

Sleep Laboratory

M Smith BSc

T Faulkner BPsych (Hons)

N Elgar BSc (Hons)

M Shaw

T Hams (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

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

N Labiszewski BSSc

Post-graduate Students

PhD

J Bignall BSc (Hons)

Positional effects of obstructive sleep apnoea

Masters

K Carson Cert III Lab Skills; Dip Lab Med

Tobacco cessation and prevention for Indigenous populations

Clinical Trials

A/Professor Brian Smith, Dr Antony Veale & Dr Jonathan Polasek

BI 1199.35 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; PI: Dr Antony Veale; Revenue: \$2,640; Status: Ongoing

BI 205.452: Emphysema study designed to compare the delivery of Tiotropium® via the Respimat™ Inhaler versus the currently used handihaler®; PI: Dr Antony Veale; Revenue: \$20,945; Status: Ongoing

BI 1237.5: 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; PI: Dr Antony Veale; Revenue: \$78,647; Status: Ongoing

Pharmaxis DPM-B-305: Study designed to assess the safety and efficacy of inhaled Mannitol® in subjects with bronchiectasis; PI: Dr Jonathan Polasek; Revenue: \$ 9,581; Status: Completed

Hunter Immunology HI-H005: Study designed to assess the efficacy of an oral Haemophilus Influenzae vaccine in subjects with severe COPD; PI: Dr Brian Smith; Revenue: \$19,536; Status: Completed

Intermune Inc PIPF-016: Study designed to compare the efficacy of Pirfenidone compared with placebo and effect on FVC in patients with Idiopathic Pulmonary Fibrosis; PI: Dr Antony Veale; Revenue: \$37,296; Status: Ongoing



Rheumatology Unit

Research Focus

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

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.

Together these diseases affect a large sector of the population, and lead to chronic pain, disability, reduced quality of life, and in many cases shortened lifespan. The monetary costs are huge with respect to lost earnings, as well as direct health care costs.

Rheumatology research at TQEH is classic "bench to bedside" - translating the latest findings in therapeutics to patients in need of effective treatments, and also "bedside to bench" - where symptoms initially reported by well-characterised groups of patients at TQEH have been studied through large surveys, as well as via molecular studies in the wet-labs of the Basil Hetzel Institute, resulting in international publications advancing the understanding of these diseases and their previously unrecognised complications. Examples of this include our CIDR publication (Centre for Inflammatory Disease Research: The Hospital Research Foundation funded collaboration between the Departments of Rheumatology, Otorhinolaryngology, Head and Neck Surgery, Medicine and Stroke Research) between:

1. chronic rhinosinusitis and Sjögren's syndrome, and
2. the role of intracellular inflammasomes in airway inflammation in a mouse model of asthma.

Similarly, we have been the first to observe and publish the high prevalence of obstructive sleep apnoea in patients with Sjögren's syndrome, in collaboration with TQEH Respiratory Medicine Department and the Adelaide Institute for Sleep Health at the Repatriation General Hospital.

Dr Maureen Rischmueller's research group, in collaboration with Ms Sue Lester, continues to focus on the genetics of autoimmune inflammatory rheumatic diseases, providing insights into the biological mechanisms underlying disease, and ultimately enabling identification of therapeutic targets. In addition to their large cohort of patients with Sjögren's syndrome, they, in collaboration with Drs Simon Burnet, Catherine Hill, and Samuel Whittle, are continuing to archive DNA and serum samples from a range of other rheumatic diseases, such as systemic lupus erythematosus, scleroderma, osteoarthritis and giant cell arteritis. They also manage and maintain the Australian Scleroderma Interest Group (ASIG) sample repository, comprising of over 1000 patients with this rare disorder. They have participated in successful, large, international genome wide association studies of Sjögren's syndrome and Systemic Lupus Erythematosus. Dr Rischmueller is a Chief Investigator and founding member of the Arthritis Genomics Recruitment Initiative in Australasia (AGRIA), and is a member of the Scientific Committee of ASIG.

Dr Rischmueller also leads one of the three largest rheumatology clinical trials 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.

Associate Professor Catherine Hill is chief investigator on an NHMRC funded randomized clinical trial of fish oil in the treatment of knee osteoarthritis, chief investigator on the Health Observatory Program grant funded by The Hospital Research Foundation, and a Chief Investigator to the North West Adelaide Health Study. Most recently, she is Chief Investigator on 2 NHMRC-funded multicentre grants of knee OA. Her other current areas of investigation include population studies of musculoskeletal disorders, including data from the North West Adelaide Health Study (NWAHS) cohort study, influence of health literacy on health outcomes and chronic diseases, establishment of the SA GCA Registry, and systematic reviews of GCA. Along with Dr Rischmueller and Ms Lester, she is a contributing member of the AGRIA (Arthritis Genomics Initiative in Australasia). She has been appointed to the Editorial Board of "Arthritis Care & Research", international peer-reviewed journal of rheumatology, to commence January 2013. She has been appointed as Co-Chair of Stiffness SIG for OMERACT, an international group for outcomes research in Rheumatology.

Dr Samuel Whittle is a clinical rheumatologist and epidemiologist with a particular interest in fibromyalgia and chronic musculoskeletal pain. He is developing an online database for epidemiological research in fibromyalgia syndrome (www.redstamp.fm) and is a co-founder of AusMusc, the Australian Musculoskeletal Clinical Trials Group (www.ausmusc.com). He is involved in the Cochrane Collaboration, having undertaken systematic reviews of opioid therapy in rheumatoid arthritis, neuromodulators, antidepressants and muscle relaxants in inflammatory arthritis, and is currently undertaking reviews of steroid-sparing agents in GCA and PMR, and fish oil in rheumatoid arthritis. He is an associate editor of the *International Journal of Rheumatic Diseases*, and was an NHMRC Grant Review Panel member in 2011 and 2012. He is a member of the Arthritis SA research committee.

Dr Simon Burnet is the Medical Director and Vice Chairman of Arthritis SA and is on the education and research committees. He is a member of the Scientific Advisory Committee of Arthritis Australia. Arthritis SA has recently established a South Australian Musculoskeletal Portfolio which identifies SA research into musculoskeletal medicine. This will serve to identify and collate the excellent work being done in rheumatology research in SA. Arthritis SA has developed all day educational programmes for all doctors and allied health professionals promoting the importance of evidence based information regarding rheumatic disease. Dr Burnet has recently served as the Treasurer of the state branch of the Australian Rheumatology Association and the state representative for the federal council of the ARA.

Staff

Director/Senior Lecturer

M Rischmueller MBBS FRACP

Staff Specialists

S Burnet MBBS FRACP

F Cai MBBS FRACP

CL Hill MBBS MD MSc(Epi) FRACP

SL Whittle MBBS (Hons) MClinEpid FRACP

Registrars

S Graf MBBS

R Black MBBS

J Tan MBBS

Rheumatology Research Administration Coordinator

S Downie-Doyle BSc(Hons) PhD

Medical Scientist

S Lester BSc(Hons)

Clinical Trials Coordinators

R Battersby BSc Grad Cert Drug Development

J Mere BNursing BHSc

S White BNursing

Research Assistants

K Adams BSc(Hons), MPhil

J Qi Ng (Bsc)

Clinical Trials Assistant/Administrative Support

M Bubicich BSc(Hons)

M Devine

J Marrett BBus(Mkt)

K Ridley BECEd, Cert II&III Bus

Rheumatology Clinical Nurses

A Batty BNursing

P Rogers BNursing

Students

Honours

E Dunstan BSc

Epidemiological and genetic investigation of giant cell arteritis in South Australia

Postgraduate Student

E Roscioli BSc(Hons)

The role of Inhibitor of Apoptosis Proteins in normal and asthma effected airway epithelial cells

Grants

Arthritis Australia. (Project grant) Inflammatory Effects of Immune complexes, (\$20,000 2012) Tran H, Zalewski P, Lester S.

Arthritis Australia. (Grant-in-Aid) An investigation of shoulder pain using MRI. (\$20,000 2012) Gill T, Hill C, Shanahan M, Allison A.

Arthritis SA. REDSTAMP – the REsearch Database for Soft Tissue And Muscular Pain. (\$5,000 2012). Whittle SL. The Hospital Research Foundation Strategic Initiatives Funding. (Program grant) The Health Observatory (\$250,000 2012) 2009-2013, Adams RJ, Wilson DW, Hill CL, Visvanathan R, Ruffin RE, Wittert G.

New grants commencing in 2013

NHMRC. (Project Grant #1048581) Does statin use have a disease modifying effect in symptomatic knee osteoarthritis? A multicentre randomised, double-blind, placebo-controlled trial. (\$971,012 2013-2015) Wang Y, Cicuttini F, Tonkin A, Hill C, Ding C.

NHMRC. (Project Grant #1045415) A randomised trial of zolendronic acid for osteoarthritis of the knee. (\$954,597 2013-2015). Jones G, Cicuttini F, March L, Hill C, Dore D.

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

Research Focus

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

The strong performance of Surgery in the 2012 NHRMC research funding testifies to many years of carefully laid foundations. Professsor PJ Wormald was successful with two NHMRC grants, along with Professor Guy Maddern in association with Professor Mike Roberts also successful. This builds on the four NHMRC grants held by Professor Rob Fitridge, making this one of the most successful surgical departments in Australia by grant income

Further work has continued with a Commonwealth Government grant in surgical simulation while Professor Andreas Evdokiou has obtained ARC support for his work on metastatic breast disease. With the integration of the Master of Surgical Science and Master of Minimally Invasive Surgery with mandated research components, many of the rich clinical databases have been successfully used and have generated peer reviewed publications.

Staff

RP Jepson Professor of Surgery
Head, Discipline of Surgery
Head, School of Medicine
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 Professors

N Rieger MBBS MS FRACS

WEW Roediger MBBCh MSc DPhil(Oxon) FRACS

Staff

Senior Lecturers

M Bruening MBBS MS FRACS
J Miller MBBS FRACS
D Rodda MBBS FRACS
D Walsh MBBS FRACS

Staff Specialists

A Anthony MBBS FRACS
S Ganesh MBBS FRACS
M Hamilton MBChB 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 MBBSCH FRSA FRACS (Vascular)

Visiting Specialists

G Benveniste MBBS FRACS
F Bridgewater MBBS FRCS FRACS
B Carney MBBS FRACS
D Close MBBS FRACS
R Harries MBBS FRACS
I Harvey MBBS FRACS
A Karatassas MBBS FRACS
M Lodge MBBS FRACS
I Patterson 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
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

JS Gilhotra Clinical Associate Professor
P Hewett Clinical Professor
V Humeniuk Clinical Lecturer
A Karatassas Clinical Lecturer
C Lai Clinical Senior Lecturer
CM Lee Clinical Senior Lecturer
M Lloyd Clinical Lecturer
A Luck Clinical Senior Lecturer
E Mah Clinical Senior Lecturer
B McCusker Clinical Lecturer
R McGovern Clinical Lecturer
K Moretti Clinical Lecturer
J Muecke Clinical Lecturer
S Neuhaus Clinical Assoc/Professor
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
C Russell Clinical Associate Lecturer
N Sacks Clinical Professor
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
M Tie Clinical Lecturer
D Walters Clinical Senior Lecturer

RP Jepson Research Fellow

P Cowled PhD

Technical Officers

B Hutchens
M Slawinski
M Smith

Research Officer

E Smith PhD

Senior Project Coordinator

E Hauben PhD

Project Coordinators

S Lauder BA(Hons)
L Leopardi BSc BEng(Biomedical)(Hons)
P Vanderzon BSc

Clinical Trials Coordinators

S Page BMedSc(Hons)
B Sivendra BMedRad(NucMed)
N Cutri BSc(Hons) PhD
K Barry BMedRad(Diag)

Colorectal Research Coordinator

J Stephens BSc(Hons) MPH

NHMRC EVAR Trial

Project Manager

M Boulton BSc(Hons) GradDiplM

Project Coordinator/Database Manager

T Seery BAppSci

T DeLorain MA(Psych)

VIROLOGY GROUP

E Gowans PhD
B Grubor-Bauk PhD
W Yu PhD
L Leonardos BSc(Hons)

BREAST CANCER RESEARCH GROUP

Michell-McGrath Breast Cancer Fellow

A Evdokiou BSc(Hons) PhD
M De Nichilo PhD
S Hay BSc
V Liapis BSc
V Panagopoulos BSc
I Zininos PhD

BREAST BIOLOGY AND CANCER GROUP

THRF A/Professor in Breast Cancer Research Fellow

NBCF Research Fellow, and Research Program

Leader, Mammary Gland Biology

W Ingman PhD
D Glynn PhD
P Dasari PhD
L Hodson BSc(Hons)
K Mildren RN

Postgraduate Students

Completed Theses

L Tiong MBBS
Improving the Safety and Efficacy of Bimodal Electric Tissue Ablation. MS 2012

S Krishnan BHlthSc(Hons)

The clinical evaluation of fast-track surgery including extended local anaesthetic infusion for post-operative pain. PhD 2012

I Zinonos BSc(Hons)

Pro-apoptotic receptor agonists (PARAS) in the treatment of breast cancer development and progression

PhD candidates

N Ruzeahji BSc(Hons) BAppSc(Podiatry)

The role of Flii in the pathology of diabetic wounds

J Smith MBBS PhD

The litigation threat to surgical practice: Legal reform and risk management

T Matthews BHlthSc(Hons)

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

T Gargett BSc(Hons)

Evaluation of cytolytic gene technology to improve vaccination

J Gummow BSc(Hons)

DNA vaccine targeting and immunomodulation

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

Postgraduate Scholarships

RACS Foundation for Surgery Research Scholarship in Surgical Ethics (\$45,000 2012) Smith J.

The Hospital Research Foundation/University of Adelaide Faculty of Health Sciences (\$22,860 2012) Matthews T.

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

Grants

ACT Health. ACT Audit of Surgical Morality. ASERNIP-S. (\$24,460 2012) 2010–2012 Maddern G.

American College of Surgeons. Horizon scanning. ASERNIP-S. (\$47,293.75 2012) 2009–2012 Maddern G.

ARC Linkage Grant. On the cutting edge: promoting best practice in surgical innovation. (\$48,000 2012) 2011–2014, Rogers WA, Johnson AJ, Townley C, Sheridan J, Ballantyne A, Lotz M, Meyerson D, Tomosey GF, Eyer AA, Maddern GJ, Thomson CJ.

Australian Centre for HIV and hepatitis virology. Development of a cytolytic HCV vaccine and a novel challenge model to test efficacy. (\$175,000, 2012-2013) Gowans EJ, Grubor-Bauk B.

Australia-India Biotechnology Fund. A vaccine for hepatitis C virus. (\$150,000 2011-12), 2011-2013, Gowans EJ, Torresi J, Das S.

Breast SurgANZ. National Breast Cancer audit. ASERNIP-S. (\$63,457 2012) 2010–2012 Maddern G.

Commonwealth Department of Health and Ageing, MSAC grant. Systematic reviews. ASERNIP-S. (\$220,140 2012) 2009–2012 Maddern G.

Commonwealth Department of Health and Ageing. Surgical Training Program – Research. ASERNIP-S. (\$553,380 2012) 2011–2012, Maddern G.

Commonwealth Department of Health and Ageing. Therapeutics Goods Administration. ASERNIP-S. (\$89,000 2012) Maddern G.

Commonwealth Department of Health and Ageing. MBS Quality Framework. ASERNIP-S. (\$119,052 2012) 2010–2012, Maddern G.

Johnson & Johnson Medical. Research Assistant/Data Manager (\$20,000 2012) 2011–2012, Hewett P.

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. Immune system determinants of breast cancer susceptibility. (\$120,000 2012) 2011–2015, Ingman W.

National Breast Cancer Foundation. A Novel Concept for Parity-Induced Breast Cancer Protection (\$66,666 2012) 2013–2015, Ingman W, Hutchinson M.

National Breast Cancer Foundation, Control of breast density and cancer risk by stromal-epithelial interactions (\$199,772) 2011–2013, Ingman W, Pike M, Ricciardelli C, Russell D, Sharkey D, Tilley W.

NHMRC (Project Grant). Function of flightless I in the skin blistering disorder epidermolysis bullosa. (\$172,000 2012) 2010–2012, Cowin A.

NHMRC. (Career Development Award (CDA-2) ID# 627015) Novel approaches to breast cancer therapy. (\$180,000 2012) 2010-2013, Evdokiou A.

NHMRC. (Project grant) Prospective evaluation of a model to predict outcomes following endovascular aortic aneurysm repair. (\$207,385 2012) 2009–2013, Fitridge R, Boulton M, Golledge J, Thompson M, Barnes M, Maddern G.

NHMRC. (Project grant) A novel HCV vaccine, (\$51,000 2012), 2009–2012, Gowans EJ, Loveland BE.

NHMRC. (Project grant) A new HCV cell therapy, (\$164,749 2012) 2009–2012, Gowans EJ, Loveland BE, Roberts SK.

NHMRC. (Project grant) Mucosal immunity to HIV. (\$188,000 2012) 2012-2014, Gowans EJ, Suhrbier A, Wesselingh S.

NHMRC. (Project grant) TGFβ1 is a pivotal regulator of endometriotic lesion development. (\$140,962 2012) 2011-2013, Hull L, Ingman W.

Northern Territory Health. Northern Territory Audit of Surgical Mortality. ASERNIP-S (\$72,363 2012) 2010–2012, Maddern G.

Queensland Department of Health. HealthPACT. ASERNIP-S. (\$104,620 2011–2012) Maddern G.

Queensland Department of Health. Queensland Audit of Surgical Mortality. ASERNIP-S. (\$582,496 2012) 2010–2013 Maddern G.

South Australian Department of Health. ENT funding. (\$500,000 2011–2012) 2010–2015, Maddern G.

South Australian Department of Health. South Australian Audit of Perioperative Mortality. ASERNIP-S. (\$300,000 2012) 2010–2013, Maddern G.

South Australian Department of Health. Assessment of new technologies, SA-HTAG. ASERNIP-S. \$187,650 2012) 2007–2012, Maddern G.

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 biology? (\$87,500 2012) Drew PA, Underwood TJ, Ruszkiewicz AR, Jamieson GG.

Tasmanian Department of Health. Tasmanian Audit of Surgical Mortality. ASERNIP-S. (\$19,867 2012) 2010–2012, Maddern G.

The Foundation Daw Park Grants for Medical Research. (Project grant) DNA methylation in prostate cancer: a pathway to the discovery of novel prognostic biomarkers and future therapies. (\$19,200 2012) Pinnock C, Buchanan G, Kopsaftis T, Drew PA.

The Hospital Research Foundation. Establishment of a centre of excellence in Breast Cancer Research (\$250,000 2012) 2011–2016, Evdokiou A.

The Hospital Research Foundation. Exploiting Tumour Hypoxia as a Therapeutic Target for Skeletal Malignancies. (\$100,000 2012) 2012–2013, Evdokiou A.

The Hospital Research Foundation. (Program Grant) Development and assessment of novel surgical technologies and their introduction into the Australian healthcare system. (\$250,000 2012) 2009 – 2013, Maddern G, Wormald PJ, Jamieson G, Fitridge R, Hewett P.

University of Adelaide Faculty of Health Sciences. (New Appointment Funding) Immune system determinants of breast cancer susceptibility. (\$12,000 2012–2013) Ingman W.

Victorian Department of Health, Victorian Audit of Surgical Mortality. ASERNIP-S (\$750,000 2012) 2010–2013, Maddern G.

Western Australian Department of Health. Western Australian Audit of Surgical Mortality. ASERNIP-S (\$337,820 2012) 2012–2013, Maddern G.

New grants commencing 2013

National Breast Cancer Foundation. (Novel Concept Award 2013) New and effective immunotherapeutic strategies targeting bone metastasis in breast cancer patients. (\$200,000 2013–2014) Evdokiou A, Ponomarev V, Zannettino A.

NHMRC. (Project grant) Novel vitamin-E-Bisphosphonates: A new therapeutic approach targeting bone loss associated with osteoporosis and bone related malignancies (\$456,000 2013–2015) Evdokiou A, Atkins GJ.

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, Maddern G, Munn Z.

NHMRC. 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. (\$514,975 2013-2015) Wormald PJ, Moratti S, Robinson B, Robinson S, Maddern G.

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

OPHTHALMOLOGY

Current research activities

Cataract surgery outcome in terms of corneal change, refractive outcome and contrast sensitivity are areas of ongoing investigation at The Queen Elizabeth Hospital. Specifically, the Department has taken an international lead in in-depth examination of astigmatism correction at the time of cataract surgery. Another area of research is the investigation of methods of restoration of accommodation with specific emphasis on methods that attempt to restore true near vision rather than increase depth of field.

Staff

Head of Unit

J Gilhotra MBBS FRANZCO

Senior Lecturer

Michael Goggin MBBS BAO FRCSI(Ophth) FRCOphth MS

Visiting Specialists

S Phipps MBBS FRANZCO
D Economos MBBS FRANZCO
N Gehling MBBS FRACO
R Fleming MBBS FRANZCO
J Black MBBS FRANZCO
P Cooper MBBS FRANZCO

Photographers

A Drew
P Anderson

ORTHOPAEDIC AND TRAUMA
Department of

The Queen Elizabeth Hospital Department of Orthopaedics and Trauma has continued with research focusing on trialling new prostheses and technologies that have the potential not only to improve patient outcomes in regard to comfort and longevity of joint replacements but also create new efficiencies for surgical time and costs.

The main research focus over the past year has been on the comparative accuracy of MRI and other image based templating technology for total knee replacement. This new technology has the potential to maintain or improve on joint alignment accuracy in addition to significantly decreasing the amount of equipment needed to replace a knee.

The Research Unit is also monitoring wear particles from a variety of different size and model metal on metal hip bearings. These results will add to the accumulated data in this area allowing for more informed decisions to be made regarding joint use and the monitoring of those joints that have already been implanted.

We have started a collaborative study looking at knee joint movement post total knee replacement with Uni SA. Further trials are being negotiated with this University using their joint movement laboratory for the purpose of monitoring patient's joint movement progress post joint replacement surgery with a view to developing optimal rehabilitation programs.

Funding for research in this department has been obtained totally from industry contributions to the Orthopaedic and Trauma Research Fund. In 2012 contributions have come from Smith & Nephew (\$14,300), Biomet (\$46,360) and Johnson & Johnson (\$2,275). Acknowledgement is given to these companies for their ongoing support for research within the Department.

Staff

- Director**
G Morrison MBChB FRCS (Ed) FRACS FAOrthA
- Deputy Director**
N Cullen MD FRCS(C) FRACS FAOrthA
- Visiting Specialists**
ET Mah MD MBBS FRACS FAOrthA
P Lewis MBBS FRACS FAOrthA
L Ferris MBBS BSc (Med) FRACS
J van Essen MBBS FRACS (Ortho)
W Duncan MBBS FRACS (Orth)
G Nimon MBBS FRACS (Orth)
C Begg MBBS FRACS (Orth)
T Stevenson MBChB FRCS FRACS FAOrthA
N Pourgeizis MBBS FRACS (Orth)
C Gooi MBBS FRACS (Orth)
A Bajhau MBBS FRACS (Orth)
- Medical Cover**
Geriatric Team
- Arthroplasty Fellow**
S Putalapattu (Trauma & Orth)
- Hand and Upper Limb Fellow**
A Gahukamble
- Foot & Ankle Fellow**
Vacant
- Visiting Arthroplasty Fellows**
M Jauregui
K Dalziel
- Arthroplasty Outcomes Officer**
G West B PHYSIO
- Executive Secretary**
B Stoddard
- Secretaries**
E Smythe
J Whatling
E. Parker
- Nursing Staff**
L Thomas CPC – Joint Replacement
J Gould CSC – Joint Replacement

Therapeutics Research
Centre

University of
South Australia

Research Focus

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

The Therapeutics 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 bio imaging using confocal and multiphoton reflectance, fluorescence and Raman spectroscopy.

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. 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 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 McEwin Hospital and the Royal Brisbane and Women's Hospital.

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, 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 Therapeutics Research Centre 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.

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.

Staff

UniSA Research Chair:Therapeutics & Pharmaceutical Science

MS Roberts BPharm PhD DSc MBA FACP

UniSA Research Fellows

TA Robertson BSc PhD

P Li BPharm MPharm PhD

PhD Students

PhD's

Q Zhang BPharm

Structural determinants and formulation effects on percutaneous absorption

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 Sinnollarredy 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

Grants

NHMRC. (Project grant # 569710) Pharmacodynamics in Liver Disease and in Liver Surgery. (\$109,425 2012) 2009-2012, Roberts MS.

Grants commencing in 2013

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

NHMRC. (Project #1049906) Specific targeting of nanosystems by cutaneous delivery
Chief Investigators: \$951,201 over 3 years, 2013-2015, Roberts M Kendall M.

NHMRC. (Project #1049979) Advanced imaging to define hepatic & intestinal drug disposition in aging & liver diseases. \$735,820 over 3 years, 2013-2015, Roberts M, Crawford D, Maddern G.

Publications 2012

AGED AND EXTENDED CARE SERVICES

Papers

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CARDIOLOGY UNIT

Book Chapters

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Papers

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ENDOCRINOLOGY UNIT

Papers

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**GASTROENTEROLOGY AND
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Papers

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**HAEMATOLOGY AND MEDICAL
ONCOLOGY, The combined
Departments of**

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**HAEMATOLOGY AND MEDICAL
ONCOLOGY, The combined
Departments of (continued)**

Papers

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Papers

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MEDICINE, University of Adelaide Discipline of

Papers

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Invited Presentations

at International and National Meetings 2012

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|---|---------------|
| AGED & EXTENDED CARE SERVICES (GERIATRIC MEDICINE) | | |
| The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | A Prediction Equation To Aid The Diagnosis of Sarcopenia In Primary Care | S Yu |
| The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | The Effects Of A Postprandial Blood Pressure Decline Following A Glucose Drink On Gait Parameters In Healthy Older Volunteers | S Nair |
| The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | The Communication Bridge: Talking Books Bridging The Gap For Elderly, Culturally And Linguistically Diverse, (CALD) Patients In The Emergency Service (ES),At The Queen Elizabeth Hospital (TQEH) | K Resili |
| The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | Quality of death in two south Australian metropolitan hospitals:The influence of dementia and advanced age | K Flynn |
| The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | Nutritional Status At Admission Predicts Functional Outcomes In Older South Australians Admitted To A Higher Acuity Geriatric Evaluation And Management Unit | E Dent |
| The Dementia Health Professionals Conference, Adelaide, September 2012 | Dignity In Care In Dementia And Working with BPSD | F Ibrahim |
| The First Fragility Fracture Network Global Conference, Berlin, October 2012 | Role Of An Integrated Electronic Database To Improve Quality Of Hip Fracture Care (Top 15 Poster) | P Shibu |
| Optimum Health and Nutrition For Our Ageing Population Symposium, Melbourne, October 2012 | Sarcopenia In Older People | S Yu |
| The 5th Biennial Australian and New Zealand Falls Prevention Conference, Adelaide, November 2012 | AMBIGeM: Innovative use of technology to monitor humans and reduce risk of falls in acute care | R Shinmoto |
| Australian Society for Parenteral And Enteral Nutrition (AUSPEN) Annual Scientific Meeting, Adelaide, November 2012 | An Australian Prediction Equation To Predict Appendicular Skeletal Muscle Mass | R Visvanathan |
| Australian Society of Medical Research (ASMR) state conference, Adelaide November 2012 | Nutritional Screening Tools and Hospital Discharge Outcomes in Older People | E Dent |
| Australian Association of Gerontology National Conference, Brisbane, November 2012 | Frailty Risk Factors and Outcomes in Hospitalised Older Persons | E Dent |
| Australian Society for Medical Research (ASMR) national conference, Adelaide November 2012. | Evaluation of Frailty Conceptualisations for the Prediction of Adverse Health Outcomes in Hospitalised Older Persons | E Dent |
| DECLARED: Delirium Clinical And Research Day, Sydney, May 2012. | The ‘All About Me’ and ‘Talking Photo Album’ Project. | F Ibrahim |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|---|---|
| AGED & EXTENDED CARE SERVICES (GERIATRIC MEDICINE) continued | | |
| Dementia - The Silent Epidemic, Adelaide, March 2012 | Dementia Care: bridging the gap between aged care and acute sector. Dementia – the silent epidemic, is aged care meeting the challenge? | F Ibrahim |
| Aged & Community Services SA&NT Hot Topic-Half Day Residential Seminar, Adelaide, December 2012 | Psychotropic Medication, in particular Anti-psychotic Medication and Behavior | R Visvanathan |
| DEPARTMENT OF ANAESTHESIA | | |
| Annual Scientific Meeting of the Australian Pain Society, Melbourne Vic, May 2012 | Establishing a Chronic Pain Unit in Central Australia | R Mitchell |
| CARDIOLOGY UNIT | | |
| Baker IDI, Melbourne, Vic, March 2012 | Basic and Clinical Aspects of Plaque Progression:ADMA as a biomarker | Horowitz JD |
| Vascular Medicine Institute at the University of Pittsburgh, USA, March 2012 | Platelet responsiveness to NO: pathophysiology and therapeutic implications | Horowitz JD |
| International AF Symposium, Manila, Philippines, September 2012 | Anticoagulants for Stroke Prevention: What's Hot, What's Not | Horowitz JD |
| East Meets West, Hong Kong, China, October 2012 | Diabetes and atrial fibrillation: two converging epidemics? | Horowitz JD |
| ADMA 2012, London, UK, August 2012 (Plenary) | Tako-Tsubo Cardiomyopathy is associated with “paradoxically” low ADMA concentrations. | Nguyen TH, Neil CJ, Sverdllov AL, Ngo DT, Chan WP, Heresztyn T, Chirkov YY, Tsikas D, Frenneaux MP, Horowitz JD |
| Joint ASCEPT-APSA Conference, SYDNEY December 2012 | Poster: Is insulin-mediated sensitisation effects of platelets to nitric oxide in diabetics Txnip-dependent | Chong C-R |
| American Heart Association, Low Angeles, Scientific Sessions 2012, Los Angeles, USA November 2012 | Effects of Ageing on Nitric Oxide Signalling in Women: Comparison with Polycystic Ovarian Syndrome | Chan WP, Ngo DT, Sverdllov A, Chirkov YY, Horowitz JD |
| American Heart Association, Scientific Sessions 2012, Los Angeles, USA. November 2012 | Brain Natriuretic Peptide (BNP) Suppresses Neutrophil Superoxide Release:Attenuation in Patients with Congestive Heart Failure (CHF) | Liu S, Ngo DT, Chirkov YY, Sheikh AR, Licari G, Stewart S, Horowitz JD |
| American Heart Association, Scientific Sessions 2012, Los Angeles, USA November 2012 | The Nitric Oxide Redox Sibling Nitroxyl Partially Circumvents Platelet Nitric Oxide Resistance In Patients With Ischaemic Heart Disease | Dautov RF, Chirkov YY, Ngo DT, Sverdllov AL, Kemp-Harper BK, Ritchie RH, Horowitz JD |
| European Society of Cardiology Congress, Munich, Germany, August 2012 | Paradoxical preservation of NO signaling in Takotsubo cardiomyopathy | Nguyen TH, Neil C, Sverdllov A, Ngo D, Chan W, Chirkov Y, Tsikas D, Frenneaux M, Horowitz JD |
| Cardiac Society Australia New Zealand, Brisbane, Australia, August 2012 | Polycystic ovarian syndrome as a state of premature ageing of the nitric oxide system | Chan W, Sverdllov A, Ngo D, Rajendran S, Chirkov Y, Horowitz JD |
| American Heart Association (AHA) Los-Angeles, USA November 2012 | The Nitric Oxide Redox Sibling Nitroxyl Partially Circumvents Platelet Nitric Oxide Resistance In Patients With Ischaemic Heart Disease | Dautov RF |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|---|--|
| CARDIOLOGY UNIT continued | | |
| Cardiac Society of Australia New Zealand, August 2012 | Cardiac denervation in chronic heart failure: relationship to changes in LV function and to arrhythmogenesis | Nguyen T-H |
| European Society of Cardiology, August 2012 | Paradoxical preservation of NO signalling in Tako Tsubo cardiomyopathy | Nguyen T-H |
| American Heart Association, Los Angeles, USA. November 2012 | Potential role of a “TTC score” to facilitate early diagnosis of Tako-Tsubo cardiomyopathy | Neil CJ |
| Cardiac Society of Australia New Zealand (CSANZ), August 2012 | Determinants of platelet response to nitric oxide in association with atrial fibrillation: evidence for an acute suppression of response | Procter N |
| American Heart Association (AHA) Los-Angeles, USA, November 2012 | Brain Natriureted peptide suppress superoxide release in neutrophils: attenuation in congestive heart failure patients | Liu S |
| CLINICAL PHARMACOLOGY UNIT | | |
| School of Pharmacy, University of Sydney, December 2012 | Gel separator tubes – to use or not to use? ASCEPT-APSA TDM Satellite Meeting, “Therapeutic drug monitoring fundamentals and emerging trends: Focus on antimicrobials”. | Sallustio BC |
| ENDOCRINOLOGY UNIT | | |
| European Society of Endocrinology 2012, Florence, Italy, May 2012 | Comparison of high protein and normal protein weight loss diets on bone density in overweight post-menopausal women | Jesudason D, Clifton P |
| GASTROENTEROLOGY & HEPATOLOGY UNIT | | |
| 8th INRA-Rowett Symposium on Gut-Microbiology. Clermont-Ferrand France, June 2012 | “Differential adaptive patterns of the Faecal microbiota of paediatric patients with gastrointestinal viral infections” | Bresland J, Stringer A, Ratcliff R, Yazbeck R, Butler RN |
| 8th INRA-Rowett Symposium on Gut Microbiology. Clermont-Ferrand France, June 2012 | “Intestinal microbes increase in cancer patients following irinotecan, capecitabine and 5-fluorouracil therapy” | Stringer A, Mayo B, Radzuan M, Bowen J. Logan R, Keefe D, Gibson R |
| International Agency for Research in Cancer (IARC), Lyon, France, June 2012 | “Non-Invasive Breath Tests for Cancer Prevention and Detection” | Butler RN |
| Multinational Association for Supportive Cancer Care (MASSC). Annual Scientific Meeting. New York City. USA June 2012 | “Orally administered emu oil maintains intestinal goblet cell numbers in a rat model of chemotherapy-induced mucositis” | Abimosleh S, Lotfollahi Z, Hoyle L, Papini J, Penascoza E, Stomaci D, Tran C, Lymn K, Butler RN, Howarth G |
| International Breath Analysis Meeting Sonoma, CA, USA October 2012 | “The Importance of Gases and Volatiles in Breath to Define the Status of the Gut Microbiome - Examples in Different Populations of Infants.” | Butler RN |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|---|--|
| GYNAECOLOGY DEPARTMENT | | |
| Female Pelvic Anatomy Workshop- May 2012- University of Adelaide Ray Last Laboratory | | Barry C |
| HAEMATOLOGY AND MEDICAL ONCOLOGY | | |
| Lorne Cancer Conference, Lorne, Victoria, February 2012 | Biomarkers of resistance to anti-EGFR therapy in colorectal cancer | Kumar S, Price TJ, Hardingham JE |
| American Society for Clinical Oncology (ASCO), Chicago, USA, June 2012 | Analysis of PTEN in patients with advanced Colorectal cancer (CRC) receiving Capecitabine alone or in combination with bevacizumab with or without mitomycin C in the phase III AGITG MAX trial | Price TJ, Hardingham JE, Lee C, Wrin J, Townsend AR, Wilson K, Weickhardt AJ, Simes J, Murone C, Tebbutt NC |
| Australasian Gastro-Intestinal Trials Group Annual Meeting, Sydney, Sept 2012 | KRAS G13D mutant colon cancer cell lines - sensitive or resistant to anti-EGFR antibody? | Kumar S, Hardingham JE, Price TJ |
| European Society for Medical Oncology (ESMO) Congress, Vienna, Austria, Sept 2012 | PTEN and advanced colorectal cancer (CRC): analysis from the phase III AGITG MAX trial of capecitabine alone or in combination with bevacizumab +/- mitomycin c | Price TJ, Hardingham JE, Lee C Townsend AR, Wrin J, Wilson K Weickhardt A, Simes RJ, Muroné C, Tebbutt N |
| Systems Biology Colonic Crypts Symposium Melbourne, March 2012 | Determination of a phenotype to identify circulating colon cancer stem cells | Hardingham JE, Nelligan S, Rajenthiran R, Cummins AG, Price TJ, Roberts-Thomson IC, Grover PK |
| Australian Society for Medical Research, Adelaide, June, 2012 | The isolation and characterisation of circulating cancer stem cells (CSC) in colon cancer | Rajenthiran R, Grover K, Price TJ Hardingham JE |
| Australian Health & Medical Research Congress, Adelaide, November 2012 | Determination of biomarkers of colon cancer stem cells | Rajenthiran R, Grover K, Price TJ Hardingham JE |
| Australian Health & Medical Research Congress, Adelaide, November 2012 | Validation of predictive biomarkers of resistance to anti-EGFR in wild type KRAS/BRAF colorectal cancer cell lines | Kumar S, Price TJ, Hardingham JE |
| 12th Diamond Blackfan Anaemia International Consensus Conference, New York, USA, March 2012 | The role of Myb in Diamond Blackfan Anaemia | Bray SC, Perugini M, Butcher C, Wee A Winteringham L, Tapp H, Klinken P, To LB, D’Andrea R |
| American Society of Hematology, Atlanta, USA, December 2012 | Expression of erythroid transcription factors are decreased in an RPS19 knockdown cell line model of Diamond Blackfan Anaemia | Bray SC, Wee A, Perugini M, To LB, D’Andrea R |
| American Society of Hematology, Atlanta, USA, December 2012 | Methylation of the Proximal Promoter of GADD45A Is Common in Acute Myeloid Leukemia and Is Associated with Poor Survival | D’Andrea R, Perugini M, Diakiw SM, Kok C-H, Salerno DG, Cummings N, Danner S, Bardy P, Wei AH, To LB, Lewis ID |
| INTENSIVE CARE UNIT | | |
| 37th Australian and New Zealand Annual Scientific Meeting on Intensive Care, Adelaide, Australia October 2012 | Pathogenesis of septic shock – Rationale for therapies | Peake SL |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|--|---|
| DISCIPLINE OF MEDICINE, UNIVERSITY OF ADELAIDE | | |
| International Society for Zinc Biology Melbourne January 2012 | Zinc Transporter ZnT4 In Lung Epithelial Cells And Asthma | Zalewski P, Murgia C, Roscioli E, Hamon R, Lester S, Danscher G, Stoltenberg M, Perozzi G |
| 24th ASM of the Australasian Sleep Association, Darwin, October 2012 Sleep and Biological Rhythms 2012 10 (suppl 1):42 | High prevalence of undiagnosed OSA in a community sample of men aged 40 years and over | Adams R, Appleton S, Vakulin A, Taylor A, Martin S, Catcheside P, Antic N, McEvoy D, Wittert G |
| 24th ASM of the Australasian Sleep Association, Darwin, October 2012 Sleep and Biological Rhythms 2012 10 (suppl 1):62 | Sleepiness and the burden of comorbidities in a population sample of men | Adams R, Appleton S, Vakulin A, Taylor A, Martin S, Catcheside P, Antic N, McEvoy D, Wittert G |
| 24th ASM of the Australasian Sleep Association, Darwin, October 2012 Sleep and Biological Rhythms 2012 10 (suppl 1):61 | Readability assessment of consumer information material on sleep and health from Australian websites | Adams R, Sowden J, Hill C, Visvanathan R, Gill T, Appleton S |
| Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Canberra, March 31- April 4, 2012. Respirology 2012;17(Suppl 1):39. | Asthma control is associated with blood granulocyte patterns in a population cohort | Adams R, Appleton S, Gill T, Hill C, Visvanathan R |
| 24th ASM of the Australasian Sleep Association, Darwin, October 2012 Sleep and Biological Rhythms 2012; 10 (suppl1):72 | Burden of undiagnosed OSA on health – related quality of life among men aged 40 years and over in the community | Appleton S, Adams R, Vakulin A, Taylor A, Martin S, Catcheside P, Antic N, McEvoy D, Witter G |
| Thoracic Society of Australia and New Zealand Annual Scientific Meeting, Canberra, March 31-4 April. Respirology 2012;17(Suppl1):26 | Asthma and wheeze are associated with reduced vitamin D levels in a population cohort | Appleton S, Gill T, Hill C, Visvanathan R, Adams R |
| 60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012 | Performance of the Aldrich and Wilkins Electrocardiographic Methods in Assessing Area at Risk in Acute ST Elevation Myocardial Infarction | Du YT , Pasupathy S, Neil C, Beltrame JF |
| Presented at the 60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012 | Correlation of Electrocardiographic and Cardiac Magnetic Resonance Imaging Indices of Infarct Size in Acute ST Elevation Myocardial Infarction | Du YT , Pasupathy S, Neil C, Beltrame JF |
| Presented at the 60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012 | Thromboxane A2-mediated L-type Calcium Channel Activation in the Vasculature | Y Chan, Beltrame JF, Wilson DP |
| Presented at the 60th Cardiac Society of Australia & New Zealand, Brisbane, August 2012 | Sex-difference in Vascular Reactivity of Internal Mammary Artery and Subcutaneous Microvessels | Jaghooori A, Beltrame JF |
| Transcatheter Cardiovascular Therapeutics. Miami, USA 22 October 2012 Epicardial Arterial Segments | Comparison Of Endothelial Function In The Left Main Coronary Artery And | Puri R, Nicholls S, Liew G, Brennan D, Andrews J, Nelson A, Carbone A, Copus B, Kapadia S, Tuzcu EM, Beltrame J, Worthley S, Worthley M |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
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| NEUROLOGY UNIT | | |
| 20th World Congress Neurology, Morocco, Africa, December 2011 | Plenary Speaker – “Stem Cell Therapy – Brain Repair.” | Koblar SA |
| 20th World Congress Neurology, Morocco, Africa, December 2011 | Chairperson & Speaker – “Stem Cells in Neurology.” | Koblar SA |
| 20th World Congress Neurology, Morocco, Africa, December 2011 | Workshop Chair – “Stem Cell Therapy.” | Koblar SA |
| University of Technology, Sydney, January 2012 | “Genetic Testing.” | Hamilton-Bruce MA, de Solom R |
| Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012 | “Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells.” | Klaric T, Thomas P, Dottori M, Leong, W-K Koblar SA, Lewis M |
| Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012 | “Neuronal differentiation of murine dental pulp stem cells in vitro.” | Ellis K, O’Carroll D, Lewis M, Koblar SA |
| Australian Society for Medical Research (ASMR) Medical Research Week Meeting (Adelaide) June 2012 | “Human Adult Dental Pulp Stem Cells Improve Outcomes in Ischemic Stroke After Intracerebral Transplantation.” | Kremer KL, Leong WK, Henshall TL, Arthur A, Lewis MD, Helps S, Hamilton-Bruce MA, Warming S, Manavis J, Vink R, Gronthos S, Koblar SA |
| Australian Society for Medical Research (ASMR) Medical Research Week Meeting (Adelaide) June 2012 | Workshop Chair, | Koblar SA |
| Stroke Society of Australasia 23rd Annual Scientific Meeting, Sydney, NSW, August 2012 | “Concurrent Session A: New Investigator Session.” | Koblar SA, van Vliet P |
| Stroke Society of Australasia 23rd Annual Scientific Meeting, Sydney, NSW, August 2012 | “Stem Cell Therapy in Stroke – 2012 Update.” | Koblar SA |
| ComBio, Adelaide, S.A., September 2012. | “Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells.” | Klaric T, Thomas P, Dottori M, Leong, W-K Koblar SA, Lewis M |
| Centre for Neuroscience, Flinders University’s Collaborators Day, September 2012 | “Exploiting Endogenous Mechanisms of Npas4 for Brain Repair.” | Lewis M |
| Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012 | “Modelling Ischemic Stroke in vitro: The Induction of Neuronal PAS Domain Protein 4.” | Humenick A, Lewis M, Koblar SA |
| Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012 | “The Effectiveness of Intravenous Administration of dental pulp stem cells at a Sub-Acute Time Point in the Treatment of Stroke in a Mouse Model.” | Winderlich J, Raza S, Kremer K, Klaric T, Koblar SA |
| Medical Research Week SA Scientific Meeting of the Australian Society for Medical Research (ASMR), Adelaide, June 2012 | “How do intravenously transplanted dental pulp stem cells (DPSCs) find their home in ischemic brain?” | Raza S, Milton AG, Koblar SA |
| Adelaide Centre for Neuroscience Research, June 2012 | “Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells.” | Klaric T, Thomas P, Dottori M, Koblar SA, Lewis M |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name | Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|--|---|---|--|---|--|
| NEUROLOGY UNIT continued | | | NUCLEAR MEDICINE continued | | |
| Stroke Society of Australasia 23rd Annual Scientific Meeting, Sydney, August 2012 | "Thrombolysis for Acute Stroke in South Australia: Have We Improved?" | Moey A, Jannes J, Koblar S, Leyden J, . Kleinig T, Lee A, Chong K | ANZSNM Annual Scientific Meeting April 2012 | "Solitary plasmacytoma at T9 detected incidentally on Tc-99m Setsmibi myocardial perfusion imaging." | Patterson M, Tan M, Edwards E |
| Stroke Society of Australasia 23rd Annual Scientific Meeting, Sydney, August 2012 | "Genetic testing – operational framework changes needed?" | Hamilton-Bruce MA, Koblar SA | Eng Phys Sci Med, Annual Scientific Meeting December 2012 | "Hardware and software QA relevant to brain scanning on a new SPECT-CT system." | Barnden L, Crouch B, et al |
| Society for Neuroscience, New Orleans, LA, USA. October 2012 | "Neuronal differentiation of murine dental pulp stem cells in vitro." | Ellis K | ANZSNM Annual Scientific Meeting 2012 April 2012 | "Do age related midline SPECT changes indicate accelerated cerebral bloodflow loss with age in the dorsal anterior cingulate?" | Crouch B, Barnden L et al |
| The Australia and New Zealand Society for Cell and Developmental Biology, Adelaide, November 2012 | "Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells." | Klaric T, Thomas P, Dottori M, Koblar SA, Lewis M | Eng Phys Sci Med, Annual Scientific Meeting December 2012 | "Comparison of novel intensity scaling methods in an MRI study of age related changes in the human brain." | Crouch B |
| Mount Lofty Neuroscience Cluster Workshop, December 2012 | "Npas4 regulates the expression of Sox1 in an early neural progenitor cell population during neural differentiation of mouse embryonic stem cells." | Klaric T, Thomas P, Dottori M, Koblar SA, Lewis M | ANZSNM Annual Scientific Meeting April 2012 | "Absolute cortical blood flow: a missed diagnostic opportunity?" | Barnden L, al Wahaib L, et al |
| NUCLEAR MEDICINE | | | NURSING | | |
| European Association of Nuclear Medicine, Annual Scientific Meeting, Milan, Italy October 2012 | "Brain SPECT demonstrates posture-dependent rCBF differences in Orthostatic Intolerance." | Barnden L., Kwiatek, R, et al | The Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting, Sydney, May 2012 | | Resili K |
| Workshop on Physicist Investigations in Immunology, Sapienza Università di Roma, Italy November 2012 | MRI evidence that Chronic Fatigue Syndrome (CFS) symptoms derive from impaired connectivity through the midbrain | Barnden L. | The Communication Bridge at The Queen Elizabeth Hospital, Adelaide 2012 | Talking books, bridging the gap for Elderly Culturally and Linguistically Diverse, patients in the Emergency Service | Resili K, McCaskill C & Visvanathan R |
| Eng Phys Sci Med, Annual Scientific Meeting December 2012 | "Distance dependent resolution correction in SPECT - simple and complex phantoms." | Badger, D | Australasian College for Infection Prevention and Control 1st Inaugural National Conference, Sydney October 2012 | 'Novice class: Developing and Infection prevention and control program in 2012. Reducing harm to patients from HAIs' | Juraja M |
| ANZSNM Annual Scientific Meeting April 2012 | "Cerebral blood flow in the frontal poles is greater in women than men." | Badger D. Barnden L | Sydney International Breast Cancer Congress Sydney, Australia, October 2012 | 'Psychological distress and support needs after breast cancer: A longitudinal cohort study' | Redman K, Occhiodoro-Scott T, Sullivan T |
| ANZSNM Annual Scientific Meeting April 2012 | "Data driven assessment of SPECT with iterative reconstruction that models distance dependent resolution." | Badger D. Barnden L | OTOLARYNGOLOGY, HEAD AND NECK SURGERY | | |
| ANZSNM Annual Scientific Meeting April 2012 | "The effects of postural tachycardia syndrome observed with brain SPECT." | Barnden L | FESS Course, Los Angeles, March 2012 | Alternative techniques for skull base repair for anterior cranial fossa lesion Anatomy and approach to the anterior cranial fossa lesions Management of the benign and malignant tumors involving maxillary sinus, pterygopalatine infratemporal fossa, orbital apex Managing complications (including carotid injury) in skull base surgery Frontal recess and frontal sinus 3-D anatomy reconstruction and surgical approaches Management of severely diseased maxillary sinus Management of nasal polyps surgical options: When, What and Why | Wormald PJ |
| ANZSNM Annual Scientific Meeting April 2012 | "Position dependent SPECT spatial resolution of a variable focal length conebeam collimator." | Barnden L | | | |
| ANZSNM Annual Scientific Meeting April 2012 | "Pulsatile effects observed with brain SPECT during migraine headache." | Barnden L. Crouch B | | | |
| ANZSNM Annual Scientific Meeting April 2012 | "Assessment of vascular graft infection using Tc-99m –colloid labelled white cells: retrospective analysis." | Weerasooriya S | | | |
| ANZSNM Annual Scientific Meeting April 2012 | "Imaging techniques for pregnant patients with suspected PE – a retrospective review." | Edwards R | | | |
| ANZSNM Annual Scientific Meeting April 2012 | "Lutate therapy in South Australia – the first 12 months." | Lawrie J, Cehic G | | | |
| ANZSNM Annual Scientific Meeting April 2012 | "Dual pathology seen on Tc-99m Sestamibi parathyroid scan." | Langeluddecke E, Cehic G | | | |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
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| OTOLARYNGOLOGY, HEAD AND NECK SURGERY continued | | |
| 5th World Congress for Endoscopic Sinus Surgery of the Brain, Skull base and Spine, Vienna, March 2012 | Advanced Endoscopic Sinus Surgery – Possibilities 2012 How to modify and optimise post-op wound healing Aetiology/pathogenesis of recalcitrant chronic rhinosinusitis and its management Techniques of frontal recess and DRAF III dissection (Live-Demo) 3D anatomy approaches to skull base Management of major vascular injury | Wormald PJ |
| Australasian Society Otolaryngology Head & Neck Society,Adelaide, April 2012 | Complications and their management in Endoscopic Sinus Surgery Panel Discussion | Wormald PJ |
| 3rd Adelaide Manage of Vascular Injuries Course, Adelaide, July 2012 - - | 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 |
| 4th Endoscopic Skull Base Course, Adelaide, July 2012 | Medial orbital decompression/optic chiasm/lateral recess sphenoid: anatomy and technique Preparing the skull base for craniofacial resection (Lothrop, sphenoidotomies and ethmoidal ligation) Techniques for managing large vessel injuries | Wormald PJ |
| International Rhinology Society, Hong Kong Annual Meeting 2012 | Controlling the Surgical Field: Do's & Don'ts Vascular Surgical Steps in Animal Model of Vascular Injury;Venous and Arterial Approaches Vascular Injury: Expert Demonstration Sellar, Para-sellar and Posterior Fossa – 3D Anatomy | Wormald PJ |
| What's new in Rhinology 2012? Milano, Italy September 2012 | What is new in our understanding of the pathophysiology of chronic rhinosinusitis Frontal recess 3D reconstruction Speaker's corner – Chair Endoscopic management of benign tumours of the nose, paranasal sinuses and skull base Endoscopic management of malignant tumours of the nose, paranasal sinuses and skull base | Wormald PJ |
| Functional Endoscopic Sinus Surgery Course 2012 – Marburg, Germany, September 2012 | Biofilms in chronic rhinosinusitis Surgery of the frontal recess – Box plot model Management of the bloody surgical field Endonasal vidian nerve neurectomy Management of major vessel injury Nasopharyngeal surgery Endonasal endoscopic skull base surgery Cadaver Dissection - Endonasal endoscopic MMA - Ethmoidectomy - Sphenoidectomy - Frontal recess -Modified Lothrop procedure - Powered DCR - Spheno-palatine artery ligation | Wormald PJ |
| American Rhinologic Society, Washington, USA, September 2012 | Immunity in Chronic Rhinosinusitis | Wormald PJ |
| American Academy of Otolaryngology Head & Neck Society Meeting Washington, USA, September 2012 | Local anti-invectives' and anti-inflammatory therapy for refractory chronic rhinosinusitis, an evidence-based approach – Panelist | Wormald PJ |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|--|---|
| OTOLARYNGOLOGY, HEAD AND NECK SURGERY continued | | |
| Australasian Rhinologic Society, Queensland, October 2012 | Biofilms in Chronic Rhinosinusitis | Wormald PJ |
| Asian Rhinologic Society, Taiwan, October 2012 | Pathogenesis of Rhinosinusitis: What do we know? Ask The Experts - Medical Therapy Frontal Surgery: Advanced Techniques Nasal Polyposis Complications of Functional Endoscopic Sinus Surgery Ask the Experts – Surgical Therapy Surgery of the Orbit & Optic Nerve Endoscopic Resection of Sinonasal Malignancy | Wormald PJ |
| Western States Rhinology Course Stanford, Napa Valley, USA, October 2012 | Pathogenesis of Rhinosinusitis: What do we know? Frontal Surgery: Advanced techniques Complications of Functional Endoscopic Sinus Surgery: Advanced techniques Surgery of the Orbit & Optic Nerve Endoscopic Resection of Sinonasal Malignancy Surgery for nasal polyps | Wormald PJ |
| 15th Advanced Functional Endoscopic Sinus Surgery Conference – Adelaide, November 2012 | The anatomy and endoscopic approaches to the frontal recess Review of CT scans with reconstruction of the anatomy of the frontal recess SPA ligation and Vidian neurectomy dissection Vidian Nerve Neurectomy Modified Endoscopic Lothrop dissection The Surgical field | Wormald P |
| RESPIRATORY MEDICINE UNIT and CLINICAL PRACTICE UNIT | | |
| 24th Annual Scientific Meeting of the Australasian Sleep Association and Australasian Sleep Technologists Association; Darwin, October 2012 | Comparison of the AASM 2007 EOG electrode placements impact on REM sleep staging | Churchward TJ, Singh P, Thornton A, Jurisevic M, Tolson J, O'Donoghue FJ, Rochford PD, Ruehland WR |
| American Thoracic Society, San Francisco, California, May 2012 | Superiority of varenicline tartrate plus counselling over counselling alone for smoking cessation: A 52 week randomized controlled trial | Smith BJ, Carson KV, Brinn MP, Labiszewski NA, Peters MJ, Fitridge RA, Litt JC, Koblar SA, Jannes J, Veale AJ, Goldsworthy SJ, Edwards D, Esterman AJ |
| Thoracic Society of Australia and New Zealand, Canberra, March 2012 | Training health professionals in smoking cessation: A Cochrane Systematic Review | Carson KV, Verbiest MEA, Brinn MP, Crone MR, Esterman AJ, Assendelft WJJ, Smith BJ |
| Thoracic Society of Australia and New Zealand, Canberra, March 2012 | Community interventions for the prevention of smoking in young people: A Cochrane systematic review | Brinn MP, Carson KV, Labiszewski NA, Chang AB, Esterman AJ, Smith BJ |
| WONCA (World Organisation of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians) Europe, Singapore, March 2012 | Training Health Professionals in Smoking Cessation: A Systematic Review | Verbiest MEA, Carson KV, Crone MR, Brinn MP, Esterman AJ, Assendelft WJJ, Smith BJ |
| Thoracic Society of Australia and New Zealand, Canberra, March 2012 | Interventions for smoking cessation in Indigenous populations with a particular focus on Aboriginal Australians A Meta-analysis | Carson KV |

Conference Title and Date

Title of Presentation/Poster

Attendee Name

RHEUMATOLOGY UNIT

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|--|---|--|
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | Investigator-initiated clinical research (invited presentation) | Hill CL |
| South Australian State Podiatry Conference, Adelaide Convention Centre, May 2012 | Epidemiology of foot pain (invited presentation) | Hill CL |
| Australian Rheumatology Association Queensland (ARAQ) Annual Scientific Meeting, Gold Coast, Qld, October 2012 | Fibromyalgia Syndrome: A Survival Guide (Keynote speaker) | Whittle SL |
| Australian Rheumatology Association Queensland (ARAQ) Annual Scientific Meeting, Gold Coast, Qld, October 2012 | The future of fibromyalgia syndrome research and therapy (Keynote speaker) | Whittle SL |
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | Low copy number of the FCGR3B gene and rheumatoid arthritis: a case control study and meta-analysis (poster presentation) | Graf S, Lester S, Nossent J, Hill CL, Proudman S, Lee A, Rischmueller M |
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | Tofacitinib (CB-690,550), an oral janus kinase inhibitor: pooled phase 3 analysis in an Australian Rheumatoid Arthritis study population | Hall S, Nash P, Rischmueller M, Bossingham D, Cook Nm Kwok K, Thirunavukkarasu K |
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | The CTLA4 gene is a potential disease modifying gene in Behcet's disease | Dunstan E, Lester S, Black R, Davatchi F, Nadji A, Bayat N, Saeedfar K, Ziaei N, Rischmueller M, Shahram F |
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | The use of temporal artery ultrasound in the diagnosis of giant cell arteritis at the Queen Elizabeth Hospital | Black R, Roach D, Lester S, Rischmueller M, Hill C |
| Australian Rheumatology Association 53rd Annual Scientific Meeting, Canberra ACT, May 2012 | The contribution of birth order and parity to the risk of developing scleroderma | Russo P, Lester S, Roberts-Thomson P |
| Abbott Inner Circle, Sydney NSW August 2012 | Pathway for early screening of referrals for Inflammatory arthritis (poster presentation) | Batty A |
| Asia Pacific League of Association for Rheumatology (APLAR) Congress, Dead Sea, Jordan, September 2012 | The accuracy of methods for urate crystal detection in synovial fluid and the effect of sample handling: A systematic review (poster presentation) | Graf SW, Buchbinder R, Zochling J, Whittle SL |
| Asia Pacific League of Association for Rheumatology (APLAR) Congress, Dead Sea, Jordan, September 2012 | Tofacitinib (CB-690,550), an oral janus kinase inhibitor: pooled phase 3 analysis in an Australian Rheumatoid Arthritis study population (oral presentation) | Hall S, Nash P, Rischmueller M, Bossingham D, Cook Nm Kwok K, Thirunavukkarasu K |
| Australasian Society of Clinical Immunology and Allergy, Wellington NZ, September 2012 | Systemic sclerosis, birth order and parity (poster presentation) | Russo P, Lester S, Roberts-Thompson P |
| Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012 | Vitamin D and Musculoskeletal Pain (oral presentation) | Gill TK, Shanahan EM, Taylor AW, Appleton SL, Adams RJ, Hill CL |
| Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012 | An examination of shoulder pain using magnetic resonance imaging (MRI) in older people (oral presentation) | Gill TK, Shanahan EM, Allison D, Alcorn D, Hill CL |
| Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012 | No association between FCGR3B, TLR4 and South Australian biopsy proven giant cell arteritis patients (oral presentation) | Dunstan E, Lester S, Hewitt A, Rischmueller M, Hill CL |

Conference Title and Date

Title of Presentation/Poster

Attendee Name

RHEUMATOLOGY UNIT continued

| | | |
|---|--|---|
| Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012 | Organ damage accrual in South Australian patients with primary Sjögren's syndrome (oral presentation) | Nossent J, Lester S, Rischmueller M |
| Australian Rheumatology Association (South Australia) Annual Scientific Meeting, Adelaide SA, October 2012 | Scleroderma autoantibodies as biomarkers (oral presentation) | Patterson K, Lester S, Tan J, Proudman S, Stevens W, Roberts-Thomson P, Walker J |
| American College of Rheumatology Annual Meeting, Washington, USA, November 2012 | A genome-wide association study establishes multiple susceptibility loci for Sjogren's Syndrome (Oral Presentation) | Lessard CJ, Li H, Adrianto I, Ice JA, Jonsson R, Illei GG, Rischmueller M, Nordmark G, Mariette X, Miceli-Richard C, Wahren-Herlenius M, Witte T, Brennan MT, Omdal R, Gaffney PM, Lessard JA, Ng WF, Anaya JM, Harley JB, Montgomery CG, Moser K |
| American College of Rheumatology Annual Meeting, Washington, USA, November 2012 | Role of health literacy in population estimates of musculoskeletal disorders (poster presentation) | Hill CL, Appleton SL, Gill TK, Black J, Rudd R, Adams RK |
| American College of Rheumatology Annual Meeting, Washington, USA, November 2012 | Fish oil in Rheumatoid Arthritis: A randomised, double blind trial comparing high dose with low dose | Proudman S, Spargo L, Hall C, McWilliams LA, Rischmueller M, Gibson R, James M, Cleland LG |
| American College of Rheumatology Annual Meeting, Washington, USA, November 2012 | A longitudinal study of PRognostic factors in patients with Early RA providing Direction for future Clinical Treatment- PREDICT Study (poster presentation) | Bird P, Nicholls D, Burnet S, de Jager J, Griffiths H, Roberts L, Tymms K, Zochling J, Arnold M, Littlejohn G, on behalf of the OPAL consortium |
| SURGERY, University of Adelaide | | |
| HTAi Policy Forum, San Francisco, January 2012 | A clinician's view of disinvestment | Maddern G |
| Medical Insurance Group Australia, February 2102 Brisbane, February 2012 Adelaide, March 2012 Sydney | Hypothetical: "Conduct under the microscope" | Maddern G |
| Australian Healthcare Week, Future of Surgery 2012, Melbourne, February 2012 | Evaluating new technologies in surgery: Are they worthwhile? | Maddern G |
| South Australian Audit of Perioperative Mortality/SA Health, Recognising the Deteriorating Patient, Adelaide, February 2012 | Do audits of surgical mortality alter surgical outcomes? | Maddern G |
| 19th Seminars in Operative Surgery, Specialist Surgery for the General Surgeon, Adelaide, March 2012 | When to treat, when to refer on | Maddern G |
| 2012 Australian e-Health Research Colloquium, e-Health – Delivering improved, high quality care, Brisbane, March 2012 | Significance of comparative effectiveness through health technology assessment | Maddern G |
| The Hospital Research Foundation Corporate Research Breakfast, Adelaide, June 2012, | Surgical research at TQEH. What it means for you! | Maddern G |
| 9th HTAi Annual Meeting, Bilbao, Spain, June 2012 internationally – Panel session | How to best use limited capacity for pragmatic evidence generation | Maddern G |
| 9th HTAi Annual Meeting, Bilbao, Spain, June 2012 | Methods in HTA – Session Chair | Maddern G |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|---|---------------|
| SURGERY, University of Adelaide | | |
| 9th HTAi Annual Meeting, Bilbao, Spain, June 2012 | Common bile duct injury – Session Chair | Maddern G |
| Johnson & Johnson Market Access Pathways Program, Sydney, July 2012 | Traps in new technologies | Maddern G |
| Medical Insurance Group Australia, August 2012 Melbourne, August 2012 Sydney, September 2012 Adelaide, September 2012 Barossa Valley, November 2012 Adelaide, February 2013 Brisbane, March 2013 Adelaide | Hypothetical: Dr Jekyll or Mr Hyde – Will you let the Court decide? | Maddern G |
| Royal Australasian College of Surgeons (New Zealand) Annual Scientific Meeting, Queenstown, New Zealand, August 2012 | What simulation works and with whom | Maddern G |
| Royal Australasian College of Surgeons (New Zealand) Annual Scientific Meeting, Queenstown, New Zealand, August 2012 | How to get the best out of audit | Maddern G |
| 10th Annual AAQHC Conference, Cairns, September 2012 | Comparative effectiveness: Just another way to restrict surgical innovation? | Maddern G |
| 2012 International Conference on Surgical Education and Training (ICOSET), Ottawa, Canada, October 2012 | Simulation: Return on Investment – Real issues in sustainable simulation | Maddern G |
| 2012 International Conference on Surgical Education and Training (ICOSET), Ottawa, Canada, October 2012 | Training the well rounded surgeon – meeting society's needs | Maddern G |
| International Society for Quality in Health Care 2012 (ISQua), Geneva, Switzerland, October 2012 | How do we ensure quality and safety from new technology? | Maddern G |
| Joanna Briggs Institute Graduate Research Seminar Series, Adelaide, October 2012 | The role of evidence in surgery | Maddern G |
| ANZHPBA Annual Meeting, Cooloom, Queensland, November 2012 | Simulation in surgery | Maddern G |
| RACS Section of Academic Surgery Annual Meeting, Basil Hetzel Institute, Adelaide, November 2012 | History of academic surgery in ANZ including the Surgical Research Society of Australasia | Maddern G |
| Private Healthcare Australian Conference, Melbourne, November 2012 | Unwanted variations and disinvestment | Maddern G |
| Johnson & Johnson Hospital Executive Alumni, Sydney, November 2012 | The role of Health Technology Assessment in access to innovative medical treatment | Maddern G |
| 3rd Annual Clinical Audit Improvement Conference, Sydney, November 2012 | The Australian and New Zealand Audit of Surgical Mortality (ANZAMSM): Has it had an impact? | Maddern G |
| 7th Sino RACS Conference, Guongzhou China, November 2012 | Australian National Bowel Screening Program | Hewett P |
| World Council of Enterostomal Therapy Biennial Congress, April 2012 | Recent Advances in Colorectal Surgery | Hewett P |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|---|--|---|
| SURGERY, University of Adelaide continued | | |
| The Queen Elizabeth Hospital Geriatric Surgeons Association, April 2012 | The future of TQEH | Hewett P |
| Modern Genome Based Vaccine Design 2012, Yokohama | Therapeutic HCV vaccines based on dendritic cell delivery | Gowans EJ |
| Australian Centre for HIV and Hepatitis Virology Research, Adelaide | A second generation therapeutic cellular vaccine for hepatitis C virus | Gowans EJ |
| Australian Centre for HIV and Hepatitis Virology Research, Adelaide | A novel challenge model to evaluate the efficacy of HCV vaccines in mice. | Yu SW |
| Asia-Pacific Congress of Medical Virology, Adelaide June 2012 | Suicide genes as potential adjuvants for DNA vaccines | Gargett T |
| Asia-Pacific Congress of Medical Virology, Adelaide June 2012 | A novel challenge model to evaluate the efficacy of HCV vaccines in mice | Yu SW |
| Australasian Viral Hepatitis Conference, Auckland, New Zealand, September 2012 | A second generation therapeutic cellular vaccine for hepatitis C virus | Gowans EJ |
| 19th International Meeting of HCV and Related Viruses, Venice, October 2012 | A second generation therapeutic cellular vaccine for hepatitis C virus | Gowans EJ |
| Australian Centre for Hepatitis Virology, Pls Meeting, Melbourne, November 2012 | HCV vaccine design and a novel mouse model to test efficacy | Gowans EJ |
| Australasian Society of Immunology, Melbourne, May 2012 | Suicide genes as potential adjuvants for DNA vaccines | Gargett T |
| Basil Hetzel Institute PhD seminar, Adelaide, October 2012 | A DNA vaccine for HIV and challenge studies in mice | Gargett T |
| Gordon Research Conference on Mammary Gland Biology June 2012 | Ovarian cycle-associated fluctuations in the mammary gland microenvironment. Abstract; poster presentation | Dasari P, Sharkey DJ, Nordin NE, Chua A, Robertson SA, Ingman WV. |
| Gordon Research Conference on Mammary Gland Biology June 2012 | Regulation of epithelial cell turnover and macrophage phenotype by epithelia cell-derived transforming growth factor beta1 in the mammary gland. Abstract; poster presentation | Sun X, Robertson SA, Ingman WV |
| Australasian Society for Immunology 2012 | Ovarian cycle-associated fluctuations in cytokines in the mammary gland microenvironment. Abstract; poster presentation | Dasari P, Sharkey DJ, Nordin NE, Chua A, Robertson SA, Ingman WV |
| Australasian Society for Immunology 2012 | Null mutation in C1q impairs tumour development in MMTV-PyMT mice. Abstract; poster presentation | Noor Din SM, Glynn DJ, Robertson SA, Ingman WV |
| Department of Pharmacology, University of Western Australia, May 2012 | Macrophages in breast cancer susceptibility. | Ingman WV |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|--|--|---|
| SURGERY, University of Adelaide continued | | |
| Basil Hetzel Institute, Adelaide November 2012 | A novel challenge model to evaluate the efficacy of HCV vaccines in mice | Yu SW |
| Department of Radiology Research Forum, Memorial Sloan Kettering Cancer Centre NY, USA, December 2012 | Novel approaches to bone cancer therapy | Evdokiou A |
| University of Arizona Research Forum, Tuscon, Arizona, USA, November 2012 | Novel approaches to bone cancer therapy | Evdokiou A |
| Research Day, Basil Hetzel Institute, The Queen Elizabeth Hospital, October 2012 | Doxorubicin overcomes resistance to drozitumab based-immunotherapy in a mouse model of breast cancer | Zinonos I, Labrinidis A, Liapis V, Hay S, Lee M, Ponomarev V, Diamond P, Zannettino ACW, Findlay DM, Evdokiou A |
| The 14th International Biennial Congress of the Metastasis Research Society, Brisbane, September 2012 | Local production of Osteoprotegerin by breast cancer cells inhibits cancer-induced osteolysis but promotes pulmonary metastasis | Zinonos I, Labrinidis A, Liapis V, Hay S Lee M, Ponomarev V, Diamond P, Zannettino ACW, Findlay DM, Evdokiou A |
| The 14th International Biennial Congress of the Metastasis Research Society, Brisbane, September 2012 | Zoledronic acid facilitates large scale ex-vivo expansion of human $\gamma\delta$ T cells for use in immunotherapy targeting bone metastases | Panagopoulos V, Zinonos I, Liapis V, Hay S, DeNichilo M, V Ponomarev, ACW Zannettino, A Evdokiou |
| The 14th International Biennial Congress of the Metastasis Research Society, Brisbane, September 2012 | Anticancer efficacy of the hypoxia-activated prodrug TH-302 in a preclinical model of osteosarcoma development and metastasis | Liapis V, Labrinidis A, Hay S, Zinonos I, Panagopoulos V, DeNichilo M, Ponomarev V, Atkins G, Findlay D, Zannettino ACW, Evdokiou A |
| Poster presentation at the Faculty of Health Sciences, Postgraduate Research Expo, University of Adelaide, August 2012 | Doxorubicin overcomes resistance to drozitumab based-immunotherapy in a mouse model of breast cancer | Zinonos I, Labrinidis A, Liapis V, Hay S, Lee M, Ponomarev V, Diamond P, Zannettino ACW, Findlay DM, Evdokiou A |
| Royal Australasian College of Surgeons ACS ASC, Kuala Lumpur, May 2012 | Simvastatin reduces the severity of small bowel inflammation following lower limb ischaemia-reperfusion injury | Fitridge R, Cowled P |
| ANZ Society for Vascular Surgery and Asian Society for Vascular Surgery Annual Scientific meeting, Melbourne, October 2012 | Microvessels isolated from patients with PAD exhibit enhanced serotonin and alpha-1 adrenergic mediated vasoconstriction | Rajopadhyaya K, Wilson D, Beltrame J, Fitridge R |
| South Australian Breast Cancer Research Showcase, National Wine Centre Adelaide, Australia, May 2012 | Establishment of a Tissue Resource to Support Breast Cancer Prevention Research | Dasari P |
| Australian Orthopaedic Association (SA) Adelaide, April 2012 | Propionibacterium Acnes and Staphylococcus Lugdunesis: Commensals or Pathogens in Implant Related Osteomyelitis? An Experimental Study | Gahukamble A |
| Orthopaedic Grand Round Adelaide October 2012 | Fast Tracking Hip Joints and Joint Replacements | Morrison G, Thomas L, Mason P, Czuchwicki A |
| Centre of Research Excellence for Peripheral Arterial Disease, Scientific Meeting, Sydney, March 2012 | Local and systemic effects of lower limb ischaemia-reperfusion injury | Fitridge R, Cowled P, Wilson D |
| Australian and New Zealand Society for Vascular Surgery, Melbourne, October 2012 | EVAR Trial update – 2012 | Fitridge R, Boulton M |

| Conference Title and Date | Title of Presentation/Poster | Attendee Name |
|--|---|---------------|
| THERAPEUTICS RESEARCH CENTRE, University of South Australia | | |
| LEO Pharma A/S, Ballerup, Copenhagen, Denmark, October 2012 | Maximum Flux Concept to Predict Skin Penetration | Roberts MS |
| LEO Pharma A/S, Ballerup, Copenhagen, Denmark, October 2012 | Imaging the skin | Roberts MS |
| New York Society of Cosmetic Chemists International Symposium on Sun Exposure: Implications and Protection of Skin, United States, October 2012 | The Role of Sun Photo-Damage in Skin Aging and Compromised Immune Responses | Roberts MS |
| Advanced Delivery Strategies for Pharmaceuticals & Cosmetics, European Lifelong Learning Program/Erasmus Intensive Program, ISPB Faculté de Pharmacie, Lyon, France, October, 2012 | Skin - using formulation and choice of active to achieve cosmetic and dermatological goals | Roberts MS |
| 7th Workshop on Advanced Multiphoton & Fluorescence Lifetime Imaging Techniques – FLIM 2012. Saarbrücken, Germany; June 2012 | Using multiphoton tomography to study in vivo drug & nanoparticle disposition | Roberts MS |
| 5th Advanced Optical Methods Workshop, Shenzhen, China, May 2012 | Non-invasive imaging of drug nanosystem transport and response in biological systems | Roberts MS |
| China Pharmaceutical University, Nanjing, China, May 2012 | Understanding drug transport in liver and the elderly | Roberts MS |
| China Pharmaceutical University, Nanjing, China, May 2012 | Topical and transdermal delivery: concerning a key frontier in drug delivery | Roberts MS |
| 13th Perspectives in Percutaneous Penetration International Conference, PPP2012: Pre-Conference Course Workshop Tuesday, La Grande Motte, France, April 2012 | Skin structure and function | Roberts MS |
| 13th Perspectives in Percutaneous Penetration International Conference, PPP2012. La Grande Motte, France, April 2012 | Discussion Leader | Roberts MS |
| Nanomedicine for Dermal Applications. 9th International Conference and Workshop on Biological Barriers – in vitro and in silico Tools for Drug Delivery and Nanosafety Research. Saarland University, Saarbrücken, Germany, 29 February – 9 March 2012 | Quantifying drug transport and effects by non-invasive imaging | Roberts MS |
| The combined 10th Asia-Pacific Microscopy Conference (APMC 10), the 2012 International Conference on Nanoscience and Nanotechnology (ICONN 2012) and the 22nd Australian Conference on Microscopy and Microanalysis (ACMM 22), Perth Convention and Exhibition Centre, Perth, Australia, February 2012 | Risk Assessment for Nanotechnology – Exposure and systemic distribution. Nano-Manufacturing, Safety and Standards | Roberts MS |
| Australasian College of Toxicology and Risk Assessment, 5th Annual Scientific Meeting, Adelaide, October 2012 | Trans-Dermal Penetration of Nanoparticles: Separating Fact from Myth | Roberts MS |

Support Structures

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 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

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.

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 2012 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.

Hospital Research Foundation Vacation Research Scholarships

Six placements offered in TQEH research settings over the 2012-2013 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 2012. Seven Scholarship recipients undertook projects through a range of Programs including the Vascular Disease and Therapeutics Research Group, as well as several other Departments, specifically Haematology-Oncology, and Otorhinolaryngology.

Higher Degrees

In 2012 over seventy scholars were undertaking research towards Higher Degrees at TQEH, with five students supported with The Hospital Research Foundation Scholarships. In 2012 The Hospital Research Foundation Scholarships provided for stipends which matched the Australian Postgraduate Award (APA) rate. From 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.

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).

Research Day 2012

Research Day 2012 was again held in our new research building, with our combined seminar rooms, atrium and common spaces comfortably accommodating the sizeable event. Research Day has been held for 21 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. This year the Foundation sponsored two of the seven oral presentation prizes and we look forward to the Foundation's continued 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, 2012

Statistical Support Service, TQEH

The Statistical Support Service, jointly funded by BHI and the Faculty of Health Sciences 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 2012 the Statistical Service was provided by staff of the Statistics Division of the Data Management & Analysis Centre, 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.

The Institute (BHI) Policy Committee

Current Members, December 2012

Prof Guy Maddern
Prof John Beltrame
Prof Justin Beilby (proxy - Prof Andrew Somogyi)
Mrs Jackie Wood, (A/General Manager)
Prof Pat Buckley
Ms Diana Brown
Dr Prue Cowled
Dr Cynthia Piantadosi
Dr Jenny Hardingham
Prof Andreas Evdokiou
A/Prof Richard D'Andrea
Mr Paul Flynn
Ms Kathryn Hudson
Prof Eric Gowans
A/Prof Wendy Ingman

Executive Support

Ms Gwenda Graves

Ethics Review

the winds of change have blown!

Basil Hetzel Management Committee

Current members, December 2012

| The Institute Level | Representative |
|-------------------------|---------------------------------|
| Ground Level | Mr Malcolm Brinn |
| Level 1 | Dr Andrew Trotta |
| | Prof 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 Rep | Ms Shalini Sree Kumar |
| Chair | A/Prof Wendy Ingman |
| BHI Facility Manager | Ms Kathryn Hudson |

Executive Support

Ms Gwenda Graves

The last 18 months has seen significant change occur in the Ethical review of research applications in Australian hospitals. In summary the changes have attempted to streamline the Ethical review of applications and improve the risk management of research in each host institution.

The changes have focussed on research projects that aim to be conducted at more than one Australian site (such as a sponsored drug trial seeking significant numbers to participate) and were driven by the pharmaceutical industry which considered there were efficiencies to be gained by a changed approach. Historically each institution considered that it was essential and appropriate to make its own individual assessment of the Ethical aspects of a project – meaning that the same protocol would be considered multiple times. In fact, the Ethical considerations regarding the appropriate design of the trial, the risks of participating in the trial and the clarity of identifying those risks to participants are common to most institutions. Hence the concept of single Ethical review of multi-centre applications developed. This concept was considered and agreed to by the Australian Health Minister's Advisory Council and about 4 years later is to become a reality.

This apparently simple change to the review process however uncovered many flaws in the existing Ethical review practice. The lack of accreditation of Human Research Ethics Committees (HREC), a lack of agreed timelines, a demand by institutions that their own application forms must be used, the absence of a suitable IT platform that might facilitate the sharing of information between HRECs and above all the patchy and often inadequate process that were in place for risk management (usually referred to by the term "governance") – all came to light as the single review concept was considered.



*Associate Professor Tim Mathew - Chairman
Human Research Ethics Committee (TQEH/LMH/MH)*

It has taken some years to address all these issues throughout the nation. It is now likely that July 1, 2013 will see the start of a National approach that will allow single review of a multi-site application. Agreement to accept this is mandated and will apply to all jurisdictions (except the Northern Territory). It is debatable whether the efficiencies projected will be realised but overall the Ethical review process will be improved both from the researcher point of view (fixed timelines, less paperwork, standardised process) and that of the institution (better documentation of risk management aspects).

The changes discussed and their implementation have been a challenge for all parties and in the process delays and difficulties have arisen. The good humour and tolerance of the researchers using our HREC has been much appreciated. I believe we are through the biggest changes to the process and we now have the promise of moving to a paperless system over the next year or so. That would be real progress!

Awards

2012 Award Winners

TQEH Research Day 2012



Honours Students

Sathish Paramasivan, Amanda Drilling, Camille Jardeleza, Josh Jervis-Bardy, Sarah Vreugde, Peter-John Wormald. Methylglyoxol augmented Manuka honey as a novel anti-biofilm agent against Staphylococcus Aureus in a sheep model of Chronic Rhinosinusitis (Prize sponsored by FHS, University of Adelaide).



Junior PhD Students (Laboratory Research)

Erin E. Swinstead, Andrew P.Trotta, Eric Smith, Phulwinder K. Grover, Eleanor F. Need, Grant Buchanan. The genomic action of progesterone receptor in breast cancer requires E2 priming. (Prize sponsored by School of Pharmacy and Medical Sciences, University of South Australia).



Senior PhD students (Laboratory Research)

Irene Zinonos, Agatha Labrinidis, Vasilios Liapis, Shelley Hay, Vasilios Panagopoulos, Mark Denichilo, Vladimir Ponomarev, Gerald J Atkins, David M Findlay, Andrew CW Zannettino, Andreas Evdokiou. Doxorubicin overcomes resistance to drozitumab based-immunotherapy in a mouse model of breast cancer by antagonizing iaps. (Prize sponsored by Qiagen and Jomar BioSciences).



Clinical Research Group 1

Neil C-W Tan, Andrew Foreman, Camille Jardeleza, Sarah Vreuge, Peter-John Wormald. Intracellular staphylococcus aureus: the trojan horse of recalcitrant chronic rhinosinusitis?(Prize sponsored by Thermo Fisher and The Hospital Research Foundation).



Clinical Research Group 2

Rachel Dreyer, John Beltrame, Christopher Neil, Tracy Air, Bernadette Hoffmann, Purendra Pati, David Di Fiore, Margaret Arstall and Christopher Zeitz Sex differences in cardiac haemodynamics during acute st-elevation myocardial infarction (STEMI) (Prize sponsored by The Hospital Research Foundation).



Poster Prize

Michael G. Collins, Lisa J. Kitto, Shilpa Jesudason, Tim J. Barnes, Benjamin Thierry, Clive A. Prestidge, & P.Toby Coates Targeting dendritic cells using anti-dc-sign conjugated immunoliposomes: a novel approach to immunotherapy (Prize sponsored by Pall Australia and BlueSky Scientific).



Best Lay Description

Tessa Gargett, Branka Grubor, Darren Miller, Eric Gowans Inducing cell necrosis to enhance the immune response to vaccines (Prize sponsored by Eppendorf).

Other 2012 Award Winners

Cardiology

The 2012 David Horowitz Memorial Research Prize – Dr Khai Tam for his research project: 'Dedicated Geriatric Medicine Teaching Block To Senior Undergraduate Medical Students Improves Attitude and Competency Scores'.

2011-2012 Premiers Nursing Scholarship - Mr Mark Rogers "Exploring the Scottish models of nurse lead clinics in providing ongoing rehabilitation, secondary prevention strategies in assisting in maintaining good health and hospital avoidance among the elderly".

2011-2012 Premiers Nursing Scholarship - Ms Karen Hales 'Exploring innovative advanced practice and nursing frameworks which improve care of the older person within a health care setting'.

Haematology and Oncology

Ranjani Rajenthiran was awarded 1st prize for her poster presentation entitled "The isolation and characterisation of circulating cancer stem cells (CSC) in colon cancer". Rajenthiran R, Grover PH, Price T, Hardingham J. Presented at Australian Society for Medical Research, Adelaide, June, 2012.

Medicine, University of Adelaide, Discipline of

- R Dreyer - Heart Foundation Travel Grant
- R Dreyer - Sir Keith Murdoch American Australian Fellowship
- R Dreyer - TQEH Research Day Best Oral Presentation in Clinical Research
- R Dreyer - Young Australian of the Year (SA) Finalist
- A Jaghoori - International Society of Heart Research Student Investigator Finalist
- A Jaghoori - Ivan de la Lande Travel Award
- A Jaghoori - ASCEPT Cardiovascular Special Interest Group Prize
- V Kopetz - University of Adelaide PhD Thesis Letter of Commendation
- R Tavella - University of Adelaide PhD Thesis Letter of Commendation

Otolaryngology, Head & Neck Surgery

PJ Wormald - The "Distinguished Service" Award, American Academy of Otolaryngology - Head and Neck Surgery Foundation, September 2012

PJ Wormald - Representative for Excellence in Research Supervision, Faculty of Health Sciences – 2012, Faculty of Health Sciences, University of Adelaide

NC Tan - Best oral presentation, Clinical Research Group 1 PhD students, TQEH Research Day October 2012, Basil Hetzel Institute

S Paramasivan - Best oral presentation, Honours student category, TQEH Research Day October 2012, Basil Hetzel Institute

Respiratory Medicine Unit & Clinical Practice Unit

K Carson The Thoracic Society of Australia and New Zealand (TSANZ) Tobacco Control Prize in April

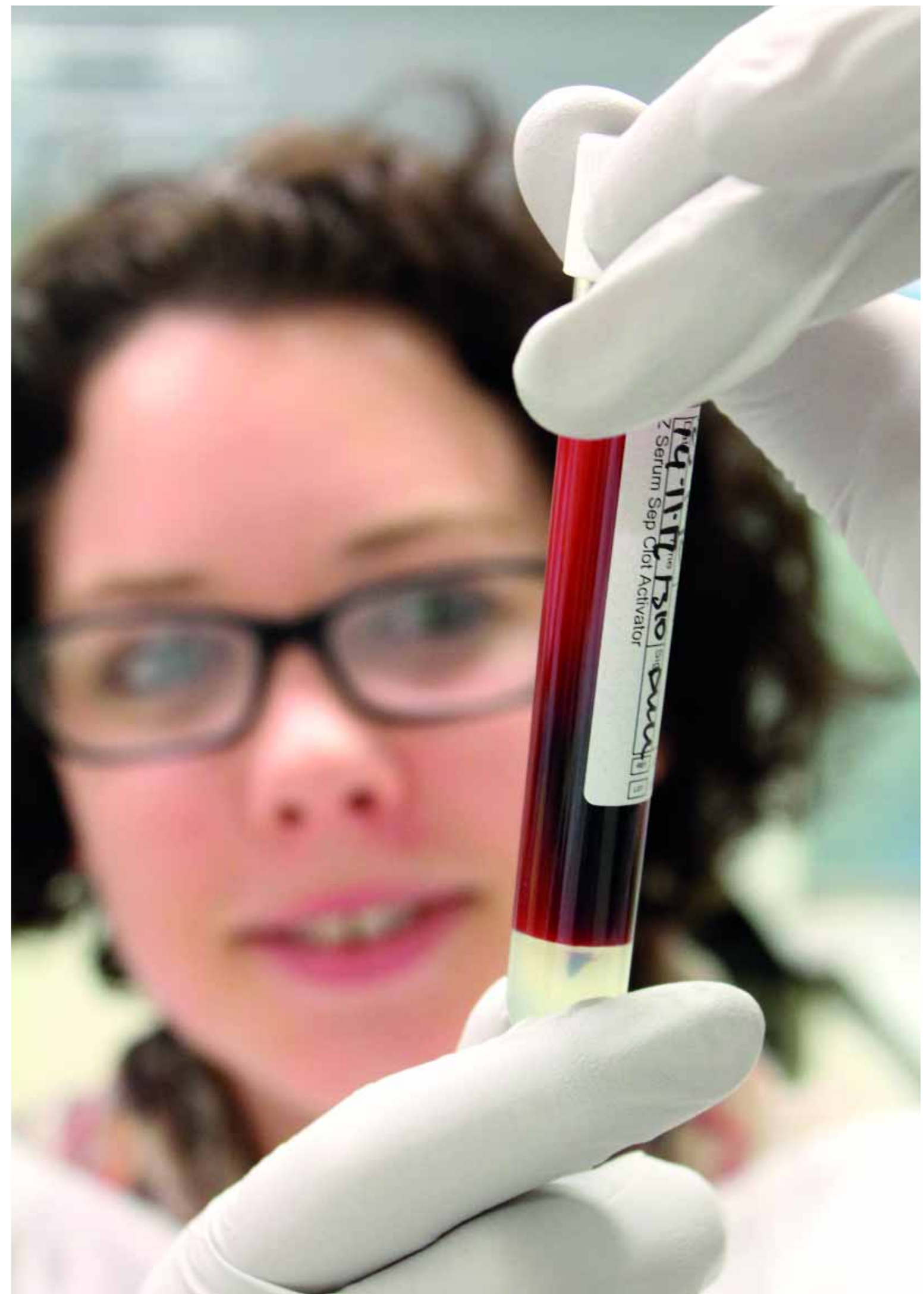
K Carson - SA and NT TSANZ Young Investigator Award.

S Mysore - The Professor Derek Ferwin AI Citation for Clinical Teaching Excellence in the MBBS as voted by students.

Acknowledgements

Aberdeen University, UK – Department of Cardiology
AIB Labs
AMGEN
Anne Marie Trimboli Trust
Arthritis Australia
ASERNIPS
Austin Health
Australian Breast Cancer Research
Australia-India Biotechnology Fund
Australian Red Cross Blood Service (ARCBS)
Australian Research Council
Baker Research Institute
BankSA Staff Charitable Fund
Beat Cancer SAHMRI
Beyondblue
BioInnovationSA AIB Labs
Breast SurgANZ. National Breast Cancer audit
Cambridge Centre for Brain Repair
Cancer Australia
Cancer Council of South Australia
Captain Courageous Foundation
Channel 7 Children's Research Foundation
Centre for Education and Research on Ageing (CERA), Sydney University, NSW
Channel 7 Children's Medical Research Foundation of SA
Child Health Research Institute
Child, Youth & Women's Health Service – Familial Cancer Unit
Collaborative Centre for Stem Cell Research
Commonwealth Dept of Health & Aged Care
CSIRO
Curtin University, Western Australia
Diamantina Institute, for Cancer, Immunology and Metabolic Medicine
Drake Supermarkets
Dry July
Flinders University of South Australia
Garnett Passe and Rodney Williams Memorial Foundation
Heart Foundation of South Australia (Tom Simpson Trust)
Hanson Institute
Institute for Food and Nutrition (INRAN) (Rome)
Johnson & Johnson Medical Research
Kmart West Lakes
Kidman Park Rotary Club

Medical Research Council UK
Medvet Laboratories
Monash University – Department of Epidemiology & Preventative Medicine
Monash University – Department of Pharmacology
National Breast Cancer Foundation
National Health & Medical Research Council (NHMRC)
National Heart Foundation of Australia (NHFA)
Northern Territory Health
Olympic Spirit Greek Friends
Peter Couche Foundation
Prostate Cancer Foundation of Australia
Queensland Department of Health
Rebecca L Cooper Medical Foundation
Rehabilitation and Aged Care, Alfred Health, Victoria
Resmed Foundation
Robinson Institute
Royal Adelaide Hospital
Royal Australasian College of Physicians
Royal Australasian College of Surgeons
Royal Prince Alfred Hospital Intensive Care Unit
SA Heart Foundation
SAHMRI
SA Pathology
Scott Salisbury Homes
Stroke SA
South Australian Blood Cancer Tumour Bank (SABCTB)
South Australian Department of Health
St Jude's Research Institute, Memphis USA
St Vincent's Institute Melbourne, Department of Medicine
Sydney University, NSW
Tasmanian Department of Health
The Captain Courageous Research Fund
The Foundation Daw Park
The Hospital Research Foundation (THRF) (formerly The Queen Elizabeth Hospital Research Foundation)
Victorian Department of Health
Weill Cornell Medical College, New York, USA
Western Australian Department of Health
Western Australian Institute for Medical Research (WAIMR)
Women's and Children's Hospital
University of Adelaide
University of Hannover, Germany
University of South Australia





Lee Michaelis
Chair of the Board of Directors

The Hospital Research Foundation Chair Report



The Hospital Research Foundation our partners Australian Breast Cancer Research and Australian Prostate Cancer Research have targeted funding support to those diseases and illnesses that affect Australians.

In a year when record numbers of South Australian's sought treatment in hospitals, the demand for improved care and treatment has never been so great. With South Australia facing a rapidly aging population and an increasing prevalence of lifestyle related diseases, the pressure on Medical Researchers to find new and innovative treatments is ever present. Over the last year we have focused our activities on supporting the very best medical researchers as they strive to find cures and improve care for all in our community.

Everyone has been touched by the impact of medical trauma whether it is cancer, heart disease, stroke, diabetes, dementia or other aging related illness. It is with your support that we can make a positive impact in the lives of people in our community through achieving sustained excellence in researching those diseases and illnesses that affect the people that we love.

The very best efforts of our staff, volunteers and medical researchers are focused on improving the lives of our Australian community. This report has been prepared for you to provide a better understanding of the work that is done and the unrelenting focus on achieving better health for all.

We pride ourselves not only on the work that is done but on the levels of transparency that we present. After another challenging year for the world economy, we are thrilled to report to you our outcomes both in the laboratory and on the balance sheet. We are proud of the levels of efficiency that have achieved a Funds to Research Ratio of 74.5% which is well balanced against the grant funding that we make to the researchers.

Grant Themes

The focus of our grants are spread into a number of themes which in all cases are centered around the illnesses and diseases that are prevalent in our community, and that can be translational in nature.

The translational nature simply means that we want to support medical research that can be translated as quickly as possible into new therapeutic treatments or cures in our hospitals.

The research themes that we support are focused on areas of disease and illness that are affecting the lives of Australians. These areas are centered on Cancers such as breast cancer, prostate cancer, leukemia, and hard tumors, Heart Disease, Vascular Disease, Inflammatory Diseases such as Arthritis, Respiratory Diseases such as asthma, Virology with diseases such as HIV and Hepatitis and improvement in general Surgical Techniques.

Independent Research Review Committee

To ensure we only support the absolute best quality research and facilitate a method to bring the best and brightest researchers to Adelaide, we utilize a panel of 'world's best' eminent researchers to review all applications and annual research achievements. The panel is chaired by Professor Colin Johnston who is currently a Senior Principal Research Fellow at the Baker IDI Heart and Diabetes Institute, Honorary Professor of Medicine at Monash University and an Emeritus Professor of the University of Melbourne. The other members of the panel are Professor Richard Fox, Director of Research at St Vincents Hospital in Melbourne and Professor Judith Whitworth from the Australian National University.

Patient Support

In addition to funding vital medical research we have also allocated both time and financial resources to patient support and patient care. We do this predominantly via our annual partnership with 'Dry July'. This year over \$200,000-00 was raised by 1000 South Australians who decided to 'go dry' in July to support patients who are receiving cancer treatment in hospitals in Adelaide, Mt Gambier, Whyalla & Port Lincoln.

Our focus for the short term is to establish local accommodation for outpatient cancer patients who live in the country regions of South Australia who need comfortable accommodation close to their treatment facility.

Revenue Activities

Our ongoing Community of Care program has been a great success with members of the South Australian community. Donors who have been supporting the research that we fund have found the ability to have regular deductions from their credit card, debit card or bank account to be most efficient. The processing and transaction costs of the Community of Care program are low so we can therefore increase the funds to research ratio significantly for people who join this group.

Our donation and small lottery program, which operates nationally across Australia, has been very popular with supporters who want a regular reminder and update on the research programs that we fund. Supporters who purchase tickets in our minor lotteries often tell us that their motivation is the cause and winning would be a bonus.

Our market leading Hospital Home Lottery has continued to be very popular with the community. With fantastic prizes and great chances of winning the programs have grown considerably over the past 2 years. The Hospital Home Lotteries drive significant funds into medical research programs aimed at supporting the community through improved care and cures.

Supporter Communication

We go to great lengths to ensure our supporters are kept up to date with the great work that is being done by the researchers. We utilize newsletters, regular direct mail, eNewsletters, Facebook, Twitter, YouTube and many other forms of public communication tools to spread the word and keep you informed about the value of your support. Please feel free to seek further information from our website at www.hospitalresearch.com.au or contact our national head office on 08 8244 1100.

Governance

Our hard working Board of Directors has a very strong focus on continuing improvement, transparency and strict regulatory governance. I am very pleased to have the honour of Chairing this highly skilled group of community minded people. I would like to thank all of my fellow directors for their diligence and hard work over the past year.

Summary

In all, an outstanding year for The Hospital Research Foundation. On behalf of the Board of Directors I would like to offer my sincere appreciation to you, our supporters, Paul Flynn our Chief Executive Officer and his amazing team of staff and volunteers. Without your combined efforts we could not make the positive impact on the lives of Australians that we have been able to achieve.

Lee Michaelis
Chair of the Board of Directors



Board Details



Ms Lee Michaelis



Mr John MacPhail



Professor John Beltrame

Chair

Ms Lee Michaelis – Principal, Organiks Cafe

Deputy Chair

Mr John MacPhail – Partner, Finlaysons

Board members

Professor John Beltrame – Professor of Medicine,
The Queen Elizabeth Hospital

Mr John Hender – National Manager – Native Title Trusts,
Perpetual Pty Ltd.

Mr Ken Milne – Architect, Milne Architects Pty Ltd.

Professor Richard Ruffin – Emeritus Professor,
The Queen Elizabeth Hospital

Ms Melinda OLeary – Nova Aerospace Australia

Ms Luciana Larkin Partner, Tregloans Chartered Accountants

Professor Richard D'Andrea, Chief Medical Scientist-
Department of Haematology-Oncology,
The Queen Elizabeth Hospital



Mr John Hender



Mr Ken Milne



Professor Richard Ruffin



Ms Melinda OLeary



Ms Luciana Larkin



Professor Richard
D'Andrea

Research Achievement Highlights

TQEH Collaboration Link in Gene Defect Discovery



Adam (left), pictured with his mum Beverly and Dr John Norman, was instrumental in the successful development of a genetic test for people at high risk of developing Acute Myeloid Leukaemia and other fatal blood diseases.

A unique collaboration between researchers, clinicians and their patients at The Queen Elizabeth Hospital (TQEH) has played a significant role in a genetic discovery that will help identify people at high risk of developing blood cancers.

In 1983 Drs John Norman and Les Cleland reported on a family treated at TQEH since the 1960s who had an unusually high incidence of acute myeloid leukaemia (AML) - a disease which was up until recently uniformly fatal.

The report they penned remained in the research archives unexplained, for many years, until a research study into familial blood cancers, the Australian Familial Haematological Cancer Study (AFHCS), led by Prof Hamish Scott and Associate Prof Richard D'Andrea solved the mystery for this and other families.

Associate Professor Peter Bardy, Head of Haematology at TQEH approached one of the family members Adam Normington about becoming involved in the study aiming to identify the genetic cause of his family's predisposition to developing AML.

Professor's Scott and D'Andrea were able to use technology unavailable in the 1980's to sequence the DNA of affected members of families like Adam's and discovered that they had inherited an abnormal copy of the gene known as GATA2. This gene was known to be involved in normal blood development but it had not previously been shown that inheriting an abnormal copy could cause leukaemia.

With a very high risk of developing AML himself, Adam elected to undergo a bone marrow transplant as a preventative measure 8 years ago. His participation in the study and contribution of vital genetic information will now help others who have a similar link to familial AML.

The discovery of this gene means that people at very high risk of developing the disease can be identified, monitored and treated a lot earlier than before. Genetic testing for families who may be at risk of carrying the GATA2 gene mutation is now available.

Adam is delighted that his long family association with haematologists Dr Norman and A/Prof Bardy has been able to help others who are at risk of potentially fatal inherited diseases such as AML.

"I think this is a great breakthrough for people in the long term," said Adam.

Peter Bardy, who still treats Adam at TQEH, believes "the leukaemia breakthrough says much about the history of The Queen Elizabeth Hospital's links with its community which is one of the special things about this hospital."

"It's about the enduring link of the hospital to the community it serves. And it's about the links between clinicians and researchers such as Richard, Hamish and their teams - who have the techniques, knowhow and international connections to enable breakthrough discoveries to occur that change patients lives."

"Adam's family will hopefully now be rid of this scourge that has hung over it for generations."

"It is a perfect example of translational research," A/Prof Bardy said.

On the Front Foot to Assess Rheumatoid Arthritis

Researchers at The Queen Elizabeth Hospital, in collaboration with Rheumatologists at the Royal Adelaide Hospital, found that the most common measuring tools used to evaluate the effects of Rheumatoid arthritis (RA) treatment regimes in clinical practice are unsuccessful at detecting continued presence of RA in a significant number of patients.

Rheumatoid arthritis is extremely debilitating and in some cases life-threatening. Early diagnosis and effective treatment are paramount to prevent both disability and other serious complications such as lung and heart problems.

There are many different elements which need to be carefully assessed in Rheumatoid arthritis patients to determine the effectiveness of current treatments. In order to streamline this process, a number of composite measurement scores, such as the DAS28, CDAI and SDAI, have been developed and tested by Rheumatologists around the world. These scores are used to assess if patients are in remission, which is the aim, or if they have low, moderate or high disease activity, which informs the treatment plan they need.

These composite scores largely neglect counting sore and swollen joints in the feet. TQEH's team therefore suspected that some patients with Rheumatoid arthritis in the ankles and feet might be falsely assessed as being in remission, and therefore not be given the treatment needed to prevent permanent damage and disability. The study at TQEH was designed to compare the accuracy of the DAS28, CDAI and SDAI to other more stringent criteria for Rheumatoid arthritis disease remission.

"The study found that 20-30% patients classified as being in remission by the DAS28 actually had active arthritis in about four joints in their feet. They weren't getting the right treatment and their arthritis was still having a negative effect on their quality of life," said Dr Maureen Rischmueller, Rheumatology Department Director at The Queen Elizabeth Hospital.



AI/Prof Catherine Hill (left) and Ms Sue Lester were instrumental in a project which has helped inform local and international Rheumatology clinicians that they require a more comprehensive, sensitive tool to properly evaluate Arthritis patients.

"This research is very important because many doctors and Rheumatologists have been confidently using this score thinking they are doing right by their patients, when in actual fact they aren't," said Dr Rischmueller.

This research has informed local and international clinicians that they need to use a more comprehensive, sensitive tool to evaluate their patients.

The teams' important findings and recommendations will lead to improved use of medications to improve patients' quality of life, and help them live happily and healthily for longer.

This story featured on Channel 7 News Adelaide in March 2012, visit our YouTube Channel to view it online.

Preventing Deadly Prostate Cancer Spread



Research being undertaken at the Basil Hetzel Institute by Dr Grant Buchanan and his team is focused ultimately on preventing the deadly spread of prostate cancer.

One in eight Australian men will be diagnosed with prostate cancer within their lifetime and 3000 men in our nation die of the disease each year. In most cases, prostate cancer is only fatal when it spreads to other parts of the body.

"There are a number of problems we have in current prostate cancer diagnosis and management," said Dr Buchanan.

"Ten to fifteen percent of patients who have their prostate removed to cure localised cancer thought to be in the prostate only, actually go on to suffer from metastatic disease because the cancer has already spread before surgery. At the diagnosis stage we aren't currently able to predict or identify cells which have already spread, and we don't understand how this spread occurs."

To find this out, the team is focusing not just on the cancer cells themselves, but on the surrounding 'architecture' of the prostate which they think plays a key role. It may be that the environment the cancer cells find themselves in is equally important as the cells themselves.

"A lot of previous prostate cancer research has focused directly on the cancer cells, which can tell you things like how much and how aggressive a person's cancer is, but by looking at these cells alone you can't tell whether it's progressed or not."

"We think that the architecture is actually a key determinant of whether a patient will ultimately die from cancer because of its ability to either hold the cancer cells in place within the prostate, or act as a vehicle for the cells to move to other areas of the body."

One of the key players in the 'strength' of the architecture is testosterone.

"Men's bodies are bathed with testosterone, and we have found that testosterone is being used to create a sticky matrix environment around the prostate which captures normal and cancerous cells. When there is less testosterone present, this matrix is weakened, therefore allowing cancer cells to escape," he said.

"Our aims are to understand how the architecture of the prostate is maintained, how it breaks down in lethal cancers and ultimately what we can do to stop the process."



Dr Grant Buchanan (centre) and his team are researching how to prevent the deadly spread of Prostate Cancer.

"We want to get to a point where we can tell prostate cancer patients whether their cancer is localised to the prostate, or whether it has already spread or has a chance of spreading. This will inform therapy; we'll know whether they need aggressive metastatic treatment immediately, or for patients where the cancer hasn't spread we can avoid putting them through rigorous treatment if we don't need to."

This work will not only help put patients' minds at rest by giving them more information about their cancer but it will also enable the development of more definitive treatments to prevent metastasis.

"We want to develop better tools to diagnose patients so we can attack the disease earlier. This will ultimately mean less patients reaching the life-threatening stage where their disease has spread."

Cancer Australia awarded the team a significant grant to continue this important work and The Hospital Research Foundation is pleased to support the team at the Basil Hetzel Institute by assisting with funding for vital equipment and other resources used in the research.

This story featured In The Advertiser Newspaper in March 2012 and on Channel 7 News Adelaide in May 2012, visit our YouTube Channel to view it online.

A Courageous Little Boy

In 2012 at age 4 little Angus Bond received his 50th life-saving blood transfusion.

Angus is one of 800 in the world to suffer from a rare bone marrow failure syndrome, Diamond Blackfan Anaemia (DBA) which he was diagnosed with when he was just 8 weeks old. Suffering from this condition means that Angus is not producing enough red blood cells. There is no effective treatment or cure, meaning Angus needs regular blood transfusions to stay alive.

There is no known cure and no effective treatment apart from regular blood transfusions or steroid response. A side-effect of regular transfusions is iron overload, which is deadly. To avoid this, Angus is hooked up to a machine every night while he sleeps which pumps a chelating drug through his body to remove excess iron.

"Every night I have to insert a needle into his leg to deliver this drug which causes side effects such as peripheral hearing and vision impairments. It also impacts his teeth strength and causes stunted growth," says Angus's mum Jess.

With current management options, DBA patients have a life expectancy of 40 years.

"It was extremely hard to find there was no cure and no effective treatment for a disease which was hurting our son and stopping him from living a healthy life. We just had to do something," says Jess.

There was no research on DBA being undertaken in Australia so the Bonds established a foundation to raise funds to get it started. Its name bares a very fitting description of Angus; Captain Courageous.

The Bonds raised enough money to establish a research project at the Hanson Institute in 2010. In 2011, The Hospital Research Foundation awarded \$20,000 to support this important work. The team have now reached a very exciting stage of the project, and received funds through the Channel 7 Children's Research Foundation in 2012.

Dr Sarah Bray is part of a team undertaking current DBA research at the Basil Hetzel Institute and Hanson laboratories, led by Professor Richard D'Andrea.



Diamond Blackfan Anaemia research at the BHI will hopefully provide better treatment options for sufferers like 4-year-old Angus.

"In most patients with this disorder one copy of a ribosomal protein gene isn't working; a healthy person should have two active copies. Red blood cells appear to be especially sensitive to disruption of ribosome function," explains Dr Bray.

"We have now created a cell line model where I am genetically engineering the ribosomal protein to be mutated; so that only 50% is expressed, like in people with DBA."

"Having this model will enable us to look at the affects of this mutation and detect any pathways involved in causing a red blood cell defect or a stress response in the cells. Ultimately, we can try things to reverse that negative process," says Dr Bray.

The Bonds have regular meetings with the research team and recently travelled with Dr Bray to New York where she presented their findings at the Diamond Blackfan Anemia International Consensus Conference.

"The conference delegates were really excited about the research being done here in Adelaide. We have some unique ideas, and the research will provide better understanding of basic biological pathways relevant to a lot of other more common disorders as well," says Dr Bray.

"The research we are supporting through Captain Courageous will provide benefit to a lot of different conditions and that is really important to us," says Jess.

"The work will help provide insights into basic biological processes and better understanding of other more common disorders, like Leukaemia," she said.

In the meantime, the Bonds try to live a normal life; they are happy, positive and inspiring. Angus's big sister Molly, 9 and big brother Ted, 6 are wonderfully supportive.

"Angus is a very brave little soldier. He's grown up saying things like "very brave boy" and "come on blood". Each night, after I inject him, he always says "thank you mummy", which seems crazy because of the pain and discomfort, but he understands," says Jess.

"We are hopeful that through this research his life will not always be filled with nightly drips and monthly, sometimes weekly, visits to hospital. We hope the research will also help many other kids and adults who are suffering from life-altering blood diseases."

You can support the Captain Courageous Foundation directly by visiting www.captaincourageousfoundation.com

Study Reveals Sleep Disorder Putting Australian Men's Health at Risk

A study undertaken by researchers at the Basil Hetzel Institute (BHI) importantly revealed in 2012 that a significant number of men in South Australia are living with the life-threatening disorder Obstructive Sleep Apnoea (OSA) without even knowing.

A survey of 860 men in Adelaide showed 41% of those aged between 40 and 50 had sleep apnoea which had not previously been diagnosed. For those aged over 60 the prevalence of undiagnosed OSA was even greater.

The high incidence of undiagnosed sleep apnoea in the population was a surprise even for senior clinicians and researchers.

OSA sufferers stop breathing multiple times during their sleep. It is a serious health problem with serious health risks for the sufferer who will often experience daytime sleepiness as a direct result of their poor sleep quality.

"Very few of those with sleep apnoea recognised daytime sleepiness as a health problem," said Professor Robert Adams from the Health Observatory at the BHI.

"Poor sleep quality as a result of OSA can impair fine motor skills and cognitive function. It also results in poor quality of life which was reflected in our study results," he said.

Men diagnosed with OSA are also significantly more likely to suffer from diabetes, depression, obesity, hypertension and nocturia (passing urine overnight) when compared to healthy sleepers.

Prof Adams said between 30 to 50% of those diagnosed through the study have commenced CPAP treatment. This involves wearing a device at night that maintains continuous positive airway pressure to stop episodes of apnoea.

Other treatments include specially made mouth guards and surgery in extreme cases.

But Prof Adams says treatment should also address any underlying morbidity which is often obesity; losing weight will break the cycle.

The results of the study, one of the largest community based samples ever under taken, have led to calls for innovative methods to extend screening and diagnosis of OSA in the community and nationwide.

This story featured on Channel 7 News Adelaide in December 2012, visit our YouTube Channel to view it online.

Reducing Cancer Risk for Transplant Patients

Over 5000 people each year in Australia suffer from End Stage Kidney Disease. The only definitive treatment for these people is a kidney transplant, which provides excellent outcomes for patients in the short term. However, their outcomes can be poor compared with the general population in the long-term.

It has been found that many kidney transplant patients who are over 50 eventually suffer from terminal infections, cardiovascular disease and cancer. Screening for these conditions is therefore a high priority for transplant physicians, but unfortunately there is a lack of evidence detailing the best ways to screen patients.

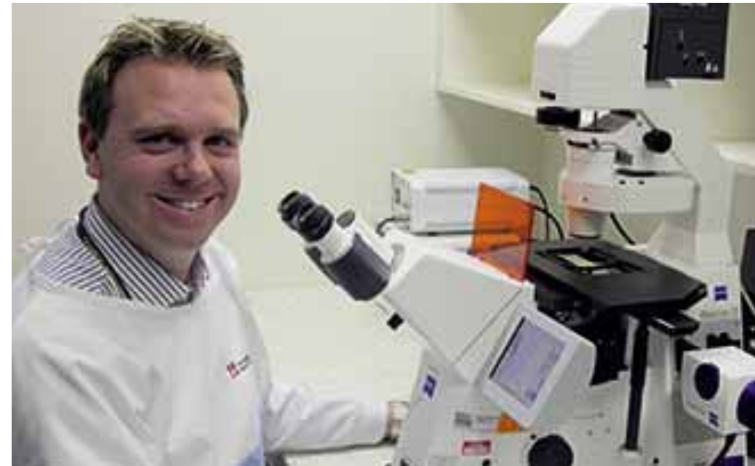
One significant cause of death in kidney transplant patients aged over 50 is bowel cancer. Transplant patients have a two to three-fold risk of developing this disease compared with the general population. Over 14,000 Australians are diagnosed with bowel cancer every year.

In the first study of its kind in the world, researchers at The Basil Hetzel Institute and The Queen Elizabeth Hospital examined whether the standard approach to bowel cancer screening with a faecal blood test is accurate enough in kidney transplants patients who are aged over 50.

"No studies have previously been published on the benefits or harms of screening kidney transplant recipients for bowel cancer," said Nephrologist Dr Michael Collins who led the study.

"Currently, whether kidney transplant patients should be screened with a faecal blood test – similar to that used in the national bowel cancer screening program – is not known. Colonoscopy is another screening option but the safety of this test for transplant patients has not been identified either," he said.

In a project part funded by The Hospital Research Foundation, researchers studied 229 kidney transplant patients aged over 50 from a range of South Australian hospitals. The patients were screened using both faecal blood testing and a colonoscopy to evaluate the effectiveness of each method.



Dr Michael Collins is undertaking research which could potentially help reduce the number of kidney transplant patients suffering from fatal Bowel Cancer.

Researchers found that up to 70% of potential cancers in kidney transplant patients were being missed by the standard screening tool used by most doctors in Australia – the faecal blood test. In addition, one out of every eight screened kidney transplant patients had an early potentially cancerous bowel lesion detected at colonoscopy – a much higher rate than the rest of the population.

In light of the findings researchers are now suggesting that the most appropriate approach to reducing the risk of bowel cancer in kidney transplant recipients is to screen with a colonoscopy.

"We have found that colonoscopy is a safe way to screen these patients and more effective than the faecal blood test at detecting significant lesions which have the potential to develop into bowel cancer," said Dr Collins.

The findings of this study have important implications for the development of guidelines on screening for bowel cancer in kidney transplant recipients. The team is now calling for all kidney transplant patients in Australia to be offered colonoscopies at regular intervals after turning 50.

A research paper on this study was published in the prestigious British Medical Journal (www.bmj.com/research) in July which highlights the importance of the study's findings and the world-class nature of research being conducted right here at The Queen Elizabeth Hospital.

Community Support



One Man's Dream into Research Reality

The Cancer Biology Group at the BHI received an unexpected and extremely generous show of community support in 2012 with \$27,000 being donated by the Brian and Maxine Newell Prostate Cancer Foundation.

This offering marked their final donation to prostate cancer research since forming their Foundation over 10 years ago.

Two years after being diagnosed with terminal prostate cancer, Brian Newell and his wife Maxine travelled along the Oodnadatta Track in South Australia, following the "Old Ghan" railway line for several hundred kilometres. Inspired by the landscape and history of the railway, Brian created a Photographic Essay Book featuring over 200 stunning images of the Australian outback.

Since his passing, Brian and Maxine's friends have been working to achieve Brian's dream of making an enduring contribution to the fight against prostate cancer.

"On the 10th anniversary of Brian's book we took a trip to relive the steps Brian and Maxine took when shooting images for the book. Fifty six people joined us and we raised nearly \$20,000," said Newell Foundation Chairman Terry Crabb.

"I made a promise to Brian before he died that we would sell all of his books and that the money we raised would go exactly where he wanted it; to prostate cancer research. Now I can proudly say it's mission accomplished," he said.

Professor Grant Buchanan, head of the Cancer Biology Group at the BHI is delighted that his research team will be the final benefactor of the Newell Foundation.

"This money will enable the purchase of a Bioruptor NGS Sonicator; an instrument which has an unprecedented capacity to simultaneously shear multiple DNA samples under controlled and exceptionally accurate conditions. This machine is so vital to our work and will dramatically increase efficiency, allowing us to use far fewer important prostate cancer samples," said Dr Buchanan.

"We are so grateful for the generosity of the Brian and Maxine Newell Prostate Cancer Foundation for sharing our vision and providing this outstanding level of commitment and support."

City-Bay Fun Runners for Research



Thank you to everyone who ran in the Sunday Mail City-Bay Fun Run in 2012 raising vital funds for The Hospital Research Foundation.

Among the fundraisers was Leigh Hodson, who works at the Basil Hetzel Institute, and her team of 6 who took on the 12km route. As a team they raised a fantastic \$1010.

Leigh said that working in the field of medical research means she understands how much is still to be learnt in order to prevent and treat disease as well as improve patient care.

"On a daily basis I deal with the costs of running research projects and it still amazes me how expensive it is," she said.

"I chose to raise funds for THRF because since moving to the BHI I have seen firsthand how much THRF does for medical research here in Adelaide. I couldn't think of a better cause to support than one that does so much here in our home state."

Thank you again to Leigh, her team and everyone else who ran or walked in the 2012 event.



Head of the Cancer Biology Group Dr Buchanan (right) was delighted to receive a generous \$27,000 cheque from the Newell Foundation in May 2012.

Older Patients to Benefit from Lions Gift

The Geriatric Evaluation and Management Unit (GEMU) at The Queen Elizabeth Hospital received a stylish and much needed facelift all thanks to a generous donation from the Lions Club of West Lakes Seaton in 2012.



West Lakes Lions Club Vice President Hellen Riley presents a donation of \$11,700 to Rose Pallaro from TQEH & THRF CEO Paul Flynn.

The local Lions Club assisted by the Australian Lions Foundation has presented \$11,700 to the Unit to assist in the refurbishment of the patient day room.

GEMU Clinical Services Coordinator Stephen Hoskins said "This will make our facility an exciting place for patients to dine communally and provide an appropriate and aged-friendly environment in which they can undertake various therapies and general relaxation."

Lions Club Vice President Hellen Riley said "Once we heard about the Unit and the services it offered we were keen to lend our support."

"We were also very well supported by the Australian Lions Foundation who considered our request and kindly matched our donations," Hellen said.

The GEMU has its own dedicated volunteer service and the refurbished day room will offer many more opportunities for older people who often find the experience of being in hospital quite isolating.

Plans are underway to incorporate age-friendly furniture into the space along with a large screen TV and DVD player as well as a well stocked library with large print books.

Central to the redevelopment is a large communal-style dining table and comfortable chairs.

"Malnutrition is common in the older person and the act of communal eating not only improves people's appetites it also encourages social engagement," Stephen said.

The GEMU is a relatively new model of care in South Australia and is aimed at providing the older person with a comprehensive geriatric assessment and treatment by a multidisciplinary team. The goal is to return the older person home with optimal health and independence.

"We would like to thank the Lions Club of West Lakes Seaton as well as the Australian Lions Foundation for the generous support of this wonderful refurbishment," Stephen said.

Sweets & Songs Support Research

The tireless and generous Alex Vakitsidis and her hardworking group of friends: The Olympic Spirit Greek Friends, donated a magnificent \$8526.10 to the Haematology- Oncology Department at The Queen Elizabeth Hospital in 2012.

\$7391.90 was raised through their Christmas Caroling in December 2011 and a cake stall filled with delicious Greek goodies in January 2012 contributed over \$1130.



Alex Vakitsidis with some of the Olympic Spirit Greek Friends at their successful cake stall held at TQEH in January 2012.

Alex and her group have been supporting medical research, in particular cancer research, through The Hospital Research Foundation for over 11 years. In this time they have raised over \$66,400! Sadly losing a close friend to cancer inspired their initial and continuous support.

"This is an outstanding contribution to South Australian medical research made by a wonderfully dedicated group- we are so lucky and thankful to have their support," said THRF CEO Paul Flynn.

Community backs Vital Cancer Research



Delicious Greek food and traditional Greek dancing were on show at the annual Cancer Support Dinner Dance in 2012 hosted by valued supporters of The Hospital Research Foundation, Maria and Chris Giannoudis. This annual event held at the Krystal Function Centre in March raised over \$20,170 by 240 guests.

Combined with previous efforts, the 2012 dinner dance funds enable Maria, Chris and their generous supporters to solely finance the purchase of a crucial piece of research equipment; a Biorad CFX 96 Real Time PCR machine worth \$42,000, which will assist in vital cancer research.

With this extremely generous purchase accomplished, Maria and Chris now have their eyes set firmly on future support for other areas of cancer research.

"In the years ahead, we look forward to supporting the work of Professor Andreas Evdokiou and his breast cancer research team," said Maria.

"Maria and Chris have been kind benefactors of THRF since 1993; their tireless and generous support is admirable and very much appreciated," said THRF CEO Paul Flynn.



(L-R) Angela Gardner & Paul Flynn from The Hospital Research Foundation and Maria Giannoudis with Margareta Evdokiou & Professor Andreas Evdokiou.

Research Equipment for the Basil Hetzel Institute

Making Research Happen

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 assist in providing the tools and equipment they need to deliver improved treatments and patient care to our community.

In 2012, The Hospital Research Foundation contributed over \$245,000 to the purchase of vital research equipment for the research teams at the BHI.

Nucelofector 4D

This piece of equipment helps researchers manipulate gene expression in particular cells of interest. Being able to turn gene expression on and off is fundamental to achieving a better understanding of physiological and disease processes as diverse as asthma, emphysema, diabetes and cancer.

Violet Laser/ FACSanto

The FACSanto allows researchers to count highly specific cell populations based on their gene and protein expression. The violet laser increases the capability of the FACSanto, and allows researchers to identify more sophisticated cell populations based on multiple expression profiles. For example the laser allows researchers to distinguish between different white blood cell populations of the immune system, such as in the work of the Breast Cancer and Biology Group. New evidence suggests regulatory T cells are present in breast tissue and respond to the female hormones estrogen and progesterone. It is thought the regulatory T cells dampen down the immune environment in breast tissue which permits early cancer to avoid immune detection and destruction.

Minus 80 Freezers and Centrifuges

These items of equipment are known to be the vital 'work horses' in any medical research laboratory. Ultra cold freezers are used to store precious patient samples and reagents for long-term storage. Centrifuges are used to separate various fractions during many experimental processes such as separating cells from plasma in the blood, separating the nucleus from cell cytoplasm and even the DNA, mRNA and proteins within the cell.

PC2 Upgrade

\$150,000 has been earmarked to modernise and increase the capacity of pre-clinical animal model experiments. This work is primarily carried out by researchers involved in vaccine development and breast cancer researchers who, for example, investigate cellular changes occurring during breast cancer development and metastasis using a specialised model organism. Access to pre-clinical disease animal models contributes significantly to the breadth of translational medical research collaborations with clinicians at The Queen Elizabeth Hospital.

Events

Mum's the Word for Breast Cancer Research

Generations of mothers, daughters, fathers and sons enjoyed our elegant Mother's Day High Tea held at the InterContinental Hotel on Saturday the 12th of May, 2012.

Almost 100 guests were treated to a delicious menu of savoury and sweet treats, along with Peter Lehmann sparkling wine and speciality teas of the world. In the background, a grand piano provided the perfect atmosphere for a relaxing afternoon spent with family and friends.



Generations of mothers and daughters celebrated Mother's Day together at our High Tea.

An outstanding \$52,533 was raised for breast cancer research through ticket and raffle sales, as well as an incredibly generous personal donation. Guests also heard from The Hospital Research Foundation Breast Cancer Fellow A/Prof Wendy Ingman who gave an informative talk on her breast cancer prevention research being undertaken at The Queen Elizabeth Hospital.

We are extremely grateful to all event sponsors; Charlesworth Nuts, Edible Blooms, Simone Perele, Zhav International Pty Ltd, Belly Dance Arabesque, Lulu's Cupcakes, Janesce and Peter Lehmann, with an extra special thank you to our major sponsor, the InterContinental Adelaide.

"I heard about the Mother's Day High Tea and really wanted to bring my mum – not only to treat her, but she has survived breast cancer and we both strongly support research into the disease," said guest Karen.

"I knew she would want to come to hear about the very latest research and to show her support, and it really was a wonderful way to do so at such a nice event. We look forward to coming to the next one!" she said.

Basil Hetzel Society Thank You Luncheon

The Kooyonga Golf Club in Lockleys once again provided the perfect location for our annual Basil Hetzel Society Luncheon in October 2012.

Over 90 of our valued Life Guardian supporters joined us for a delicious lunch, as a thank you for their generous legacy to support medical research at the Basil Hetzel Institute.

During the lunch, guests enjoyed a fascinating presentation from the Head of the Cancer Biology Group at the Basil Hetzel Institute, Dr Grant Buchanan.

For many, it was also an opportunity to spend quality time with friends made through years of joint association with The Hospital Research Foundation.

We would like to thank everyone who joined us for the lunch and for their continued and generous support of vital medical research in South Australia.



(L-R) Alan & Carol Lightfoot, Elizabeth Hipkiss, Ann Cleaver and Briant Hipkiss.



Gordon and Margaret Helgeson.

Boobie Bingo is a Blast!



The pink themed ballroom at the InterContinental looked dazzling and provided the perfect venue for the second Australian Breast Cancer Research Boobie Bingo event. More than 160 guests attended in support of vital breast cancer research at The Queen Elizabeth Hospital and the Basil Hetzel Institute for Translational Health Research (BHI).



Boobie Bingo MC's Jodie and Snowy from radio station Mix 102.3.

Our champion Bingo callers Jodie Oddy and Jason 'Snowy' Carter from MIX 102.3 were on hand again in 2012 to add some special colour and creativity to the event, and crown our lucky Bingo Kings and Queens.

Amongst the 10 rounds of competitive bingo, guests were also treated to a 'games arcade' featuring a photo booth, lucky envelopes, hoopla, guessing games and the fully interactive 'boobs' and 'butts' games!

Special guest presenters, BHI breast cancer researchers Dr Pallave Dasari and Irene Zinonos, provided valuable insights into the work they are undertaking in the vital areas of breast cancer prevention and metastatic disease.

A sumptuous supper was served throughout the event but was just pipped at the post by one of the most spectacular pink dessert buffets ever created. A virtual festival of sweet delicacies managed to captivate the crowd and had the proud chefs taking photos of their own handiwork.

As always, events like Boobie Bingo would not be possible without the incredible support of our major sponsors– a big thank you to SO Asher, IP Partners, The Advertiser and venue sponsor InterContinental Adelaide. The night of fun and games proved to be a winner with more than \$19,000 raised.



The Boobie Bingo SO Asher PhotoBooth was a hit with guests.

A Record Year for Dry July



For the fourth consecutive year The Hospital Research Foundation was the proud beneficiary of the nationwide fundraising program Dry July.



More than 1,000 inspiring South Australians signed up for Dry July, challenging themselves to a month of sobriety and raising a record amount of over \$172,000 in South Australia.

Funds raised from their month long efforts will not only go towards improving the comfort and care of patients with cancer at The Queen Elizabeth Hospital, but for the first time since becoming the Dry July beneficiary in 2009, The Hospital Research Foundation expanded the campaign into three regional centres where cancer services are provided. We thank the communities of Port Lincoln, Whyalla and Mount Gambier for taking on the Dry July challenge to support cancer care in their local hospitals.

For some, the quest to bin the gin and go dry to help others living with cancer was an intensely personal and heartfelt decision. Bindi Simpson and Michelle Manuel both faced a recent cancer diagnosis and treatment at TQEH, but provided their respective Dry July teams with the right incentive to help push the SA total to a record level. We thank them for their tremendous generosity, spirit and commitment to ensure team SA's success.

Adelaide United pocket rocket and THRF Ambassador Cassio lent his support to the campaign, along with 891 ABC Adelaide presenter Ian Henschke, Channel 10 Adelaide, Hayley Pearson from SAFM and Maz Compton from Nova 919.



Adelaide United's Cassio takes a seat in one of the new TQEH cancer treatment chairs purchased with funds raised through Dry July.

Congratulations to all SA Dry Julyers and those who generously supported and donated funds to help improve cancer patient comfort and care in our hospitals.

Nationally, the campaign attracted more than 15,000 Dry Julyers who brought in over \$3.7M for the 20 beneficiary hospitals located across every state and territory in Australia and for the first time in New Zealand.



Some of 2012's brave Dry Julyers celebrate the \$172,939 they helped raise for cancer patient comfort and care with Dry July Co-Founder Phil Grove and THRF CEO Paul Flynn.

SuperCycle for a Super Cause



The Hospital Research Foundation proudly came on board as the new charity partner for cycling event Rabobank SuperCycle in 2012.

SuperCycle was born from a group of colleagues in the South Australia Superannuation Industry with a goal of developing an exciting and challenging event to raise money to help people living with cancer, a cause that is close to the hearts of all involved. The challenge is a seven-day 1000km cycling tour through some of the most picturesque regions of South Australia.

With the success of the inaugural Rabobank SuperCycle event in April 2012, The Hospital Research Foundation was thrilled to be the beneficiary for the second SuperCycle in 2013. SuperCyclists are raising vital funds to build family accommodation close The Queen Elizabeth Hospital for country patients to stay in while undergoing cancer treatments in Adelaide.

SuperCycle Founder and Chairman Mark Day has a strong connection to the cancer cause, sadly losing his sister to a brain tumour and his mother to leukaemia.

"Both my mum and my sister fortunately lived in the city and accommodation during treatment was not an issue. However, for those living outside the city it's a very different matter; not only do they have to endure weeks or months of treatment

whilst fighting cancer, they have to leave friends and family in the process and try to find somewhere to stay, close to their hospital."

TQEH is a major cancer treatment facility in South Australia, housing the largest breast cancer clinic in the state. Hundreds of rural cancer patients visit TQEH every year for specialised cancer treatment.

The Hospital Research Foundation CEO Paul Flynn said teaming up with SuperCycle fitted perfectly with THRF's commitment to supporting families living with cancer in SA.

"Funding for cancer research represents a large portion of our commitment to medical research every year, and helping cancer patients by providing exceptional care and convenient and comfortable accommodation is a significant part of that," said Mr Flynn.

Mr Day describes Rabobank SuperCycle as a classic win, win and win.

"As riders we get an opportunity to tackle a challenging ride through some of Australia's most scenic outback, we get fitter and healthier in the process and as a result of our efforts, we'll be helping those less fortunate and hopefully providing a slightly easier path in their battle with cancer."

Visit supercycle.org.au for more information.



(L-R) SuperCycle Chairman Mark Day, Dawn Garrett, Ashleigh Day and John MacPhail helped celebrate the launch of Rabobank SuperCycle at Channel 9 Adelaide in November.

Corporate Breakfasts

2012 saw the launch of our Corporate Research Breakfast series aimed at informing Adelaide business people on the variety of vital medical research happening right on their doorstep.

We hosted six Corporate Breakfasts throughout the year featuring special presentations from researchers at The Queen Elizabeth Hospital who are at the forefront of their research fields including Diabetes, Cancer, Virology, Surgery, Leukaemia and Ear, Nose and Throat.

Shane Farley from the Adelaide Football Club who attended Professor Toby Coates presentation on Type-1 Diabetes found the presentation incredibly interesting, particularly as his mother-in-law has suffered with type-1 diabetes for almost 40 years, as well as his sister.

"Diabetes has significantly impacted their lives, so hearing about the possibility of a successful alternative treatment and perhaps even a cure for people suffering like them is very exciting," he said.

"The fact that this research is going on right here in South Australia is just fantastic."

Thanks to our venue sponsors who hosted the breakfasts; CMI Toyota who hosted three, Finlaysons, Channel 7 Adelaide and Channel 9 Adelaide.



Professor Toby Coates enlightens Corporate Breakfast guests with his interesting research in February.

Increasing Community Awareness



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.

As part of our Community Awareness Program we have been happy to host a number of community groups at the BHI for informative research presentations and tours. Groups such as Lions, Rotary and Probus visit the BHI to hear an interesting presentation given by one of the researchers on their area of expertise, and then are treated to a tour of the outstanding Research Institute- including the labs.



Researchers and clinicians at the BHI & TQEH visited 13 community groups in 2012 to share their fascinating research as part of THRF's Community Awareness Program.

We also run a program which gives community groups the opportunity to have a researcher attend their club and give a presentation on their chosen area of research – in 2012, thirteen community groups had the pleasure of a visit and a special presentation. Our researchers are passionate about sharing their knowledge, projects and goals with the wider community, and these presentations are a fantastic way of achieving this.

If you would like to book a tour of the BHI for your group or book a researcher to visit your club, please visit www.hospitalresearch.com.au/events/ for more information.

Hospital 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. Each lottery campaign offers an enviable 1 in 20 chance of winning and a wide range of tempting prizes to keep each new campaign fresh and exciting.

One of the most exciting innovations in 2012 was the Holiday for Life Lottery. For just an extra \$10, Home Lottery purchasers can now win a holiday every year for the next 25 years or \$100,000 cash immediately.

Our first HHL winners for 2012 were long-term lottery supporters Patricia and Peter from Salisbury, who were ecstatic about their win. The couple has now taken up residence in their spacious \$1.5M Grand Prize Showhome at Blackwood Park and say they love every minute of their wonderful new lifestyle.

Richard from Lucindale was the second major lottery winner in 2012 and was simply overwhelmed by the news of his \$1.5M windfall.

"I grew up in a family that always bought tickets to support the Hospital Home Lottery so I just kept buying my own, but I never expected to win anything quite like this," said Richard.



We hope you were amongst our many winning ticket buyers and thank you once again for your on-going support. We look forward to launching our incredible 2013 program and celebrating the Hospital Home Lottery's 10 year anniversary with you all.



Twenty six year-old Richard was simply ecstatic to win the \$1.5 million Scott Salisbury Grandprize Showhome in the second 2012 Hospital Home Lottery.

Corporate Support



Banking on BankSA Support

The Hospital Research Foundation received a generous cheque for \$5,000 from the BankSA and Staff Charitable Fund in October 2012.

The BankSA and Staff Charitable Fund began by sending "comfort parcels" to staff members serving in the Middle East during World War II and has continued donating to a wide range of charities ever since.

Chairperson of the Fund Tara Glennie said staff members made voluntary contributions to the fund by donating a percentage of their salary.

"It is important for BankSA staff to see what a difference they can make in their local community and donating to worthy causes like The Hospital Research Foundation is just one way they can have an impact," said Ms Glennie.

Since 1990, BankSA has donated over \$109,000 to The Hospital Research Foundation.

"BankSA's regular support for medical research at The Queen Elizabeth Hospital and Basil Hetzel Institute demonstrates a wonderful commitment to help improve the health and wellbeing of the community and we are extremely grateful for their support," said THRF CEO Paul Flynn.



BankSA has been generously supporting The Hospital Research Foundation for over 10 years.

Drakes Supermarkets Showbag Support

Drakes Supermarkets contributed \$18,604.75 to medical research in 2012, raised through the sales of the 2011 Drakes Charity Showbag.

Drakes Supermarkets have been a supporter of The Hospital Research Foundation for over 13 years; each year THRF gratefully receives part proceeds from the sale of Showbags sold at \$4.99 in Drakes Supermarket stores.



THRF CEO Paul Flynn gratefully accepts a \$18,604 cheque from Drake Supermarkets CEO Roger Drake, raised through the 2011 Drake Charity Showbag.

Thank you to Drakes Supermarkets and purchasers of the Charity Showbags. Remember to keep their generous support in mind when choosing where to do your weekly food shopping!

Scott Salisbury Homes makes a Generous Donation

In 2012, The Hospital Research Foundation's long and proud partnership with Scott Salisbury Homes, one of South Australia's most awarded building companies, was marked with a very personal gesture from company owner Scott Salisbury at the launch of the Home Lottery.

After presenting the keys to the 13th lottery Grand Prize Showhome, Scott Salisbury surprised Foundation CEO Paul Flynn with a cheque for \$10,000, a personal donation to boost vital health and medical research in SA at the Basil Hetzel Institute and The Queen Elizabeth Hospital.

In accepting the cheque, Paul said "we are most grateful to Scott and his team for their continued support and for producing outstanding custom designed, built and decorated residences that continually delight our lottery supporters."

"This is not only a most generous gesture but it is testament to a strong and enduring relationship that is also helping to save lives in our community," he said.

"We are very proud of our association with The Hospital Research Foundation and the great work that it does. It is a pleasure to make a further contribution towards their efforts," Scott replied.



The first Hospital Home Lottery for 2012 launched with a generous personal donation of \$10,000 from Scott Salisbury; a testament to the strong relationship between THRF and the esteemed builder.

American Chamber of Commerce



The Hospital Research Foundation (THRF) has enjoyed a strong relationship with the American Chamber of Commerce (SA) over many years. In 2012, as the charity of choice, THRF was the beneficiary of the AMCHAM Business Lunch Series.

The ever-popular lunch series provides the Foundation with a unique opportunity to engage with South Australia's corporate community and in turn provide them with insight into the life-saving health and medical research being undertaken at the Basil Hetzel Institute.

The Foundation raised over \$18,800 in 2012 through the lunch series from sales of donated auction and raffle items.

Local Pharmacists Support local Research

The Hospital Research Foundation was grateful to be the charity of choice for the Seaton Pharmacy Open Day in 2012.

On the day, visitors were offered free health checks including blood pressure testing and Diabetes health checks, free oxygen and Asthma inhaler demonstrations and Swisse Vitamin samples.

With the help of the THRF Events team the pharmacists braved the winter weather and cooked a yummy sausage sizzle lunch with all proceeds going to The Hospital Research Foundation.

"We are very happy to be able to support The Hospital Research Foundation with our Open Day; it was a fun way to benefit our customers while supporting very important local medical research," said Pharmacist Proprietor Leh Teng.



Angela from THRF mans the BBQ at the Seaton Pharmacy Open Day which raised \$325 for medical research.

Ways you can help



Bequests - Life Guardian Program

Our Life Guardian Program is a wonderful way people can leave a lasting legacy to research by making a gift in their Will. Our Bequest program provides a strong base for the support of world-class medical research in South Australia well into the future.

THRF Life Guardians who intend to leave gifts of \$10,000 or more to support medical research in their Wills become part of The Basil Hetzel Society which was developed to acknowledge these very special contributors.

Online Donations

Online donations can be made simply and securely by visiting the THRF website www.hospitalresearch.com.au and choosing the required donation options. The website gives you many ways to donate, whether it is a Once Off donation, an In Memoriam gift or if you would like to make on-going contributions through our Community of Care program.

It is important that our supporters know how vital funds are being used. The website is focused on detailing the many different research departments, diseases and illnesses that our supporters are assisting, as well as the many research advancements that are only made possible with their generous and committed support.

Keeping in Contact

One of the many ways we keep in contact with our valued supporters is through mail. We understand that our donors like to hear about how their donations are being spent and our mail campaigns are one way we communicate the many research advancements made possible with their support. If you are further inspired by the research detailed in these letters, we give you the opportunity to continue your support by posting back the attached donation slip, or direct you to donate online via our website.

We also like to keep in contact with supporters and potential donors by phone. It is an easy and effective way to spread the word about the life-changing research being conducted at the BHI and many people in the community have been inspired in this way to support the endeavours of the researchers and scientists at The Institute. A highly effective part of this process is our Key Medallion Program which not only supports vital medical research, but provides a valuable key safety service to members of the Program. We offer membership to our Key Medallion Program as a thank you to those supporters who donate \$50 or more.

Regular Giving - Community of Care

Donors wishing to provide ongoing support to ensure the long term success of life-changing medical research projects can become Regular Givers through our Community of Care program. Regular Donations can be easily set up via the website or by mail on a monthly, quarterly, half-yearly or yearly basis. We have many regular givers who want to make a difference to peoples' lives with recurring donations.

Bringing Research News to You

The Foundation is delighted to be able to share the many health and medical research advancements and achievements at the Basil Hetzel Institute made possible through on-going community support. It is these advancements that return benefit to the community through improvements in medical treatments and patient care.

To reach the widest possible audience with the latest research news we have forged solid relationships with local and regional television, radio and newspaper outlets. These relationships ensure the delivery of research developments that impact and improve our everyday lives. We also regularly post media stories on our website www.hospitalresearch.com.au.

Highlights and updates are also recorded in our quarterly newsletters; available in both print and electronic formats. If you would like to receive a copy of our e-Newsletter directly into your inbox, you can subscribe online via our website, or if you would like to receive a printed copy to your mailbox, please call us on (08)8244 1100.

We also enjoy a very active social media presence across a variety of platforms including Facebook, Twitter, YouTube and Linked In.

Please join the conversation and 'Like' our Facebook page, 'Follow' us on Twitter, and watch our latest media stories and more on our YouTube channel. Don't forget to subscribe to our channel while you are there and share with your friends.

<http://www.facebook.com/thehospitalresearchfoundation>

http://twitter.com/hosp_research

<http://www.youtube.com/hospitalresearch>





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finding cures improving care

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