# Critical Care and Clinical Support Services



Assoc. Prof. Marianne Vonau **Acting Executive Director** Critical Care and Clinical Support Services



Kerri McLeod **Nursing Director** Critical Care and Clinical **Support Services** 

### Overview

Critical Care and Clinical Support Services undertakes critical research, including clinical trial and laboratory research.

We have a commitment to undergraduate and postgraduate teaching and research and have developed strong links with The University of Queensland (UQ) and Queensland University of Technology (QUT).

Critical Care and Clinical Support Services actively participates in nursing evidence-based practice activities and undertakes nursing research. The nursing staff of the service line are currently involved in a number of nursing research projects, including multidisciplinary research activities.

The staff of our service line consistently and critically analyse patients to ensure that effective and evidence-based practices are provided to all of our patients.

### Key departments

- » Admissions and Trust Office
- » Call Centre
- » Centralised Specialist Outpatient Services
- » Department of Emergency Medicine
- Department of Intensive Care Medicine
- » Herston Multimedia Unit
- » Hyperbaric Medicine Service
- » Private Practice Specialist Suite
- » Professor Tess Cramond Multidisciplinary Pain Centre

### Executive and directing staff

### Assoc. Prof. Marianne Vonau

Acting Executive Director, Critical Care and Clinical Support Services

### Kerri McLeod

Nursing Director, Critical Care and Clinical Support Services

### Prof. Alan O'Connor

Director, Emergency Medicine

#### **Dr Robert Webb**

Director, Hyperbaric Medicine

**Prof. Jeffrey Lipman**Director, Intensive Care Medicine

#### Prof. Julia Fleming

Director, Professor Tess Cramond Multidisciplinary Pain Centre

# Department of Emergency Medicine



**Prof. Alan O'Connor**Director, Emergency Medicine

### Overview

The Department of Emergency Medicine at RBWH has a diverse research programme. Research strengths include acute coronary syndrome, sepsis, trauma, patient flow and care of the elderly patient.

Research staff include one part-time Research Director, one full-time post-doctoral Research Officer, one half-time Research Fellow, three PhD candidates, two honours students and an expanding group of dedicated research nurses.

In 2012, the research team continued its success in publishing in high quality journals such as Annals of Emergency Medicine and the Journal of the American College of Cardiology.

The department has active research collaborations with The University of Queensland's Burns, Trauma and Critical Care Research Centre (BTCCRC), the School of Public Health at Queensland University of Technology (QUT), RBWH Departments of Cardiology and Intensive Care Medicine and Pathology Queensland.

### Research staff

Name	Qualifications	Position	Interests/specialties
Prof. Alan O'Connor	MBChB, MPH MHM FRACMA FACEM	Director, Emergency Medicine	medicial administration
Dr William Lukin	MBBS, FACEM	Deputy Director, Emergency Medicine	trauma, Hospital in the Nursing Home
Assoc. Prof. Kevin Chu	MBBS, MS, FACEM	Director, Emergency Medicine Research	diagnostic tests, research methodology
Assoc. Prof. Victoria Brazil	MBBS, MBA, FACEM	Staff Specialist	medical education
Prof. Anthony Brown	MBChB, FRCP, FRCS (ED), FACEM, FCEM	Chair, Emergency Medicine	medical editing, medical education acute coronary syndrome
Dr Catherine Hurn	MBBS, FACEM	Senior Staff Specialist	trauma, massive transfusion, TEG
Dr Philip Richardson	MBChB, LLB, FACEM	Staff Specialist	end-of-life issues, medical errors
Dr Louise Cullen	MBBS, FACEM	Staff Specialist	acute coronary syndrome
Dr Julian Williams	MBBS, FACEM	Staff Specialist	sepsis, ARISE trial (Queensland state coordinator)
Dr Peter Logan	MbCHB, FACEM	Staff Specialist	soft tissue infections
Assoc. Prof. Jaimi Greenslade	BPsych (Hons), PhD	Research Fellow	psychology, statistics
Tracey Hawkins	BN, GradDipNursing (CritCare and Emerg)	Clinical Nurse (Research)	acute coronary syndrome
Nicole Larcombe	BN	Clinical Nurse (Research)	sepsis
Bronwyn Thomas	BN, BAppSci, BHealthSci, MPH	Clinical Nurse (Research)	sepsis
Dr Jessica Schluter	BN, PhD	Clinical Nurse (Research)	acute coronary syndrome
Shanen O'Kane	BN, GradDip Nursing	Clinical Nurse (Research)	acute coronary syndrome
Dr Shane Martin	BSc, MBBS	Research Registrar	
Carol Readman	DipHe Nursing Studies	Clinical Nurse Consultant	nursing research
Sally Jones	BN, Grad Cert (Oncology)	Assistant Nursing Director	nursing research

### Supervised post-graduate students

Name	Current studies	Research topic
Cullen, L.	PhD	Acute coronary syndrome
Greenslade, J.	MS (Statistics)	Statistics
Lukin, W.	PhD	Hospital in the Nursing Home (HINH)
Williams, J.	PhD	Sepsis
Flaws, D.	Masters (Research)	Acute coronary syndrome

### Awards and achievements

Award	Event	Name
Best Innovation Poster	2012 RBWH Healthcare Symposium	Cullen, L.
Best Abstract Presentation	2012 RBWH Healthcare Symposium	Bilesky, J.
Best Research Abstract Presentation	Sim Health 2012	Brazil, V.

### Research grants

Investigators	Research title	Granting body	Amount awarded	Years of funding
Cullen, L.	Noel Stephenson Research Fellowship	Queensland Emergency Medicine Research Foundation (QEMRF)	\$225,000	2012-2014
Cullen, L., Than, M., Parsonage, W., Greenslade, J.	Early hs-TnI for rapid risk stratification of chest pain patients presenting to the emergency department	Abbott Diagnostics	\$92,237	2012-2013
Cullen L., Parsonage, W., Greenslade, J.	Two-hour diagnsotic algorithm for high-senstivity cardiac Troponin T in pateints with suspected acute myocaridal infarction: An international derivation and validation study	Roche	\$29,407	2012-2013
Cullen L., Parsonage, W., Greenslade, J.	Investigation of faster triage of chest pain patients using Siemens dimension EXL Tnl	Siemens	\$15,000	2012-2013
Williams, J., Greenslade, J., Brown, S., Stone, S., Lukin, B.	The crystalloid versus albumin in the resuscitation of emergency department patients with septic shock (CARESS) trial inflammatory marker pilot study	QEMRF	\$41,270	2012-2013
Martin, S., Chu, K., Greenslade, J.	Single palmar injection versus double injection dorsal digital nerve block for finger injuries in the emergency department: A randomised clinical trial	QEMRF	\$8,712	2012-2013

### **Publications**

Aldous SJ, Richards M, Cullen L, et al. Diagnostic and prognostic utility of early measurement with high-sensitivity troponin T assay in patients presenting with chest pain. Canadian Medical Association Journal. 2012;184(5):260-268.

Aldous SJ, Richards AM, Cullen L, Than MP. High-sensitivity cardiac troponin assays: Change is important. Clinical Chemistry. 2012;57: 1154-1160.

Aldous SJ, Richards AM, Cullen L, Than MP. Use of early dynamic change in high sensitivity cardiac troponin T in the investigation for acute myocardial infarction in the emergency department. Clinical Chemisty. 2012;57(8);1154-1160.

Aldous SJ, Richards AM, Cullen L, Than MP. A new accelerated protocol may allow early discharge of low risk patients presenting to the Emergency Department with chest pain. Academic Emergency Medicine. 2012;19(5):510-516.

Aldous SJ, Richards AM, Cullen L, Than MP. Letters to the Editor: In Reply Clinical Chemistry. 2012;58:313-314.

Aldous SJ, Richards M, Cullen L, Troughton R, Than M. A two-hour thrombolysis in myocardial infarction score outperforms other risk stratification tools in patients presenting with possible acute coronary syndromes: Comparison of chest pain risk stratification tools. American Heart Journal. 2012;164(4):516-23.

Brazil V, Grobler C, Greenslade J, Burke J. Comparison of intubation performance by junior emergency department doctors using gum elastic bougie versus stylet reinforced endotracheal tube insertion techniques. Emergency Medicine Australasia. 2012;24:194-200.

Cullen L, Parsonage WA, Greenslade J, Lamanna A, Hammett CJ, Than M, Ungerer JPJ, Chu K, O'Kane S, Brown AFT. Comparison of early biomarker strategies with the heart foundation of Australia/Cardiac Society of Australia and New Zealand guidelines for risk stratification of ED patients with chest pain. Emergency Medicine Australasia. 2012;24:595-603.

Greenslade J, Cullen L, Parsonage W, Reid CM, Body R, Richards M, Hawkins T, Lim SH, Than M. Examining the signs and symptoms experienced by individuals with suspected Acute Coronary Syndrome in the Asia-Pacific region: A prospective observational study. Annals of Emergency Medicine. 2012;60:777-785.

Hou X-Y, Zhao J, Chu K. Impact of a government triple zero awareness campaign on emergency department patient characteristics. Emergency Medicine Australasia. 2012;24:393-400.

Lukin W, Douglas C, O'Connor A. Palliative care in the emergency department: an oxymoron or just good medicine? Emergency Medicine Australasia. 2012;24(1);102-104.

Scott, I, Cullen L, Tate, J and Parsonage, W. Highly sensitive troponin assays: A two-edged sword? Medical Journal of Australia. 2012;197 (6):320-323.

Than M, Cullen L, Aldous S, Parsonage WA, Reid CM, Greenslade J, Flaws D, Hammett CJ, Beam DM Ardagh MW, Troughton R, Brown AFT, George P, Kline JA, Peacock F, Maisel AS, Richards M. A two-hour accelerated diagnostic protocol to assess patients with chest pain symptoms using contemporary Troponins as the only biomarker (ADAPT). Journal of the American College of Cardiology. 2012;59(23):2091-2098.

# Department of Intensive Care Medicine



Prof. Jeffrey Lipman Director, Intensive Care Medicine

### Overview

Once again, the Department of Intensive Care Medicine has had a hugely successful year. We have published 78 peer-reviewed articles, including articles in the New England Journal of Medicine, Lancet, British Medical Journal, American Journal of Respiratory and Critical Care Medicine, Clinical Infectious Diseases, Critical Care Medicine, Intensive Care Medicine and Critical Care.

We have also been very successful in our grant applications. Five of these were NHMRC Project Grants. Professor Michael Reade is on two of the project grants as well as being part of a successful NHMRC Centre for Clinical Research Excellence. Dr Anthony Holley is also an investigator on this latter project, so congratulations to both.

Others who were successful in this year's NHMRC granting process were Dr Jenny Paratz (project grant), Dr John Gowardman (project grant) and Dr Jason Roberts (project grant, plus a four-year career development fellowship).

We now managerially run five multi-centred trials. An important feature of this process has been to use new technology. Our research staff are initiating new trial sites via the internet and webcasting, thereby eliminating the need for costly travel and face-to-face meetings. This has been a pleasing and successful development.

Special mention goes to Amanda Simmons for her audit work on clinical handovers, which was presented at the 2012 ANZICS/ACCCN Intensive Care Annual Scientific Meeting in Adelaide, and to Pierre Clement, who has been invited to present some of his work on our Clinical Information System in 2013 at a national conference.

In essence, all this should eventually lead to improved patient care. My hearty thanks to all Department of Intensive Care Medicine staff. The fact the department functions well at this time, and at all times, is a testament to every single staff member of this multidisciplinary unit.

### Research staff

Name	Qualifications	Position	Interests/specialties
Prof. Jeffrey Lipman	MBBCh, DA (SA), FFA (SA), FFA (Crit Care), FCICM, MD	Director, Intensive Care Medicine	management in intensive care, resuscitation of burns and pharmacokinetics of antibiotic dosage
Assoc. Prof. Robert Boots	MBBS (Hons), FRACP, FCICM, PhD, GradDipClinEpi, MMedSci, MHealthAdmin, IS	Deputy Director, Intensive Care Medicine	clinical epidemiology, management of burns and prevention of ventilator associated pneumonia
Prof. Michael Reade	MBBS, BSc, DPhil, MPH, PGCertAME, DIMCRCSEd, DMCC, FHEA, FCCP, FANZCA, FCICM	Professor, Military Medicine; Staff Intensivist	management of traumatic brain injury, coagulopathy, inflammation, early identification of sepsis, design of trauma systems
Dr Jason Roberts	BAppSc, BPharm (Hons I), PhD	Clinical pharmacist	pharmacokinetic models for various antibiotics in critically-ill patients with sepsis using microdialysis, therapeutic drug monitoring
Dr Joel Dulhunty	BSc (Hons), MTH, MBBS, PhD	Research Fellow	epidemiology of burn injury and severe sepsis, study design and methodology
Dr Jeremy Cohen	MBBS, BSc, MRCP, FRCA, FCICM, PhD	Staff Intensivist	adrenal function in critical illness
Dr John Gowardman	BSc, BHB, MBChB, FRACP, FCICM	Senior Staff Intensivist	intra-vascular device associated infections, Biofilm formation on vascular devices, head injury, weaning and extubation from mechanical ventilation
Dr Andrew Udy	BHB, MBChB, PGCert (AME), FCICM	Staff Intensivist	impact of augmented renal clearance on the prescription of antibiotics, acute kidney injury, microcirculation, severe sepsis, septic shock and measurement techniques in ICU
Dr Judith Bellapart	MD, ESICM, FCICM	Staff Intensivist	cerebral blood flow haemodynamics in patients on intra-aortic counterpulsation balloon pumps and ventricular assist devices, endothelin levels in subarachnoid hemorrhage vasospasm, anaemia in head injury
Dr Anthony Holley	BSc, MBBCh, DipPaeds, DipDHM, FACEM, FCICM	Senior Staff Intensivist	identifying alterations in microcirculation during shock using side stream dark field imaging

# Research staff

Name	Qualifications	Position	Interests/specialties
Dr Alex Douglas	BMedSc, MBBS, FANZCA, FCICM	Staff Intensivist	current practice and education in anaesthesia and intensive care medicine, pharmacokinetics of antibiotics used in abdominal aortic aneurism surgery
Dr Steve O'Donoghue	MBChB, FANZCA, FCICM	Staff Intensivist	microcirculation in shocked critically ill patients during resuscitation and prevention of ventilator associated pneumonia
Dr Neil Widdicombe	MBBS, FRCA (UK), FCICM	Senior Staff Intensivist, Hospital Medical Director, Organ Donation	end-of-life care and organ donation, application of telemedicine in critical care, critical care retrieval and transport
Dr Jayesh Dhanani	MBBS, MD, FCICM	Staff Intensivist	antimicrobial therapy, lung infections, inhaled/aerosol therapy
Dr Rajeev Hegde	MBBS, MD, EDICM, FCICM	Senior Staff Intensivist	inhalation injury
Dr George Pang	MBBS, FANZCA, FCICM	Staff Intensivist	lipid rescue from anaesthetic overdose
Dr Jennifer Paratz	MPhty, FACP, PhD, GradCertEd (Medical and Health Sciences)	Consultant Physiotherapist, Senior Research fellow	management and outcome of critically ill and burns patients, myocardial dysfunction, exercise and metabolism, diagnosis of sepsis in burns patients
Hiran Bandeshe	BSc, BEng	Database Manager	data mining, ICU database management
Therese Starr	GradCertCritCare, GradDipHealthProm, NNC	Research Coordinator	certified clinical research coordinator involved in major clinical trials
Melissa Lassig- Smith	DipAppSc (Nursing), GradDip (Adv Nursing), GradDipCritCare, MNursing (CritCare)	Research Coordinator	involvement in all aspects of studies in intensive care from initial proposal to completion
Janine Stuart	BNurs	Research Coordinator	involved with all research currently being completed in ICU, writing proposals, obtaining ethics approvals, writing grants, data collection and publishing research articles
Renae Deans	BNurs, CertCritCare	Research Coordinator	clinical research coordinator involved in the project management of major clinical trials
Paul Jarrett	Dip (HE) Nurs	Research Coordinator	involved in research studies taking place within ICU, from proposal to completion as well as communication and liaison with study sponsors and other coordinators
Rachael Dunlop	BNurs, GradCert (CritCare)	Research Coordinator	involved in research studies taking place within ICU and QUT

# Supervised post-graduate students

Name	Current studies	Research topic
Winzer, B.	PhD	Can exercise alter oesophageal cancer risk factors?
Stockton, K.	PhD	Fatigue in systemic lupus erythematosus: Exploration of some novel factors
Al-Balushi, R.	PhD	Effect of intravenous glutamine supplementation in trauma patients receiving enteral nutrition: A prospective, double-blind, randomised, placebo-controlled clinical trial
Kayambu, G.	PhD	Improving critical illness outcomes with early rehabilitation
Bissett, B.	PhD	Inspiratory muscle training for ventilated patients
Walsh, J.	PhD	Predictive factors of success in pulmonary rehabilitation
Caruana, L.	MPhil	Electrical impedance tomography and positioning
Wadsworth, B.	MPhil	Abdominal bracing in spinal patients

# Supervised post-graduate students

Name	Current studies	Research topic
Baldwin, C.	PhD	Muscle weakness in intensive care
Patel, B.	MPhil	Characteristics of blood stream infections in burn injury patients: A ten year retrospective study at RBWH
Adnan, S.	PhD	Pharmacokinetics of commonly prescribed antibiotic in critically ill patients with indwelling surgical drains and with multi-drug resistant Acinetobacter spp infections
Williams, J.	PhD	Patients with community-acquired infection presenting at the ED: Identifying factors early during the course of infection that may predict a poor outcome
Udy, A.	PhD	Mechanisms and clinical implications or augmented renal clearance (ARC) on beta-lactam prescription in the critically ill
Gray, P.	PhD	Phantom Skin Pain: The neuropathic pain of burn injury – Aetiology, assessment and treatment.
Varghese, J.	PhD	Dose optimisation of antibiotics in different forms of renal replacement therapy
Kaur, S.	PhD	Improving drug utilisation in Australian aged care facilities
Mawbey, I.	MCP	Does a vancomycin prescribing protocol reduce the prescription of linezolid for patients with infections caused by multi-resistant Gram positive organisms such as methicillin-resistant Staphylococcus aureus?
Wong, G.	MPhil	BeTM Study: A multi-centre study to evaluate the outcome of empiric dosing of beta-lactam antibiotics in reaching pharmacodynamic targets and utility of therapeutic drug monitoring programme in critically ill patients
Hanrahan, T.	MPhil	Vancomycin nephrotoxicity in critically ill patients: Fact or fiction?
Sinnollareddy, M.	PhD	Using pharmacokinetics and pharmacodynamics to optimise dosing of antifungal agents in critically ill patients
Sime, F.	PhD	Does beta-lactam pharmacokinetic variability in critically ill patients justify therapeutic drug monitoring?
Jamal, J-A.	PhD	Improving antibiotic dosing in special situations in the ICU: burns, renal replacement therapy and extracorporeal membrane oxygenation
Abdul-Aziz, MH.	PhD	Continuous infusion vs. bolus dosing: implications for beta-lactam antibiotics
Parker-Scott, S.	PhD	Revitalising an old drug: saving critically ill patients with resistant infections with fosfomycin
Economou, C.	PhD	The pharmacokinetics of vancomycin, meropenem and piperacillin-tazobactam in critically ill patients undergoing sustained low-efficiency dialysis (SLED)
Bellapart, J.	PhD	Response of cerebral microcirculation to anemia, hypercapnia and hypoxemia in head injury using experimental ovine models
Ronsmans, W.	MPhil	Trauma transfer study: The tyranny of distance

# Awards and achievements

Award	Event	Name
Winner of second best abstract award: Coyer, F., Stotts, N., Blackman, V., Hyunjung, K., Dunlop, R., Aldrich, K.M., A prospective window into device-related pressure ulcers in critical care: An international perspective	SAWC Spring Conference Atlanta, Georgia USA, April 2012	Dunlop, R.
Australian Military Medicine Association Patron's Prize (awarded by the Association's Patron for the best paper written by a Member of the Association published in a peer review journal during each financial year)		Holley, A.
Afghanistan Medal 2012		Holley, A.
North Atlantic Treaty Organisation (NATO) Medal with Clasp ISAF 2012		Holley, A.
Australian Clinical Pharmacy Award, Society of Hospital Pharmacists of Australia		Roberts, J.A.
David Neville Prize for 'Therapeutic drug monitoring of beta-lactam antibiotics in burns patients: A one-year prospective study'	Royal Australian College of Surgeons Annual Scientific Meeting. North Stradbroke Island, August 2012	Roberts, J.A.

### Research grants

Investigators	Research title	Granting body	Amount awarded	Years of funding
Ho, K.M,. Corcoran, T., Lipman, J., Roberts, J., Barden, A., Mori, T.	Determinants of urinary output response to intravenous frusemide in patients with acute kidney injury	ANZCA 13/004	\$38,300	2012- 2013
Reade, M., Holley, A., Irving, D., Marks, D., Johnson, L., Fraser, J., Bellomo, R., Gattas, D.	Evaluation of cryopreserved platelets for the treatment of perioperative haemorrhage	ANZCA AEG 13/002	\$85,646	2012- 2013
Cooper, J.D., Phillips, L., Bellomo, R., Cameron, P., Reade, M., Isbister, J., French, C., Myles, P., Webb, S., McNeil, J.	Centre of research excellence for patient blood management in critical illness and trauma	NHMRC CRE APP1040971	\$2,498,407	2012- 2016
Brauer, S., Kuys, S., Ada, L., Kuys, S., Paratz, J.	The stroke IMPACT trial: Improving physical activity via treadmill training	OHMR	\$250,000	2012- 2016
Lipman, J., Roberts, J., Paratz, J., Paterson, D., Fraser, J.	Pharmacokinetic studies in critically ill patients	UQ NHMRC Equipment and Infrastructure	\$310,000	2012
Lipman, J.	BLING II	Baxter Unrestricted Grant	\$40,000	2012- 2013
Rickard, C., Fraser, J., Webster, J., Marshall, A., Young, J., Playford, E.G., McMillan, D., McGrail, M., Gowardman, J., Thom, O.	The SAVE trial – Ecuring all intravenous devices effectively in hospitals: A randomised controlled trial	NHMRC APP1041910	\$944,798.21	2012- 2014
Staib, A., Ashton, K., Fraser, J.F., Fung, Y.L., Shekar, K., Chew, M., Reade, M., Tung, J.P., McDonald, C.	Does age of the transfused blood matter in acutely ill patients with trauma and infection?	Queensland Emergency Medicine Research Foundation (QEMRF)	\$200,000	2012- 2013
Economou, C.	The pharmacokinetics of vancomycin, meropenem and piperacillin-tazobactam in critically ill patients undergoing sustained low- efficiency dialysis (SLED)	RBWH Scholarship	\$40,000	2012- 2014
N/A	ICU research coordinator funding	RBWH Private Practice Trust Fund	\$105,897	2012 - 2013

### **Publications**

Abbott IJ, Roberts JA. Infusional β-lactam antibiotics in febrile neutropenia: has the time come? Curr Opin Infect Dis. 2012;Dec;25(6): 619-25.

Abdul-Aziz MH, Dulhunty JM, Bellomo R, Lipman J, Roberts JA. Continuous beta-lactam infusion in critically ill patients: The clinical evidence. Ann Intensive Care. 2012;Aug 16;2(1):37.

Adnan S, Paterson DL, Lipman J, Kumar S, Li J, Rudd M, Roberts JA. Pharmacokinetics of beta-lactam antibiotics in patients with intraabdominal disease: a structured review. Surg Infect (Larchmt). 2012;Feb;13(1):9-17.

Agarwal S, O'Donoghue S, Gowardman J, Kennedy G, Bandeshe H, Boots RJ. Intensive care unit experience of hematopoietic stem cell transplant patients. Intern Med J. 2012; Jul; 42(7):748-54.

Baldwin CE, Paratz JD, Bersten AD. Body composition analysis in critically ill survivors: a comparison of bioelectrical impedance spectroscopy devices. JPEN J Parenter Enteral Nutr. 2012;May;36(3):306-15.

Bhaskar B, Dulhunty J, Mullany DV, Fraser JF. Impact of blood product transfusion on short and long-term survival after cardiac surgery: More evidence. Ann Thorac Surg. 2012;Aug;94(2):460-7.

Bellapart J, Boots R. Potential use of melatonin in sleep and delirium in the critically ill. Br J Anaesth. 2012; Apr; 108(4):572-80.

Bellapart J, Boots R, Fraser J. Physiopathology of anemia and transfusion thresholds in isolated head injury. J Trauma Acute Care Surg. 2012;Oct;73(4):997-1005.

Bissett B, Leditschke IA, Paratz JD, Boots RJ. Respiratory dysfunction in ventilated patients: Can inspiratory muscle training help? Anaesth Intensive Care. 2012;Mar;40(2):236-46.

Bissett BM, Leditschke IA, Paratz JD, Boots RJ. Protocol: Inspiratory muscle training for promoting recovery and outcomes in ventilated patients (IMPROVe): A randomised controlled trial. BMJ Open. 2012;Mar 2;2(2):e000813. Print 2012.

Briscoe SE, McWhinney BC, Lipman J, Roberts JA, Ungerer JPJ. A method for determining the free (unbound) concentration of ten beta-lactam antibiotics in human plasma using high performance liquid chromatography with ultraviolet detection. J Chromatogr B Analyt Technol Biomed Life Sci. 2012:Oct 15:907:178-84.

Boots RJ, Singh SJ, Lipman J. The tyranny of distance: telemedicine for the critically ill in rural Australia. Anaesth Intensive Care. 2012;Sep;40(5):871-4.

Carlier M, Stove V, Roberts JA, Van de Velde E, De Waele JJ, Verstraete AG. Quantification of seven  $\beta$ -lactam antibiotics and two  $\beta$ -lactamase inhibitors in human plasma using a validated UPLC-MS/MS method. Int J Antimicrob Agents. 2012; Nov; 40(5):416-22.

Cohen J, Lassig-Smith M, Deans RV, Pretorius CJ, Ungerer JP, Tan T, Jones M, Venkatesh B. Serial changes in plasma total cortisol, plasma free Cortisol, and tissue cortisol activity in patients with septic shock: an observational study. Shock. 2012;Jan;37(1):28-33.

Cohen J, Pretorius C, Venkatesh B. Dismissal of the utility of free cortisol measurement is premature. Intensive Care Med. 2012; Apr; 38(4):718; author reply 719-20.

der Merwe FV, Wallis S, Udy A. Understanding the impact of critical illness on drug pharmacokinetics - scientifically robust study design. J Clinic Toxicol. 2012;S4:002. doi:10.4172/2161-0495.S4-002.

Dhanani J, Roberts JA, Lipman J. Antibiotic Therapy of Pneumonia in Critical Care. Curr Resp Med Rev. 2012;8:228-238.

Dulhunty JM, Suhrbier A, Macaulay GA, Brett JC, van Straaten AV, Brereton IM, Farmer JF. Guide-wire fragment embolisation in paediatric peripherally inserted central catheters. Med J Aust. 2012;Mar 5;196(4):250-5.

Eastwood GM, Peck L, Bellomo R, Baldwin I, Reade MC. A questionnaire survey of critical care nurses' attitudes to delirium assessment before and after introduction of the CAM-ICU. Aust Crit Care. 2012;Aug;25(3):162-9.

Eastwood GM, Peck L, Bellomo R, Baldwin I, Reade MC. Delirium diagnosis: The importance of communication. Aust Crit Care. 2012; Jun; 25:153-4.

Eastwood GM, Peck L, Young H, Bailey M, Reade MC, Baldwin I, Bellomo R. Haemodynamic impact of a slower pump speed at start of continuous renal replacement therapy in critically ill adults with acute kidney injury: a prospective before-and-after study. Blood Purif. 2012;33(1-3):52-8.

Eastwood GM, Reade MC, Peck L, Baldwin I, Considine J, Bellomo R. Critical care nurses' opinion and self-reported practice of oxygen therapy: a survey. Aust Crit Care. 2012 Feb;25(1):23-30.

Fraser JF, Shekar K, Diab S, Dunster K, Foley SR, McDonald CI, Passmore M, Simonova G, Roberts JA, Platts DG, Mullany DV, Fung YL. ECMO – the clinician's view. ISBT Science Series. 2012;7:82–88.

Gattas DJ, Dan A, Myburgh J, Billot L, Lo S, Finfer S, Myburgh J, Harland J, Bellomo R, Cass A, Finfer S, Gattas D, Glass P, Lipman J, Liu B, McArthur C, McGuinness S, Rajbhandhari D, Taylor C, Webb S.; CHEST Management Committee. Fluid resuscitation with 6 per cent hydroxyethyl starch (130/0.4) in acutely ill patients: an updated systematic review and meta-analysis. Anesth Analg. 2012 Jan;114(1):159-69.

Ginn AN, Wiklendt AM, Gidding HF, George N, O'Driscoll JS, Partridge SR, O'Toole BI, Perri RA, Faoagali J, Gallagher JE, Lipman J, Iredell JR. The ecology of antibiotic use in the ICU: homogeneous prescribing of cefepime but not tazocin selects for antibiotic resistant infection. PLoS One. 2012;7(6):e38719.

Gowardman, JR. Comparison of Oligon catheters and chlorhexidine-impregnated sponges with standard catheters for prevention of catheter associated colonisation and infection: one size does not fit all. Crit Care Med. 2012 Feb;40(2):663-5.

Grewal JP, Singh JS, Lipman J. Methanol: don't forget the ethanol. Anaesth Intensive Care. 2012 May;40(3):560-1.

Gruen RL, Reade MC. Administer tranexamic acid early to injured patients at risk of substantial bleeding. BMJ. 2012 Nov 19;345:e7133.

Holley A, Lukin W, Paratz J, Hawkins T, Boots R, Lipman J. Review article: Part one: Goal-directed resuscitation - which goals? Haemodynamic targets. Emerg Med Australas 2012 Feb;24(1):14-22. Erratum in: Emerg Med Australas. 2012 Jun;24(3):352.

Holley A, Lukin W, Paratz J, Hawkins T, Boots R, Lipman J. Review article: Part two: Goal-directed resuscitation - which goals? Perfusion targets. Emerg Med Australas 2012 Apr;24(2):127-35.

Holley AD, Weber DJ, Reade MC. A battlefield occupational risk not to be ignored. Med J Aust. 2012 Sep 17;197(6):331.

Jamal JA, Economou CJ, Lipman J, Roberts JA. Improving antibiotic dosing in special situations in the ICU: burns, renal replacement therapy and extracorporeal membrane oxygenation. Curr Opin Crit Care. 2012 Oct;18(5):460-71.

Kaur S, Roberts JA, Roberts MS. Evaluation of medication-related problems in medication reviews: a comparative perspective. Ann Pharmacother. 2012 Jul-Aug; 46(7-8):972-82.

Kumar R, Shekar K, Widdicombe N, Fraser JF. Donation after cardiac death in Queensland: review of the pilot project. Anaesth Intensive Care. 2012 May;40(3):517-22.

Li J, Udy AA, Kirkpatrick CM, Lipman J, Roberts JA. Improving vancomycin prescription in critical illness through a drug use evaluation process: a weight-based dosing intervention study. Int J Antimicrob Agents. 2012 Jan;39(1):69-72.

McGahan M, Kucharski G, Coyer F. Nurse staffing levels and the incidence of mortality and morbidity in the adult intensive care unit: A literature review. Aust Crit Care. 2012 May; 25(2):64-77. Winner ACCCN Best Nursing Review Paper 2011 sponsored by Elsevier.

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# Hyperbaric Medicine Services



**Dr Robert Webb**Director, Hyperbaric
Medicine

### Overview

The Hyperbaric Medicine Service is currently interested in the use of Hyperbaric Oxygen Therapy (HBOT) in the treatment of patients with established late radiation soft tissue injury, particularly in the head and neck region. This is currently being investigated with a randomised, double-blinded, placebo-controlled trial. We are also collaborating with the Queensland Institute of Medical Research (QIMR) to look at the effect of HBOT on the oral bacterial genome in this group of patients.

The service is also conducting a quality of life pilot study in patients with established xerostomia from parotid irradiation who have been referred for prevention or treatment of established osteoradionecrosis.

In addition, we are developing a Database for presentation of a case series of Sudden Sensorineural Hearing Loss (SSHL) referrals that have been treated with HBOT at RBWH. This is a topical area of research at this time.

We have recently received Human Research Ethics Committe (HREC) approval to conduct a multicentre, randomised controlled trial using HBOT to treat chronic diabetic foot ulcers.

### Research staff

Name	Qualifications	Position	Interests/specialties
Dr Susannah Sherlock	BSc, MBBS, FANZCA	Senior Staff Specialist	HBOT with respect to soft tissue radiation injury, sudden sensorineural hearing loss, diabetic wound healing

### Research grants

Investigators	Research title	Granting body	Amount awarded	Years of funding
Sherlock, S., Reid, D., Webb, R., Bourke, A., Acton, C., Dickie, G., Krause, L., Atkinson, P., King D.	Hyperbaric Oxygen for Treatment of Radiation Induced Xerostomia	RBWH Research Committee	\$30,000	2012

# Professor Tess Cramond Multidisciplinary Pain Centre



Prof. Julia Fleming
Director, Professor Tess
Cramond Multidisciplinary
Pain Centre

### Overview

The Professor Tess Cramond Multidisciplinary Pain Centre provides assessment and management of inpatients and outpatients with complex persistent pain, malignant pain and burns pain that may impact adversely upon multiple dimensions of patient's lives.

Objectives of care are to reduce pain, but to prioritise improvements in functionality, independence, confidence, mood and self-management strategies, notably where complete pain relief is not possible. The research program is not limited to pharmaceutical and interventional therapies, and includes evaluation of systems, models of care and outcome measures for pain management, the role of physical therapies and a rehabilitation approach, and the impact of pain management programs on pain-induced alterations in mood, stress, sleep and activity patterns.

#### Highlights have been:

- » Dr Paul Gray was awarded his PhD for investigations into the incidence and treatment of neuropathic pain following burn injury, and highlighted his concept of 'Phantom Skin Pain'.
- » Nicole Andrews enrolled in a PhD at The University of Queensland (UQ), extending her research commenced as Cramond Fellow in the Pain Centre in 2011 into the activity patterns in patients with chronic pain. A broader multicentre study was aided by collaborations within the Persistent Pain Statewide Health Services Strategy group in Queensland. Progress was reported at pre-eminent international meetings (IASP, NOI).
- » Dr Bryce Clubb developed research collaborations with the Drugs of Dependence Unit (Bill Lovedale) and Metro North Alcohol and Drug Assessment Unit (Jane Fischer, Jason Connor) on a project examining the epidemiology of co-occurrence of chronic non-malignant pain and substance dependence, to ultimately translate the research results into recommendations to inform and enhance service delivery and early intervention.
- » Professor Julia Fleming, Soraya Bews, Karl Bagraith and Meaghan Poulton advanced the allied health model of care project, to inform future care pathways in the centre.
- » Karl Bagraith developed further research collaborations with the NIH Roadmap Cooperative Group for the Patient-Reported Outcomes Measurement Information System (PROMIS) to progress outcome measures research in the centre. Progress was reported at pre-eminent international meetings (IASP) and to the Australian Pain Society.

The future holds potential for further expansion of clinical research collaborations across the state into public health issues in persistent pain, opioid tolerance and dependency, clinical outcomes, burns pain, neuropathic pain, pain imaging and spinal pain.

### Research staff

Name	Qualifications	Position	Interests/specialties
Prof. Julia Fleming	MBBS, PhD, FANZCA, FFPMANZCA, DipMed (Pain Mgmt)	Director, Professor Tess Cramond Multidisciplinary Pain Centre	pain medicine, neurobiology of pain, glia and spinal inhibitory systems, neuropathic and metastatic bone pain, public health in pain
Dr Paul Gray	MBBS, PhD, FANZCA, FFPMANZCA	Senior Staff Specialist	pain medicine, anaesthesia, burn pain, persistent pain management strategies including interventional.
Dr Sara Olsen	BPsycholSc (Hons), PhD	Psychologist	sleep and cognition in persistent pain
Nicole Andrews	BOccThy (Hons1)	Senior Occupational Therapist, Cramond Fellow	chronic pain management, CRPS, activity patterns in chronic pain
Karl Bagraith	BOccThy (Hons1)	Principle Project Officer, New MOC Workforce	outcome measurement, persistent pain, chronic musculoskeletal conditions, International Classification of Functioning, Disability and Health
Meaghan Poulton	BA, DipPsychology, GradDip Business Admin, GradCert Mgmt	Principle Project Officer, New MOC Workforce	allied health models of care
Soraya Bews	BAppSc (Speech Pathology), MHA (Masters in Health Administration)	Principle Project Officer, New MOC Workforce	allied health models of care
Dr Bryce Clubb	MBBS, FRACR, FFPMANZCA, FAChAM, RACP	Staff Specialist	concurrent chronic non-malignant pain and substance dependence (pain medicine, addiction medicine)
Susan Morrell	BA (Hons) Psychology, MBA	Advanced Psychologist	educational approaches, outcome measures in persistent pain

## Supervised post-graduate students

Name	Current studies	Research topic
D'Arrigo, R.	Occupational Therapy Honours Student	Predictors of sleep quality in persons with chronic pain: a momentary with-in persons perspective
Hutchinson, L.	Occupational Therapy Honours Student	Rasch analysis of the Pain Self-Efficacy Questionnaire

### Awards and achievements

Award	Event	Name
National PhD student Travel Award, Australian Pain Society		Bagraith, K.S.
International PhD student Travel Award, International Association for the Study of Pain		Bagraith, K.S.

### Research grants

Investigators	Research title	Granting body	Amount awarded	Years of funding
Andrews, N., Meredith, P., Strong, J.	Approach to activity and determinants of daily function in patients with chronic pain: A momentary within-persons perspective	Occupational Therapist Board of Queensland	\$15,000	2011-2012
Bagraith, K.S., Fleming, J., Morrell, S., Cella, D., Cook, K., Ostini, R., Strong, J.	The promising prospect of the NIH's PROMIS (Patient Reported Outcome Measurement Information System): Clinical validation of new generation depression and anxiety measures for pain practice and research	RBWH Foundation	\$30,000	2012-2013
Fleming, J.	Can we improve access and patient outcomes with a more integrated and efficient allied health service in persistent pain? Development and evaluation of a new model of care	Allied Health Workface Advice and Co-ordination Unit, Queensland Health	\$130,000	2011-2012

### **Publications**

Andrews N, Strong J, Meredith P. Activity pacing, avoidance, endurance and associations with patient functioning in chronic pain: A systematic review and meta-analysis. Archives of Physical Medicine and Rehabilitation. 2012;93:2109-2121.e7

Bagraith KS, Strong J, Sussex R. Disentangling disability in the fear avoidance model: More than pain interference alone. Clinical Journal of Pain. 2012;28(3):273-4.

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Hornsey MJ, Olsen S, Barlow FK, Oei TPS. Testing a single-item visual analogue scale as a proxy for cohesiveness in group psychotherapy. Group Dynamics: Theory, Research and Practice. 2012;16(1):80-90.

