

Centre for Clinical Research in Emergency Medicine

The Centre for Clinical Research in Emergency Medicine (CCREM) is a Centre within the Western Australian Institute for Medical Research (WAIMR), established in 2008 with start up and ongoing funding from Royal Perth Hospital and the Royal Perth Hospital Medical Research Foundation.

Our research involves collaboration between academic emergency physicians working in the Emergency Department (ED), a team of research nurses recruiting patients presenting to the ED with acute illnesses, and scientists analysing samples in the laboratory using immunological and molecular biological techniques.

CCREM research approaches include observational studies and laboratory work designed to uncover the mechanisms of disease, and randomised controlled trials designed to improve clinical care. We also endeavour to integrate laboratory and clinical research, using laboratory studies to help us understand the results of clinical trials.

CCREM provides opportunities for both laboratory and clinical post-graduate honours and PhD students, and research terms for Emergency Medicine Advanced Trainees at Royal Perth Hospital.

CCREM staff and associates, 2012

Royal Perth Hospital

Clinical Academics

Professor Simon Brown MBBS PhD FACEM, Program Director

Professor Daniel Fatovich MBBS PhD FACEM

Associate Professor Glenn Arendts MBBS MMed FACEM

Research Registrar

Dr Shelley Kirkbright MBBS FACEM

Research management and administration

Ellen MacDonald RN, Clinical Nurse Manager

Cathy Read RN, National Coordinator PSP Study

Sophie Damianopoulos, Administrative Officer

Sarah Fitzhardinge BSc MBA, Research Assistant

Laboratory

Assistant Professor Shelley Stone BSc PhD, Research Fellow

Dr Pauline van Eeden BSc PhD, Research Associate

Dr Tamara Jacoby-Alner BSc PhD, Adjunct Research Associate

Ms Claire Cotterell BSc, Research Assistant

Ms Leah Stone BSc, Research Assistant

Research Nurses

Helen Hamersley RN, Jen Wurmel RN, Clare Nash RN, Naomi Sweeting RN, Julie Honeyman RN,

Jessica Peel RN, Dianne Catapang RN, Lani Hume RN

PhD Students

Dr Craig Ellis MBChB FACEM, Associate Professor Stephen Macdonald BSc MBChB DCH MRCP FACEM

Fremantle Hospital

Clinical Academic

Professor Yusuf Nagree MBBS FACEM MBA

Research management and administration

Karen Shakespeare RN, Research Coordinator

Sarah Gow RN, Research Nurse

Vanessa Camarda, Administrative Officer

Armadale Kelmscott Memorial Hospital

Clinical Academic

Associate Professor Stephen Macdonald BSc MBChB DCH MRCP FACEM

Research Nurses Alysee Pownall RN, Jane Sochacki RN, Kerry-Lee Dyke RN,

Jonathan Burcham RN

On Going and Notable New Funding For 2012

Modelling community preferences for health policy: how choice experiments can inform the organisation of acute health services for older Australians. Australian Research Council Discovery Project. Howard K, Arendts G, Jan S, Quine S. 2012-2014 \$172,197

Evidence-based paramedic models of care to reduce unnecessary Emergency Department attendance. WA Health Targeted Research Fund. Jacobs I, Finn J, Fatovich D, Arendts G, Mountain D, Williams T, Gibson N, Sprivulis P and Celenza A. 2012-2013 \$370,000

Continuous Positive Airway Pressure (CPAP) trial for treatment of Acute Pulmonary Oedema by Ambulance Paramedics in the Pre-Hospital Setting. University of WA Research Development Awards. Williams T, Jacobs I, Finn J, Summers Q and Arendts G. \$29,619

Differential gene regulation during elderly sepsis: correlation with poor clinical outcomes. University of WA Research Development Award. van Eeden P, Brown S, Stone S and Arendts G. \$30,000

A randomized controlled trial of invasive versus conservative treatment of primary spontaneous pneumothorax. Department of Health, Western Australian State Health Research Advisory Council Research Translation Grant. Brown S, Ball E, Summers Q, and Waterer G. 2012-2013 \$190,000

Venom allergy and anaphylaxis studies. Royal Hobart Hospital (Tasmania). Brown S. \$36,680 per annum over three years 2011-2014

Medical and Health Research Infrastructure Fund (MHRIF), WA Department of Health. Brown S. 2012 \$39,168

University of Western Australia NHMRC "Near Miss" funding for the project "A randomized controlled trial of invasive versus conservative treatment of primary spontaneous pneumothorax". Brown S, \$70,000

A randomised trial of patient centred intervention to reduce re-presentations of older people at risk after discharge from the Emergency Department. WA State Health Research Advisory Council Arendts G. 2012-14 \$200,000

Granzyme B in acute ischaemic stroke. Royal Perth Hospital Medical Research Foundation Grant. van Eeden P, Armstrong C, Stone S, Brown S, Fatovich D and Hankey G. \$16,500 + 0.5 FTE for a Research Assistant.

Leukocyte signalling (gene expression-mRNA) during human anaphylaxis. Project Grant – US Food Allergy and Anaphylaxis Network. Brown S and Stone S. 2011-2012 US\$260,000

Leukocyte cell signalling after traumatic brain injury: correlation with clinical outcomes. Neurotrauma Research Program. Brown S, Fatovich D and Arendts G. 2011-2012 \$228,445

Establishing an Emergency Medicine Research Collaborative. University of Western Australia University of Queensland Bilateral Research Collaboration Award. Macdonald S, Brown S, Fatovich D, Stone S, Chu K and Brown A. \$15,498

The Crystalloid versus Albumin in the Resuscitation of Emergency Department Patients with Septic Shock (CARESS) trial inflammatory marker pilot study. Williams J, Greenslade J, Brown S, Stone S, Lukin B. Queensland Emergency Medicine Research Foundation. \$41,270

Bacterial load and survival in septic shock (BLISS). Iredell J, Webb S, Stanley K, Brown S, Nichol A, Bailey M. (NHMRC Project Grant 632622) 2010-2012 \$647,738.

Immunological mechanisms and management of critical illness and injury. Brown S. NHMRC Career Development Fellowship. 2012-2015 \$75,699 per annum.

Validation and impact of the four hour rule in the Emergency Department: a large data linkage study. Forero R, Hillman K, Fatovich D, McCarthy S, Mountain D, Fitzgerald G, Richardson D, Sprivulis P and Middleton P. NHMRC 2012 Partnership project grant APP 1029492 \$687,000, Western Australia Department of Health (\$131,415), Australasian College for Emergency Medicine (\$100,000), NSW Ministry of Health (\$200,000). Total grant monies \$1,718,864.

Care Coordination To Improve Quality Of Life In Residential Aged Care. Arendts G, Beer CD, Howard K, Lewin G and Sim M. JO & JR Wicking Trust 2011-12 \$154,685; 2012-13 \$160,640; 2013-14 \$80,862

Investigations Ongoing

(1) Coordinated by CCREM

Critical Illness and Shock Study (CISS)

A prospective study of patients presenting to the Emergency Department with critical illness or injury that compromise the cardiovascular and/or respiratory systems. Currently focusing on the acute immune response to anaphylaxis, septic shock, traumatic brain injury and post-cardiac arrest.

Clinical Associations with Acute Decompensated Diastolic Heart Failure in the Elderly (DHF Study)

A multicentre, prospective observational study following elderly patients with established DHF over a period of time by comparing their baseline characteristics when they are well to when they present unwell to the Emergency Department.

Emergency Department Complex Needs Coordination Team (ED CoNeCT)

A randomised trial of patient centred intervention to reduce re-presentations of older people at risk after discharge from the Emergency Department.

Jack Jumper Ant Venom Immunotherapy (JJA VIT) Trials

A study of immunotherapy dosing and immune response (IgE, IgG4). First phase published in the Journal of Allergy and Clinical Immunology (2012). Second phase is ongoing and expected to finish in 2013.

Mediators of Anaphylaxis to Snake Antivenom in Sri Lanka

In collaboration with the University of Newcastle, CCREM completed analysing biochemical mediators/mechanisms of anaphylaxis to snake antivenom in Sri Lanka.

Primary Spontaneous Pneumothorax Study

A randomised controlled trial of conservative management with observation only versus interventional (aspiration and/or insertion of chest drain) treatment of primary spontaneous pneumothorax.

Residential Aged Care Facility Study

A randomised controlled trial to reduce emergency department transfers and improve quality of life in residential aged care facilities.

Sepsis/Saline Trial

A pilot randomised trial of hypertonic saline versus normal saline as the initial bolus fluid in patients with infectious systemic inflammatory response syndrome.

Emergency Department Anaphylaxis Studies (EDA II and III)

(II) A randomised controlled trial of intramuscular versus intravenous adrenaline during anaphylaxis (III) A study of gene activation and biochemical mediators of anaphylaxis.

Chest Pain Registry

The chest pain registry is a longitudinal study of patients presenting to the Emergency Department with chest pain and is looking at medium term outcomes of these patients. Co-ordinated by CCREM partner, Fremantle Hospital Emergency Medicine Research.

Use of BNP in Syncope

This study is examining whether the use of a simple blood test (BNP) can improve diagnostic accuracy of patients presenting to the Emergency Department with syncope. Co-ordinated by CCREM partner, Fremantle Hospital Emergency Medicine Research.

(2) Collaborations - patient recruitment at CCREM sites, but coordinated by other centres or units

Australasian Resuscitation in Sepsis Evaluation (ARISE Study)

A multi-centre, randomised controlled trial of early goal-directed therapy in patients presenting to the Emergency Department with severe sepsis in Australasia (ANZICS Clinical Trials Group)

The prophylactic hypothermia trial to lessen traumatic brain injury (POLAR)

This trial will investigate whether early and sustained cooling of patients with severe traumatic brain injury is associated with better survival and less disability compared to standard care in which patients are maintained at normal temperature (ANZICS Clinical Trials Group).

Australian Snakebite Project and Fresh Frozen Plasma Study (ASP-FFP)

A national multicentre prospective cohort study of snake envenoming and a randomised controlled trial of fresh frozen plasma in snake bite coagulopathy in Australia (Dr G Isbister, University of Newcastle, Calvary Mater Hospital).

Redback Antivenom Evaluation (RAVE) II Study

Randomised controlled trial of intravenous antivenom versus placebo in the treatment of redback spider bite (Dr G Isbister, University of Newcastle, Calvary Mater Hospital).

D-Dimer Study

A prospective observational study assessing the utility of the d-dimer assay in the elderly population for the diagnosis of venous thromboembolic disease (Dr S P'ng, Haematology Department, Royal Perth Hospital).

Evidence-based paramedic models of care to reduce unnecessary Emergency Department attendance: feasibility and safety

Development and validation of clinical protocols for extended care paramedics (Prof I Jacobs, University of Western Australia).

Functional status of survivors of out-of-hospital cardiac arrest (OCHA) in Perth

A retrospective observational study to determine the functional/neurological outcome of OHCA survivors discharged from hospital and to estimate the uptake of post-resuscitation practices such as therapeutic hypothermia and coronary reperfusion (Prof I Jacobs, University of Western Australia).

Paramedic Assessment and Referral to Access Medical care at Home (ParaMED Home)

A randomised controlled trial of paramedic referral to a home hospital service as an alternative to ED transfer for low acuity patients (M Sim, Faculty of Computing, Health and Science, Edith Cowan University).

The FluCAN Surveillance System

FluCAN is the first system in Australia to collect high quality and reliable data on hospitalised acute respiratory disease and other influenza related admissions in real time. Royal Perth Hospital participates as the sentinel site for WA. (Dr A Cheng, Infectious Diseases Unit, Alfred Hospital).

Emergency Department Pulmonary Embolism Diagnosis (EDPED)

Early discharge of patients diagnosed with low risk pulmonary embolism from the Emergency Department (Dr T Erceleve, Sir Charles Gairdner Hospital)

Publications 2012

Allen G, Brown S, Buckley N, O'Leary M, Page C, Currie B, White J, Isbister G. Clinical effects and antivenom dosing in brown snake (*pseudonaja* spp.) envenoming - Australian Snakebite Project (ASP-14). *PloS One* 2012 7:12.

Arendts G, Fitzhardinge S, Pronk K, Donaldson M, Hutton M, Nagree Y. The impact of early Emergency Department allied health intervention on admission rates in older people: a non-randomized clinical study. *BMC Geriatr.* 2012; 12:8.

Arendts G, Stone S, Fatovich D, van Eeden P, MacDonald E, Brown S. Critical illness in the Emergency Department: Lessons learnt from the first 12 months of enrolments in the Critical Illness and Shock Study. *Emerg Med Australas.* 2012; 24(1):31-6.

Arendts G, Dickson C, Howard K, Quine S. Transfer from residential aged care to emergency departments: an analysis of patient outcomes. *Intern Med J.* 2012; 42(1):75-82.

Brown S, Ball E, Perrin K. Myth of tension spontaneous pneumothorax. *Emerg Med Australas.* 2012; 24(1):117.

Brown S, Wiese M, van Eeden P, Stone S, Chuter C, Gunner J, Wanandy T, Phillips M, Heddler R. Ultrarush versus semirush initiation of insect venom immunotherapy: A randomized controlled trial. *J Allergy Clin Immunol.* 2012; 130:1:162-168.

Chung K, Playford D, Macdonald SP. Improving stress testing compliance following chest pain presentations to the Emergency Department. *Emerg Med Australas.* 2012; 24(5):518-524.

Fatovich D. Response to the recent best evidence topic on the use of thrombolysis in stroke. *Emerg Med J.* 2012; 29(1):82.

Fatovich D. Believing is seeing: Stroke thrombolysis remains unproven after the third international stroke trial (IST-3). *Emerg Med Australas.* 2012; 24(5):477-9.

Fatovich D. Emergency physicians are supertaskers. *Emerg Med Australas.* 2012; 24(5):583.

Fatovich D, Davis G, Bartu A. Morbidity associated with amphetamine-related presentations to an emergency department: A record linkage study. *Emerg Med Australas.* 2012; 24(5):553-9.

Fatovich D, Macdonald S, Brown S. Thrombolysis in acute ischaemic stroke. *Lancet.* 2012; 380(9847):1053; author reply 1054-5.

Hoggett K, McCoubrie D, Fatovich D. Ecstasy-induced acute coronary syndrome: Something to rave about. *Emerg Med Australas.* 2012; 24(3):339-42.

Howard K, Arendts G, Jan S, Beck M. PROSpER: PReferences for the Organisation of acute health Services for oldER people: protocol for a mixed methods study. *BMJ Open.* 2012; 2(2):e001081.

Isbister G, Brown S. Bites in Australian snake handlers - Australian Snakebite Project (ASP-15). QJM. 2012; 105(11):1089-1095.

Isbister G, O'Leary M, Elliott M, Brown S. Tiger snake (*Notechis* spp) envenoming: Australian Snakebite Project (ASP-13). Med J Aust. 2012; 197(3):173-7.

Johnston C, O'Leary M, Brown S, Curries B, Halkidis L, Whitaker R, Close B, Isbister G. Death Adder Envenoming Causes Neurotoxicity Not Reversed by Antivenom - Australian Snakebite Project (ASP-16). PLoS Negl Trop Dis. 2012; 6(9):e1841.

Jones P, Dunn B, Brown A, Fatovich D, Taylor D, Hew R, Borland M, Chu K, Lawler A, Holdgate A, Rosengarten P. Australasian College for Emergency Medicine trainee research project bar is not too high. Emerg Med Australas. 2012; 24(2):210-212.

Kirkbright S, Brown S. Anaphylaxis - recognition and management. Aust Fam Physician. 2012; 41(6):366-70.

Macdonald S, Arendts G, Nagree Y, Xu X. Neutrophil Gelatinase-Associated Lipocalin (NGAL) predicts renal injury in acute decompensated cardiac failure: a prospective observational study. BMC Cardiovasc Disord. 2012; 12:8.

Mehr S, Brown S. A case of ant anaphylaxis. J Paediatr Child Health. 2012; 48(3):E101-4.

Nagree Y, Gosbell A, Fatovich D, Cameron P, McCarthy S, Mountain D. General practice patients form an insignificant part of the Emergency Department workload. Med J Aust. 2012; 197(11):619.

Nagree Y, Cameron P, Gosbell A, Mountain D. Telephone triage is not the answer to ED overcrowding. Emerg Med Australas. 2012 Apr;24(2):123-6.

Ng J, Fatovich D, Turner V, Wurmel J, Skevington S, Phillips M. Appropriateness of Healthdirect referrals to the Emergency Department compared with self-referrals and GP referrals. Med J Aust. 2012; 197(9):498-502.

Nguyen L, Wong D, Fatovich D, Yeung J, Persaud J, Wood C, De Vos D, Mendelson R. Low-dose computed tomography versus plain abdominal radiography in the investigation of an acute abdomen. ANZ J Surg. 2012; 82(1-2):36-41.

Soderstrom J, Fatovich D, Mandelt C, Vasikaran S, McCoubrie D, Daly F, Burrows S. Correlation of paired toxic plasma and saliva paracetamol concentrations following deliberate self-poisoning with paracetamol. British journal of clinical pharmacology. 2012; 74(1):154-160.

Stone S, Brown S. Mediators released during human anaphylaxis. Curr Allergy Asthma Rep. 2012; 12(1):33-41.

Conferences including Proceedings, Papers & Posters

International

Fatovich D. Major trauma patients transferred from rural and remote Western Australia by the Royal Flying Doctor Service. International Data Linkage Conference, Perth, May 2012.

Nagree Y, Macdonald S, Brown S, Philips M, Fatovich D. The Perth Chest Pain Rule rapidly excludes acute coronary syndrome in the Emergency Department. International Conference on Emergency Medicine, Dublin, Ireland, June 2012

Nagree Y, Macdonald S, Flavell H, Brown S, Fatovich D. Failure to validate the Vancouver Chest Pain Rule. Poster. International Conference on Emergency Medicine, Dublin, Ireland, June 2012

National

Arendts G. Preferences for acute health services for people in aged care. Menzies Centre for Health Policy, Sydney, August 2012.

Fatovich D. Major trauma patients transferred from rural and remote Western Australia by the Royal Flying Doctor Service. Australasian Trauma Society, Perth, October 2012.

Fatovich D, Johnston M. Art and Emergency Medicine. 29th Annual Scientific Meeting. Australasian College for Emergency Medicine, Hobart, November 2012.

Arendts G. The hows and whys of reducing residential aged care to ED transfer: a personal perspective. Australasian College for Emergency Medicine Annual Scientific Meeting, Hobart, November 2012.

Arendts G. Demography is destiny: ED research for the ageing population. Australasian College for Emergency Medicine Annual Scientific Meeting, Hobart, November 2012

Brown S. Research Funding and Networking. Australasian College for Emergency Medicine Annual Scientific Meeting, Hobart, November 2012.

Nagree Y. Development of Inter-collegiate clinical guidelines. Australasian College for Emergency Medicine Annual Scientific Meeting, Hobart, November 2012

Local

Fatovich D. Recreational drugs in Perth. Wesley College, Perth, August 2012.

Brown S, Stone S, Shakespeare K, Fatovich D, van Eeden P, Ball E, Nagree Y, Macdonald S. CCREM Annual Emergency Medicine Seminar. Fremantle Hospital, Perth, September 2012

Fatovich D. Recreational drugs in Perth. Penrhos College, Perth, November 2012.

Contacts

Clinical

Centre for Clinical Research in Emergency Medicine
Department of Emergency Medicine
Royal Perth Hospital
Wellington Street Campus
Perth
Western Australia 6000
Australia

GPO Box X2213
Perth Western Australia 6847
Australia

Ph: 08 9224 8458
Fax: 08 9224 1494

Laboratory

Centre for Clinical Research in Emergency Medicine
WA Institute for Medical Research
Levels 5/6, MRF Building
Rear 50 Murray Street
Perth
Western Australia 6000
Australia

Ph: 08 9224 0356
Fax: 08 9224 1494

Web: www.ccrem.org.au