Centre for Clinical Research in Emergency Medicine

2014 Annual Research Report
Contacts

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Centre for Clinical Research in Emergency Medicine
The Centre for Clinical Research in Emergency Medicine (CCREM) is a Centre within the Harry Perkins Institute of Medical Research, 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. We are unique in having a wet lab within the ED, which allows for timely specimen preparation.
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, 2014
Royal Perth Hospital
Clinical Academics
Professor Simon Brown MBBS PhD FACEM, Program Director (Jan-Oct)
Professor Daniel Fatovich MBBS PhD FACEM, Program Director (Oct-Dec)
Associate Professor Glenn Arendts MBBS MMed FACEM

Research management and administration
Ellen MacDonald RN, GradDipFN, Clinical Nurse Manager
Cathy Read RN, National Coordinator PSP Study
Sophie Damianopoulos, Administrative Officer
Fiona Seroney, Administrative Officer

Laboratory
Dr Shelley Stone BSc PhD, Research Fellow
Ms Claire Neil BSc, Research Officer

Research Nurses
Helen Hamersley RN, Jen Wurmel RN, Naomi Sweeting RN, Lilian Offer RN, Ann-Marie Woodward RN, Christie Flanagan RN

PhD Students
Associate Professor Stephen Macdonald BSc MBChB DCH MRCP FACEM, Ms Abbie Creamer BSc, Dr Lisa Smart BVSc (Hons) DipACVECC
Fremantle Hospital
Clinical Academic
Professor Yusuf Nagree MBBS FACEM MBA

Research management and administration
Karen Shakespeare RN, Research Coordinator
Vanessa Camarda, Administrative Officer

Research Nurses
Elouise Constantine RN, Samantha Kurowski RN, Susan Burns RN, Kerry Allen RN

Armadale Kelmscott Memorial Hospital
Clinical Academic
Associate Professor Stephen Macdonald BSc MBChB DCH MRCP FACEM

Research Nurses
Alysee Pownall RN, Shilee Walker RN, Jonathon Burcham RN, Kerry-Lee Dyke RN

South West Area Health Service
Clinical Academic
Dr Hugh Mitenko MBBS FACEM

Research Nurse
Marie Draper RN
Notable New Funding For 2014

A randomised controlled trial of interventional versus conservative treatment of Primary Spontaneous Pneumothorax. National Health and Medical Research Council. Brown S. $401,143

A randomised controlled trial of interventional versus conservative treatment of Primary Spontaneous Pneumothorax. Faculty of Medicine, Dentistry and Health Sciences, UWA Near Miss Funding. Brown S. $70,000

A randomised controlled trial of interventional versus conservative treatment of Primary Spontaneous Pneumothorax (PSP Study). Medical Research Institute of New Zealand. Brown S. $44,520


Better access to home hospital for residents in aged care facilities. WA Health Targeted Research Fund. Sim M, Wong M, (Associate Investigator G Arendts) 2014-17 $345,769

Biomarkers in early sepsis. Australasian College for Emergency Medicine (ACEM) Foundation New Investigator Grant. MacDonald S. $29,652

Improving ambulance despatch to time-critical emergencies. NHMRC (Partnership grant). Finn J, Jacobs I, Fatovich D, Smith K, Williams T, Hendrie D, O’Halloran K, Cameron P. $482,723

Medical and Health Research Infrastructure Fund (MHRIF) Round 17. Government of Western Australia, Department of Health. Brown S. $35,238

Ongoing Funding For 2014


Assessment and Management of the Cognitively Impaired Older Person Presenting to Emergency Departments with Musculoskeletal Conditions or Injuries. Emergency Care Institute NSW. Fry M, Arendts G, Chenoweth L. 2013-14 $158,890


Immunological mechanisms and management of critical illness and injury. NHMRC Career Development Fellowship. Brown S. 2012-2015 $76,000 per annum
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

New Research Projects

**Coordinated by CCREM**

**ED Delirium Identification (EDDI) trial**
A clinical trial of a new delirium identification tool and early warning system.

**Inflammation and acute stroke**
A prospective observational study of patients presenting to the Emergency Department with acute stroke. The analysis of plasma, serum and leukocytes will enable us to investigate mechanisms of disease and novel biomarkers that may eventually facilitate improved diagnosis and therapy.

**Collaborations - patient recruitment at CCREM sites, but coordinated by other centres or units**

**The RESPOND Project**
A multi-centre randomised controlled trial of the RESPOND program to reduce secondary falls in older people presenting to the emergency department with a fall (Monash University).

**Quantifying Alcohol-related harm presenting to Emergency Departments in Australasia.**
To determine the proportion of alcohol-related presentations to emergency departments in Australia and New Zealand, at a single time point on a weekend night shift (Dr Diana Egerton-Warburton, ACEM).

**Preferences for the organisation of acute health services for older people (PROSpER)**
Preferences for providing acute medical care for people living in residential aged care facilities (University of Sydney).

Ongoing Research Projects

**Coordinated by CCREM**

**Assessing Risk in Sepsis using Tissue Oxygen Saturation (ARISTOS)**
A clinical observational study examining the use of near infrared spectroscopy derived tissue oxygen saturation at the bedside in Emergency Department patients with sepsis to determine the utility of this measure to predict organ dysfunction.

**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 focussing on the acute immune response to anaphylaxis, septic shock, traumatic brain injury and post-cardiac arrest.

**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.
Primary Spontaneous Pneumothorax Study
An Australasian randomised controlled trial of conservative management with observation only versus interventional (aspiration and/or insertion of chest drain) treatment of primary spontaneous pneumothorax.

Improving quality of life in residential aged care
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)
(i) A randomised controlled trial of intramuscular versus intravenous adrenaline during anaphylaxis (ii) 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.

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 envenomation in Australia (Dr G Isbister, University of Newcastle, Calvary Mater Hospital).

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 Ercleve, Sir Charles Gairdner Hospital)
Publications 2014


Brown S. Fluid resuscitation for people with sepsis. BMJ. 2014; 349:g4611


Brown S, Isbister G. Clinical research is a priority for emergency medicine but how do we make it happen, and do it well? Emerg Med Australas 2014; 26(1):14-18


**Book Chapters**


**Conferences**

**International**

Arendts G. Risk assessment and post discharge care for the high risk older ED patient. 15th International Conference on Emergency Medicine, Hong Kong, June 2014

Arendts G. Validation of a risk nomogram to predict emergency department reattendance in older people after discharge. 15th International Conference on Emergency Medicine, Hong Kong, June 2014

Arendts G. Demography is destiny: An agenda for international geriatric emergency medicine. 15th International Conference on Emergency Medicine, Hong Kong, June 2014

Nagree Y. Do we need serial troponins? 15th International Conference on Emergency Medicine. Hong Kong, June 2014


Fatovich D. Stroke thrombolysis remains unproven. 12th International Conference for Emergency Nurses, Perth, October 2014

**National**

Arendts G. Caring for the cognitively impaired in your ED – How to not neglect and not forget. (chair). 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

Fatovich D. The Art of Thinking. 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014
Fatovich D. When research goes bad. 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

Fatovich D, Johnston M. Art, Creativity and Emergency Medicine: the sequel. 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

Macdonald S, Sepsis: Where to from here? 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

Nagree Y. A rapid chest pain pathway that reduces length of stay by 20%. 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

Nagree Y. Adrenaline in Asthma – evidence NOT into action. 31st Annual Scientific Meeting, Australasian College for Emergency Medicine, Melbourne, December 2014

**Local**

Arendts G. The Emergency Department view of transfers from Aged Care. Western Australia Department of Health Aged Care Forum, Perth, March 2014


Creamer A. Downregulation of MMP9 and TREM1 mRNA is observed with acute human anaphylaxis. Australian Society for Medical Research Symposium, Perth, June 2014

Stone S. Anaphylaxis to snake antivenom in Sri Lanka. Princess Margaret Hospital Immunology Seminar Series, Perth, June 2014

Stone S. Anaphylaxis to snake antivenom in Sri Lanka. PathWest Immunology Seminar Series, Perth, June 2014

Creamer A. qPCR analysis identifies differentially expressed genes in PBLs during acute human anaphylaxis. Australasian Society of Clinical Immunology and Allergy WA Immunology Day, Perth, July 2014

Arendts G. The spectrum of consent for home hospital treatment. SilverChain Nursing Association of Australia Meeting, Perth, August 2014

Creamer A. qPCR and sera analysis identifies differentially expressed markers during acute human anaphylaxis. 24th Annual Combined Biological Sciences Meeting, Perth, August 2014

Neil C. Sustained elevation of Resistin, NGAL and IL-8 are associated with severe sepsis/septic shock in the Emergency Department. Combined Biological Sciences Meeting, Perth, August 2014

Creamer A. Immune mechanisms of anaphylaxis: PhD update. School of Pathology and Laboratory Medicine, University of Western Australia, Perth, October 2014
Annual Research Symposium
Chair: Stephen Macdonald and Glenn Arendts. 23 October 2014

Overview of CCREM achievements
Simon Brown, Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Royal Perth Hospital

Results of the Target Pain Trial
Daniel Fatovich, Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Royal Perth Hospital

Acute pain in dementia patients
Glenn Arendts, Associate Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Royal Perth Hospital

Mechanisms of the inflammatory response to stroke
Chris Armstrong, Registrar, Royal Perth Hospital

Consenting processes in the ED
Ellen MacDonald, Clinical Nurse Manager, Emergency Medicine, Royal Perth Hospital

Sepsis in the ED: where to from here?
Simon Brown, Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Royal Perth Hospital

Resistin: an emerging sepsis biomarker
Stephen Macdonald, Associate Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Armadale Health Service

Immune mechanisms of anaphylaxis
Abbie Creamer, PhD Student, Emergency Medicine, University of Western Australia

Emergency Department use by alcohol and drug affected youth (14-25 year olds)
Yusuf Nagree, Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Fremantle Hospital

Alcohol-related presentations to the ED
Daniel Fatovich, Professor, Emergency Medicine, University of Western Australia and Emergency Physician, Royal Perth Hospital
Awards for research excellence

**John Gilroy Potts Award, Australasian College for Emergency Medicine.**

**Emergency Care Institute Best Paper: Evidence into Action**

**Advancing the Nursing Profession Fellowship**
Ellen Macdonald

**Australasian Society of Clinical Immunology and Allergy, WA Immunology Day Student Prize**
Creamer A. qPCR analysis identifies differentially expressed genes in PBLs during acute human anaphylaxis
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