



TheAlfred



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Dr Vincent Pellegrino runs a local ECMO training program attended by national and international participants twice a year.



Intensive Care

Director: Associate Professor Carlos Scheinkestel MBBS, FRACP, FCICM

Deputy Director and Head of Research: Professor Jamie Cooper BMBS, MD, FRACP, FCICM

In 2009, the Intensive Care Unit (ICU) consolidated its position as a national leader in critical care research, with many major journal publications and projects spanning most areas of this diverse speciality. Areas of research and publication included cardiac support devices, ICU outcomes, nutrition, traumatic brain injury, acute lung injury, renal failure, chest trauma, venous thromboembolism, sepsis, tracheostomy and hypothermia.

The ICU research group is led by Professor Jamie Cooper, and other intensivists are active clinical researchers: Dr Andrew Davies, Dr Alistair Nichol, Dr David Pilcher, Associate Professor Carlos Scheinkestel, Associate Professor David Tuxen, Associate Professor Stephen Bernard and Associate Professor Warwick Butt. The ICU research team manager is Shirley Vallance and the research coordinators are Victoria Bennet and Jasmine Board. The group works closely with the Australian and New Zealand Intensive Care Research Centre (ANZIC-RC) team at the Monash Department of Epidemiology and Preventive Medicine, and also with the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS CTG).

Highlights

ICU published three original research papers in the highest impact factor (IF) medical journals, *New England Journal of Medicine (NEJM)*; IF: 50.017) and *Journal of the American Medical Association (JAMA)*; IF: 31.718). Andrew Davies led a national team reporting the Australian extracorporeal membrane oxygenation (ECMO) experience during the H1N1 influenza pandemic (*JAMA*). Carlos Scheinkestel was on the writing committee of the RENAL study (*NEJM*), a randomised NHMRC-funded trial of 1,500 patients in 35 centres testing higher volume continuous renal support in critically ill patients. Jamie Cooper was on the writing committee of the INFINITE study (*NEJM*), which reported the entire Australian and New Zealand ICU experience during the 2009 H1N1 influenza pandemic.

The Victorian Neurotrauma Initiative (VNI) awarded a \$2.1 million Program Grant to a team led by Jamie Cooper to complete an NHMRC funding package for two five-year multicentre, randomised trials in traumatic brain injury. The combined NHMRC/VNI funding awarded for these trials is \$6 million.

A three-year NHMRC-funded, randomised, controlled trial led by Steve Bernard in Victoria concluded. It was found that pre-hospital rapid sequence intubation in severe head injury patients improved long term neurological function. This is likely to have substantial international impact and will translate into changes in clinical practice immediately.

Current Clinical Research Trials

ICU has up to 20 clinical trials running every year at any one time. Usually only one or two of these are commercial trials, with the others being investigator initiated and frequently NHMRC supported. Key studies in 2009 included:

- ◆ **DECRA:** This unique NHMRC-funded, randomised trial of a neurosurgical procedure to reduce brain pressure in severe head injury patients will complete recruitment in May 2010. It is led from The Alfred in collaboration with the Neurosurgery Department and has been running for seven years.
- ◆ **STATINS:** A NHMRC-funded Phase 2 randomised trial testing atorvastatin therapy for severe sepsis patients.
- ◆ **ENTERIC:** A Phase 2 randomised trial of an improved enteral feeding technique in ICU patients. This trial was completed in 2009.
- ◆ **RIBFIX:** A Phase 2 randomised trial with Silvana Marasco and other cardiac surgeons, testing a novel absorbable rib fixation technique for patients with traumatic flail chest.
- ◆ **PROTECT:** A multicentre, randomised trial led by the Canadian Critical Care Trials Group and McMaster University, Ontario, testing two alternative methods for thromboprophylaxis in critically ill patients (low molecular weight heparin and unfractionated heparin). This study of 3,500 patients will be one of the largest randomised trials ever performed in ICU patients and Australia, particularly at The Alfred, which is responsible for one quarter of the total recruitment.
- ◆ **PHARLAP:** An Alfred initiated randomised Phase 2 trial of an improved package of care for mechanical ventilation of patients with acute lung injury.
- ◆ **RENAL:** Completed and published in 2009, this was a randomised trial of 1,500 patients with The Alfred as the largest recruiting site. The primary paper was published in *NEJM*.
- ◆ **ICU Outcomes:** David Pilcher with Michael Bailey at the Monash ANZIC-RC interrogated the bi-national ANZICS database and completed major projects concerning the elderly in ICU, ICU admission block, and analyses of factors to provide early warning of impaired ICU performance (of relevance to Bundaberg Hospital, Queensland).

Major Research Findings and Translation

A VNI-commissioned Access Economics analysis of the previously published SAFE-TBI study (*NEJM* 2007) found that use of saline resuscitation fluid in head injury patients instead of 4% albumin would save Australia more than \$6,000 annually for every dollar invested by the VNI in the \$104,000 research grant which funded the project. The study found that the use of saline preferentially would also increase patient survival.

Postgraduate Students

5 PhD Students

Publications

29 Journal Articles

8 Book Chapters

1 Cochrane Systematic Review