

Intensive Care and Hyperbaric Medicine



From left: Lisa Higgins, Vin Pelligrino, Jamie Cooper.

The Alfred Intensive Care Unit (ICU), located within the Tattersall's Critical Care complex, opened in August 2000. There are 35 ICU beds in the complex and another six beds in ward 2C, comprising one of the largest ICUs in the country, and treating 2000 critically-ill patients annually. Key specialities include trauma, major burns, heart/lung transplantation (all state services), bone marrow transplantation and infectious diseases.

The department's clinical research program is focused on trauma (particularly traumatic brain injury), resuscitation fluids, septic shock, mechanical ventilation during acute lung injury, nutrition, extracorporeal support and cardiothoracic surgery.

Many patients in the ICU participate in clinical research. There is a balance of investigator-initiated studies, multi-centre collaborations with the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS CTG) and with two collaborative research groups in Canada, and also industry sponsored trials.

Most of research is funded from competitive grants (NHMRC, Victorian Trauma Foundation and ANZIC Foundation), with some funding from industry. Together, this funding supports an enthusiastic five person research coordinator team comprising Lynette Murray (Manager), Shirley Vallance, Catherine Harry, Lisa Higgins and Katherine Moulden. Associate Professor Jamie Cooper has an NHMRC Practitioner Fellowship and most of the full time intensivists also participate in research.

In 2003, an NHMRC-funded hypertonic saline resuscitation trial for patients with traumatic brain injury was accepted for publication in JAMA. Associate Professor Jamie Cooper was the chief investigator. This study will influence pre-hospital resuscitation of brain-injured patients worldwide.

Also in 2003, the SAFE (Saline versus Albumin Fluid Evaluation) study managed by the ANZICS Clinical Trials Group, the George Institute for International Health and the Australian Red Cross Blood Service, successfully completed enrolment of 7000 patients,

and became the largest randomised trial ever done in intensive care patients worldwide. The Alfred was one of the two highest recruiters amongst 16 Australian and New Zealand sites, and had a key role in the study design and piloting. The SAFE study was submitted for publication in late 2003 and was accepted by a major journal.

The DECRA trial, testing early decompressive craniectomy in patients with traumatic brain injury, completed a pilot study at The Alfred, and then commenced enrolling patients in a bi-national 15 site randomised three year trial. The DECRA collaboration of intensivists and neurosurgeons across Australia and New Zealand is led by Jamie Cooper and Professor Jeffrey Rosenfeld.

The VASST study (vasopressin in septic shock) being conducted in collaboration with independent Canadian investigators, recruited 50% of its sample size (380 of 760 patients). The Alfred had enrolled more than 60 patients and is one of two highest recruiting of 26 sites involved in the trial.

The LOVS multicentre randomised trial: The Alfred was invited to join another investigator initiated, government research agency funded trial, managed by investigators in eastern Canada testing an improved ventilation strategy for patients with acute lung injury. This trial has now enrolled 500 of its 800 patient sample size and The Alfred will be a significant contributor.

Andrew Davies's observational study of nutritional support practice in Australian hospitals was completed in 2003. Andrew is currently on sabbatical leave in Kingston, Ontario, Canada, designing a new randomised trial of nutritional support techniques, which will be conducted in future years in conjunction with the ANZICS clinical trials group.

Current Projects

DECRA: a randomised controlled trial of early decompressive craniectomy in traumatic brain injury

VASST: multi-centre randomised trial of vasopressin versus noradrenaline in septic shock

SAFE trial sub-studies: saline versus albumin resuscitation in patients with traumatic brain injury; and pressure sore incidence – saline versus albumin

Effect of low dose aminophylline on renal function in critically ill patients

Manual hyperinflation in patients on clinical ventilation

Invasive neuro-monitoring in patients with traumatic brain injury

Better outcome predictions in patients with traumatic brain injury

LOVS: large multi-centre randomised trial of a lung open ventilatory strategy in ARDS patients (with the Canadian LOVS investigators)

PROTECT: pilot randomised study of heparin versus dalteparin as thrombo-prophylaxis in critically ill patients. (with the Canadian Critical Care Trials Group)

FAMAAS: prevention of atrial fibrillation in cardiac surgical patients

Publications

Journal articles

Cooper DJ. Cervical spine clearance in unconscious ICU patients – room to improve. (editorial) *Crit Care Resus* 2003;5(2):91.

Finfer S, Bellomo R, Myburgh J, Norton R. Efficacy of albumin in critically ill patients. *BMJ* 2003;326(7389):559-60. DJ Cooper and AR Davies SAFE principal investigators for The Alfred hospital.

Scheinkestel CD, Adams F, Mahony L, Bailey M, Davies AR, Nyulasi I, Tuxen DV. Impact of increasing parenteral protein loads on amino acid levels and balance in critically ill anuric patients on continuous renal replacement therapy. *Nutrition* 2003;19(9):733-4.

Scheinkestel CD, Kar L, Marshall K, Bailey M, Davies AR, Nyulasi I, Tuxen DV. Prospective randomized trial to assess caloric and protein needs of critically ill, anuric, ventilated patients requiring continuous renal replacement therapy. *Nutrition* 2003;19(11):909-16.

Book chapters

Cooper DJ. 2003. Lactic acidosis. In: Bersten AD, Soni N (eds). *Oh's Intensive Care Manual*. 5th ed. Butterworth-Heinemann. pp107-12.

Davies AR. 2003. Pulmonary Embolism. In: Bersten AD, Soni N (eds). *Oh's Intensive Care Manual*. 5th ed. Butterworth-Heinemann. pp351-60.

Hawker F. 2003. Hepatic Failure. In: Bersten AD, Soni N (eds). *Oh's Intensive Care Manual*. 5th ed. Butterworth-Heinemann. pp431-42.

Tuxen DV, Leong T. 2003. Acute severe asthma. In: Bersten AD, Soni N (eds). *Oh's Intensive Care Manual*. 5th ed. Butterworth-Heinemann. pp361-72.

Grants and Other Funding

Bernard S, Cooper G, Patrick I, Danne P, Cameron P, McRae R, Cooper DJ. Prehospital rapid sequence intubation in patients with severe head injury. Victorian Trauma Foundation. 2002-2004: \$310,000.

Bernard S, Patrick I, Cooper DJ, Taylor, Kelly. Treatment of cardiac arrest with hypothermia. NHMRC. 2003-2006: \$295,000.

Burston AD, Davies AR, Hunt T. Incidents of non invasive ventilation in patients with acute respiratory failure in Australian Intensive Care Units. ANZIC Foundation. 2003: \$10,000.

Cooper DJ, Myles P, McDermott F, Ponsford J. Two year cost benefit analysis – hypertonic saline in head injured trauma patients. Victorian Trauma Foundation. 2001-2003: \$25,000.

Cooper DJ, Rosenfeld J, Kossmann T. DECRA: Decompressive craniectomy in acute traumatic brain injury. ANZIC Foundation 2002-2003: \$140,000.

Cooper DJ, Rosenfeld J, Kossmann T. DECRA: Decompressive craniectomy in acute traumatic brain injury. Victorian Trauma Foundation. 2003: \$225,000.

Cooper DJ, Stockigt J. Pituitary insufficiency in patients with head injury. Victorian Trauma Foundation. 2001-2003: \$88,500.

Cooper DJ. NHMRC Practitioner Fellowship. 2002-2006: \$250,000.

Davies AR, Marshall K, McCredies M, Spencer A, et al. A prospective observational study of nutritional support in Australasian hospitals. Australasian Society of Parenteral and Enteral Nutrition. 2003: \$5,000.

Davies AR, Pelligrino V. ADDRESS: Drotrecogin alfa (activated) in patients with early stage severe sepsis. Sponsored by Eli Lilly. 2003: \$63,800.



Lisa Higgins

Lisa Higgins is a clinical trials coordinator in the Intensive Care Department. She is a physiotherapist with many years experience in intensive care settings in Australia and Great Britain.

Lisa commenced her research career at the Austin Hospital coordinating a multicentre randomised controlled trial of nocturnal non-invasive ventilation. Lisa joined the ICU research team in January 2003 to assist with coordination of the very demanding SAFE study. Lisa's physiotherapy experience is now proving to be an invaluable asset as she coordinates two very exciting and challenging ventilatory clinical trials. Lisa has boundless energy and she manages to combine full time employment with further studies. She completed her Master of Public Health in 2003 and has embarked on further studies in biostatistics.

Lisa is a gifted and exceptionally enthusiastic researcher with an extremely friendly personality. She is a wonderful asset to research at The Alfred.

Doig GS, Finfer S, Simpson F, Dobb G, Mitchell I, Davies AR. Developing and evaluating evidence based guidelines for official support in the ICU and cluster randomised trial. ANZICS Foundation. 2003-2004: \$550,000.

McCaughan F, Davies AR, Tuxen DV, Cooper DJ. Ventilator induced lung injury in patients with acute lung Injury. Alfred Research Trusts Small Projects Grant. 2003: \$5,000.

Norton R, Bellomo R, Cooper DJ, Finfer S, MacMahon S. The SAFE study. Albumin therapy for critically ill patients. NHMRC. 2001-2003: \$608,000.

Rosenfeld J, Cooper DJ, Kossmann T. Neuromonitoring in acute brain injury. Victorian Trauma Foundation. 2003: \$495,000.

Salamonsen RF. Optimum coagulation management of the Ventrasist pump. Ventracor. 2003: \$44,000.

Wally KR, Russell JA (Cooper DJ VASST Executive Member and Principal Investigator). VASST study. Canadian Institute of Health Research. 2003: \$32,000.