



ICU consultant
Dr David Pilcher
performs a bronchoscopy.

INTENSIVE CARE AND HYPERBARIC MEDICINE

In 2006, The Alfred Intensive Care Unit (ICU) treated almost 1,800 critically ill patients, including those with major trauma, burns, heart lung transplants, HIV, and cardiac support devices, and was also a busy regional referral service for neurosurgery and general medical surgical patients.

Over the past seven years, the ICU has built a substantial reputation for conducting investigator driven clinical research, and has further developed important collaborations with the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS-CTG), National Trauma Research Institute (NTRI), the Australian and New Zealand Intensive Care Research Centre (ANZIC-RC) at Monash University and also with independent nationally funded research groups in Vancouver, Toronto and Hamilton in Canada. Over 90% of the clinical trials run in ICU are investigator initiated and supported by external grants. In 2006 there were 22 ongoing clinical studies being conducted in ICU.

An increasing number of intensivist investigators are fostering themes of research in critically ill patients:

- Carlos Scheinkestel managed the RENAL study, a multicentre binational NHMRC trial in patients needing renal support devices
- David Pilcher is using the national intensive care database to learn more about modifiable factors influencing patient outcomes in intensive care at national and local levels and is also supporting a lung transplant research program
- Bob Salamonsen has continued innovative work with cardiac support devices and heart transplantation
- Andrew Hilton is building a research program based on his successful clinical intensive care echocardiographic service
- Andrew Davies' nutrition theme includes managing the ENTERIC multicentre trial and he is the President of the Australasian Society of Parenteral and Enteral Nutrition
- David Tuxen has commenced a new program of research in lung injury
- Vince Pelligrino supported the successful completion of the international VASST trial at The Alfred and Monash Medical Centre, and is guiding the new NAVIGATOR study which aims to improve the intensive care management of cardiac surgical patients

- Steve Bernard commenced at The Alfred ICU at the end of 2006 and is the lead investigator of the NHMRC pre-hospital rapid sequence intubation (RSI) trial, testing early intubation in head injury patients.

During 2006, Jamie Cooper was promoted to professor at Monash University and Head of Intensive Care Research, and his NHMRC Practitioner Fellowship was renewed for a further five years to 2011. With Jeffrey Rosenfeld, he leads the international DECRA trial, a neurotrauma research program at The Alfred; the Australian arm of the international PROTECT trial and assists other multicentre randomised trials, including STATINS (testing statin therapy for severe sepsis), RSI and ATACAS. He is the Monash University Director of the ANZIC-RC, Vice-Chairman of the ANZICS-CTG and Associate Director of the NTRI. The ANZIC-RC at the Monash University Department of Epidemiology and Preventive Medicine has provided a national focus for intensive care research at AMREP; the inaugural Senior Research Fellow, Darryl Jones, was highly successful in 2006 before his return to clinical duties at The Alfred ICU in 2007.

During 2006, The Alfred ICU research group published 13 papers on management and outcomes of traumatic brain and cervical injury, an examination of albumin resuscitation from several angles and a chapter on enteral nutrition. Intensivists received 11 research grants during this period, with grant funding in excess of \$1.1 million. A postdoctoral research fellow (Adam Dowrick) and PhD candidate (Ruwan Wijemunige) were appointed to establish new trials testing timing of long bone fracture surgery and invasive neuro-monitoring in head injury patients. The ICU research team in 2006 comprised Lynette Murray (Manager), Shirley Vallance, Siouxzy Morrison, Cindy Weatherburn, Vicki White, Rachael Nevill and Lucinda Gabriel. This productive team was funded entirely from research grants and studies.

CURRENT PROJECTS

- DECRA: a randomised controlled trial of early decompressive craniectomy in traumatic brain injury (Cooper DJ)

- RENAL: multicentre, unblinded, randomised, controlled trial to assess the effect of augmented versus normal continuous renal replacement therapy on 90-day all-cause mortality of intensive care unit patients with severe acute renal failure (Scheinkestel C, Davies A, Pilcher D)
- VASST: randomised controlled trial of vasopressin versus noradrenaline in septic shock (Cooper DJ, Pelligrino V, Hilton A)
- LOVS: a study of a lung open ventilation strategy in acute lung injury (Cooper DJ, Davies A, Murphy D)
- VALID: a study of surfactant in patients with acute lung injury (Pelligrino V, Davies A, Murphy D)
- DORI-10: a study comparing doripenem and imipenem in patients with ventilator-associated pneumonia (Cooper DJ, Davies A, Spelman D)
- Invasive neuromonitoring in patients with traumatic brain injury (Rosenfeld J, Cooper DJ)
- Better outcome prediction in patients with traumatic brain injury (Butt W, Cooper DJ)
- ENTERIC: a randomised, controlled multicentre study comparing jejunal and gastric delivery of nutrition in ICU patients (Davies A, Pelligrino V, Cooper DJ)
- Improving compliance with blood transfusion guidelines in a teaching hospital ICU (Jones D, Pelligrino V, Davies A)
- Early detection and management of ischaemia-reperfusion injury (Currey J, Pilcher D)
- Effect of saline and albumin resuscitation on outcome in patients with traumatic brain injury (Cooper DJ, Myburg J, Finfer S, Bellomo R, Norton R, Boyce N and ANZICS-CTG)
- Traumatic brain injury intensive monitoring (Cooper DJ, Rosenfeld J, Kossmann T)
- CONTROL Study: a multicentre, randomised, double-blind, parallel group, placebo controlled trial to evaluate the efficacy and safety of activated recombinant factor VII (NovoSeven) in severely injured trauma patients with bleeding refractory to standard treatment (Cooper DJ)
- Rapid sequence intubation in head injured patients (Cooper DJ)
- Treatment of cardiac arrest with hypothermia (Cooper DJ)
- Thromboelastogram in patients with VentrAssist ventricular assist devices (Salamonson, R)
- Effects of low dose aminophylline on renal function in critically ill patients (Davies A, Leong T, Scheinkestel C)
- A stepwise recruitment manoeuvre for patients ventilated in ICU with acute lung injury (Tuxen D, Hodgson C)
- Acute respiratory distress syndrome screening study (Davies A).

POSTGRADUATE STUDENTS

Hodgson C. Recruitment manoeuvres for adults with respiratory failure. PhD, Monash University. Anticipated completion: 2010.

Morrison S. Masters in Public Health, Victorian Consortium of Public Health, University of Melbourne. Anticipated completion: 2009.

PUBLICATIONS

9 journal articles
1 book chapter



Bob Salamonsen Associate Professor Bob Salamonsen has pioneered many aspects of cardiothoracic intensive care in Australia, through his clinical practice and research. He has led the safe use of inhaled nitric oxide for pulmonary hypertension and hypoxia especially after heart and lung transplantation; the clinical use of the thromboelastogram to better assess coagulation status in cardiac surgery patients; and the development and clinical utilisation of both extracorporeal membrane oxygenation in the Intensive Care Unit and of advanced artificial heart technologies, including the VentrAssist device. Bob's remarkable knowledge of cardiovascular physiology is legendary and has enabled him to teach and guide generations of trainees and consultants in anaesthesia and intensive care.

He has been Director and Head of Cardiothoracic ICU since 1985 and Head of Cardiovascular Perfusion from 1984 to 2007. He initiated and guided the establishment of the Australasian Board of Cardiovascular Perfusion. Bob has published 35 peer reviewed journal articles following his MD in 1977, which addressed a new approach to halothane anaesthesia. He has received more than \$650,000 in research grant funding, and was appointed a Clinical Associate Professor at Monash University in 2005. Bob has had a remarkable and unique career in Intensive Care and will take long-service leave from the department during 2008.