



Allergy, Immunology and Respiratory Medicine (AIRmed) has a comprehensive spectrum of expertise covering advanced adult lung diseases, clinical and basic allergy, and non-HIV clinical immunology. Specific disciplines include allergic diseases, severe asthma, primary and acquired immune deficiencies, chronic obstructive pulmonary disease, interstitial lung diseases, sleep apnoea and sleep disordered breathing, cystic fibrosis (CF), bronchiectasis, pulmonary vascular disease and adult and paediatric lung transplantation programs. AIRmed integrates clinical services with extensive human and experimental research programs, linking senior clinician scientists, bench scientists, allied health professionals, primary care physicians and the community.

Clinically driven hypotheses direct the laboratory-based human research and subsequent translation into changes in current best practice for improved health outcomes. The clinical and academic base of AIRmed is located at The Alfred hospital, with experimental and clinical research laboratories located within The Alfred and in the laboratories of Monash University at AMREP.

AIRmed has a very active clinical and biomedical research focus with considerable success in competitive NHMRC, ARC, Cooperative Research Centre and other research grant funding. High international and national profiles of senior personnel are reflected in roles on editorial boards of the highest discipline-specific international journals, committee memberships, numerous peer review publications and speaking invitations.

AIRmed is committed to delivering outstanding best practice clinical care, outcome driven professional education and community outreach, as well as translational research of international acclaim.

Professor John Wilson, Head, Cystic Fibrosis Service, showed Prime Minister Julia Gillard the Tele-health electronic health record for people with cystic fibrosis.



Departmental Highlights

- Greg Snell was awarded a Medal of the Order of Australia in 2011 for service to medicine in the field of respiratory science, to education and to professional organisations.
- Bruce Thompson, Frank Thien, Jo Douglass, Greg King (Woolcock Institute Sydney) and Robyn O’Hehir were awarded an NHMRC Project Grant to research the physiological aetiology of refractory asthma.
- Robyn O’Hehir and Jennifer Rolland (Monash Immunology) were awarded an NHMRC Project Grant to progress their research identifying a human CD4+ T-cell epitope based therapeutic for peanut allergy.
- Michael Abramson, Shyamali Dharmage, Geza Benke and Bruce Thompson were awarded an NHMRC Project Grant for their research ‘Third Euro-Australian Respiratory Health Survey’.
- Magdalena Plebanski (Monash Immunology), Robyn O’Hehir, James Friend (Monash Engineering), Jennifer Rolland and Charles Hardy (Monash Immunology) were awarded an NHMRC Project Grant to further their research into the mechanisms of nanoparticle mediated inhibition of asthma.
- Faizel Hartley, Christopher Stuart-Andrews, Brigitte Borg, Belinda Miller and Bruce Thompson were awarded a 2010 Alfred Small Project Grant for their research titled ‘Why do some patients with COPD desaturate on exertion, but others do not?’.
- Robyn O’Hehir, Jennifer Rolland and Sara Prickett were awarded a \$100,000 Project Grant for 2011 from the Ilhan Food Allergy Foundation and the Gandel Foundation to progress their research towards a clinical trial for a peanut allergy vaccine.
- Robyn O’Hehir was presented with a Life Governor award from the Board of Asthma Victoria.
- Jo Douglass became President of the Australasian Society for Clinical Immunology and Allergy 2010-2012.
- Robyn O’Hehir was appointed an Honorary Director of the Governing Board of Cabrini Health Ltd.
- Robyn O’Hehir was appointed to the scientific advisory committee of the Food Standards Australia and New Zealand, an independent statutory agency that works with the governments of Australia and New Zealand to set food standards.
- Jeremy Wrobel was awarded a NHMRC Postgraduate Scholarship for research on pulmonary hypertension in COPD.

Tele-health Electronic Health Record

At a visit to The Alfred, Professor John Wilson showcased Tele-health to Prime Minister Julia Gillard, the former Premier John Brumby and Victorian Local Member Tony Lupton. The team have worked on establishing an electronic health record for people with CF. Tele-health enables quick and easy access to the medical history of a person with CF. In conjunction with this electronic record, rural or isolated patients are also able to use a teleconferencing service to receive a specialised CF review with their doctor and the CF team without the burden of travel time.



AIRmed 1: Lung Transplant Service

Head: Professor Greg Snell

The service is one of the largest in the world, performing 3% of all lung transplants worldwide and covering the southern Australian states. It has strong links to clinical programs in severe interstitial lung disease, pulmonary hypertension and severe COPD and includes the Paediatric Lung Transplant Service.

Current Projects

- Mechanisms and predictors of chronic allograft rejection with emphasis on airway remodelling
- Immunological and clinical evaluation of viral (cytomegalovirus) infections
- *Ex vivo* evaluation of humanised transgenic GAL knockout porcine lungs
- Drug trials in pulmonary hypertension
- Investigation of novel bronchoscopic and surgical treatments for emphysema

AIRmed 2 Cystic Fibrosis Service

Head: Professor John Wilson

The Alfred Cystic Fibrosis Service cares for the needs of over 280 patients. The service is actively engaged in clinical and basic research centred on stem cell therapies, host organism interaction, airway remodelling, nutritional needs, airway function and psychosocial issues.

Current Projects

- Airway remodelling and growth factors in CF
- Advanced glycation end-products in renal injury in CF
- Enhanced nutrition and anti-reflux therapy on clinical and physiological outcomes
- Nocturnal hypoxia and consequences for outcomes in CF
- Electronic health records to audit clinical outcomes
- The use of telemedicine to improve access to care
- Improved care models including palliative care

AIRmed 3 General Respiratory and Sleep Medicine Service

Head: Professor Matthew Naughton

The General Respiratory Service cares for patients with general respiratory diseases including pneumonia, chronic obstructive pulmonary disease, acute and chronic respiratory failure, post-ICU recovery, tracheostomy care, interstitial lung diseases and lung cancer. The Sleep Service manages acute and chronic sleep disorders across a wide cross-section of pulmonary, cardiac and neurological conditions.

Current Projects

- Sleep disordered breathing in heart failure and impact of ventilatory support on mortality
- Non-invasive ventilation support (acute and chronic)
- Role of sleep disorders in motor vehicle collisions
- New management algorithms for sleep disordered breathing
- Premature lung disease in marijuana smokers
- Development of smoking cessation courses
- Relationship between sleep and mood disorders
- Relationship between sleep apnoea and Type 2 diabetes
- Acute and chronic effects of oxygen toxicity

AIRmed 4 Allergy, Asthma and Clinical Immunology Service

Head: Associate Professor Jo Douglass

The service cares for patients with asthma, allergic diseases, systemic autoimmune disorders and primary and acquired immune deficiencies. It includes a node of the national Cooperative Research Centre for Asthma and Airways.

Current Projects

- Asthma in the ageing population
- Physiology and treatment of severe asthma
- Development of non-invasive methods for assessing airway inflammation
- Novel strategies for immunomodulation including nanoparticles
- Drug allergy: clinical and laboratory studies
- Immunological and molecular characterisation of peanut allergens
- Clinical and immunological mechanisms of subcutaneous injection and sublingual allergen immunotherapy
- Investigations of immunodeficiency in non-cystic fibrosis bronchiectasis

Physiology Service

Head: Associate Professor Bruce Thompson

The Lung Function Laboratory underpins many of the AIRmed clinical and research programs. It takes a leading role in the evaluation of new diagnostic tests and the evaluation of lung function testing devices.

Current Projects

- Novel non-invasive measures of small airways disease in asthma, BOS and cystic fibrosis
- Using MRI to measure ventilation and perfusion heterogeneity
- Lung function in the ageing lung
- Gas mixing and lung mechanics in patients with severe asthma
- Quality control of lung function testing

Lung Health Promotion Centre

Manager: Adrienne James

This centre provides innovative education programs and resources for health professionals in all aspects of respiratory disease, but particularly asthma and the development of smoking cessation programs.

Postgraduate Students

12 PhD Students
1 MD Student

Publications

61 Journal Articles
1 Book
2 Book Chapters