

In addition to the normal operative workload of a Cardiothoracic Unit, the Department of Cardiothoracic Surgery is involved in developing minimally invasive and other novel surgical techniques while undertaking clinical and translational research in areas as diverse as heart failure surgery and genomic studies in lung cancer.

### About us

The thoracic surgery unit is one of Australia's busiest centres for the treatment of lung cancer and is considered the most advanced centre for minimally invasive surgical techniques for a range of thoracic organ pathology.

Lung cancer, thoracoscopic surgery and postoperative pain are our primary areas of research. Our headline project is the use of genomic and gene expression profiles to predict behaviour of non-small cell lung cancer.

### Projects in progress or completed

In addition to the grant projects underway, a number of other

research projects or clinical trials are taking place including:

- INSTEP trial – influence of NSAIDs on short-term efficacy of pleurodesis: a double-blind randomised placebo-controlled trial.
- Postoperative assessment of intercostal neuralgia after thoracotomy and VATS: a prospective observational study.
- Comparison of VATS versus open mediastinal lymphadenectomy.
- STICH – a NIH sponsored worldwide study comparing medical therapy, surgical revascularisation and surgical ventricular restoration for ischaemic heart failure.
- EPIC™ study – a nationwide observational prospective evaluation of a third generation bioprosthetic valve, sponsored by St. Jude Medical.
- SNUG-2 – a randomised, double-blind, placebo-controlled study of Glypromate® in patients undergoing cardiopulmonary bypass surgery.
- Cox-Maze III three-year follow-up: the St. Vincent's experience.
- Early clinical experience with surgical ventricular restoration for dilated ischaemic cardiomyopathy.

### Research applications in the clinical setting

More thorough thoracoscopic mediastinal node dissection at the time of lobectomy for lung cancer has resulted in higher pathological node yields.

### Research outcomes in relation to patient care

Higher pathological node yields has allowed more accurate staging of lung cancer and greater informed choice of effective treatment options.

### The team

**Gavin Wright, Acting Director;** Naveed Alam, Thoracic Surgeon; Dr Maqsood Elahi, Cardiothoracic Registrar; James Kenny, Cardiac Surgeon; Andrew Newcomb, Cardiac Surgeon; Ian Nixon, Cardiac Surgeon; Dr Indra Nordstrand, Cardiothoracic Registrar; Alexander Rosalion, Cardiac Surgeon; Dr Cheng Hon Yap, Cardiothoracic Registrar

### Highlights

**Gavin Wright** Peter Ryan Prize for Surgical Research Meeting – St. Vincent's, Melbourne, Australia, November 2008

### Grants

#### *Wright G*

Thoracic Surgical Educational Grant. Johnson and Johnson Medical, (2008), \$5,000

Molecular predictor of patterns of recurrence in NSCLC. Peter MacCallum Foundation Private Corporate Grant, (2008-2009), \$100,000

Genomic and gene expression profiles in NSCLC. Australian Society of Cardiac and Thoracic Surgeons, (2007-2008), \$10,000

Gene expression and genomic profiling of resected NSCLC, Australian Society of Cardiac and Thoracic Surgeons, Peter MacCallum Foundation Private Corporate Grant, (2003-2011), \$10,000

#### Wright G, Thomas R

ACOSOG Z0030 trial: randomised trial of mediastinal lymph node sampling versus complete lymphadenectomy during pulmonary resection in the patient with No or N1 (less than hilar) non-small cell carcinoma. American College of Surgeons Oncology Group, (2005-2011), USD\$2,000 per patient x 5

#### Selected presentations

##### Elahi M

- ‘Nitrosative-oxidative stress imbalance in patients with unstable angina and congestive heart failure is associated with increased myocardial transcriptional activities and apoptotic cell death’, 5th International Conference Biology, Chemistry and Therapeutic Applications of Nitric Oxide, Festspielhaus Bregenz, Austria, August 2008
- ‘Reactive species augment blood mediated inflammatory response’, Biochemical Society focused meeting on Bioanalysis in Oxidative Stress, Exeter, UK, April 2008

##### Nordstrand I

- Speaker, ‘Pharmacological management after CABG’, Royal Australasian College of Surgeons Advanced Cardiothoracic Surgery

Course, Melbourne, Australia, February 2008

- Speaker, ‘Tasmanian CTS unit year-audit 2007’, Royal Hobart Hospital Cardiology/Cardiothoracic Surgery Meeting, Hobart, Australia, February 2008

##### Wright G

- Co-author, ‘A pilot study to assess patient preferences for adjuvant chemotherapy following surgery for early stage non-small cell lung cancer (NSCLC)’, 19th European Student’s Conference, Berlin, Germany, September 2008
- Invited speaker, ‘Can colorectal metastases be cured?’, Peter MacCallum Annual Colorectal Meeting, Melbourne, Australia, March 2008
- Speaker, ‘Endobronchial ultrasound for mediastinal pathology: the learning curve of EBUS’, Australian Lung Cancer Conference, Surfers Paradise, Australia, August 2008
- Invited speaker, ‘Hand-assisted laparoscopic oesophagectomy and pharyngo-laryngectomy: the Melbourne experience’, Combined Annual Scientific Congress of College of Surgeons of Hong Kong and Royal Australasian College of Surgeons, Hong Kong, China, May 2008
- Co-author, ‘Lung cancer resection in the elderly: results from a dedicated thoracic oncology centre’, Australian Lung Cancer Conference, Surfers Paradise, Australia, August 2008
- Co-author, ‘Mediastinal lymph node dissection at lobectomy for non-small cell lung cancer (NSCLC): a comparison of thoracoscopic and thoracotomy techniques’, 19th European Student’s Conference, Berlin, Germany, September 2008
- Invited speaker, ‘Minimally invasive approaches to thoracic parathyroid adenomas’, Combined Annual Scientific Congress of College of Surgeons of Hong Kong and Royal Australasian College of Surgeons, Hong Kong, China, May 2008
- Invited speaker, ‘Outcomes from pulmonary metastasectomy in osteosarcoma’, Annual Scientific Meeting Australian Sarcoma Group, Melbourne, Australia, October 2008
- Co-author, ‘PleurX indwelling pleural catheters for malignant pleural effusions’, Australian Lung Cancer Conference, Surfers Paradise, Australia, August 2008
- Invited speaker, ‘Pulmonary metastasectomy for sarcoma – new approaches’, Combined Annual Scientific Congress of College of Surgeons of Hong Kong and Royal Australasian College of Surgeons, Hong Kong, China, May 2008
- Co-author, ‘VATS lobectomy and adjuvant chemotherapy: could it be the real benefit of minimal invasion?’, Australian Lung Cancer Conference, Surfers Paradise, Australia, August 2008

##### Yap CH

- ‘Age of transfused red cells and early outcomes following cardiac surgery’, Royal Australasian College of Surgeons and The College of Surgeons of Hong Kong Joint Annual Scientific Congress, Hong Kong, China, May 2008

## Collaborations

University of Cologne, Lung Clinic  
Merheim, Germany

## Publications

Bernard S, Rosalion A 2008, 'Therapeutic hypothermia induced during cardiopulmonary resuscitation using large-volume, ice-cold intravenous fluid.' *Resuscitation*, 76, 2, 311-13

Buxton B, Newcomb A, Moten S, Seevanayagam S, Gordon I, Hayward P 2008, 'Choice of conduits for coronary artery bypass grafting. Craft or science?' *European Journal of Cardiovascular Surgery*

Daniels M, Yap C, Nandurkar H, MacIsaac A, Yii M 2008, 'Inflammatory myocardial injury: the role of lymphocytes in atherosclerosis and other heart disease', *Journal of Organ Dysfunction*

Elahi MM, Khan JS 2008, 'Coronary heart disease service framework for revascularisation in Pakistan', *Asian Cardiovascular and Thoracic Annals*, 16, 1, 81-5

Elahi MM, Matata BM 2008, 'Functional adaptation to oxidative stress by memory T cells: an analysis of the role in the cardiovascular disease process', *Biochemical and Biophysical Research Communications*, 376, 3, 445-7

Elahi MM, Matata BM 2008, 'Should the cardiomyocyte suction blood be cell-saver processed before retransfusion? A clinicopathologic mystery', *Acute Cardiac Care*, 10, 4, 227-30

Elahi MM, Yii M, Matata BM 2008, 'Significance of oxidants and inflammatory mediators in blood of patients undergoing cardiac surgery', *Journal of Cardiothoracic and Vascular Anaesthesia*, 22, 3, 455-67

Elahi MM, Gilmour A, Matata BM, Mastana SS 2008, 'A variant of position -308 of the Tumour necrosis factor alpha gene promoter and the risk of coronary heart disease', *Heart, Lung and Circulation*, 17, 1, 14-8

Elahi MM, Cagampang FR, Anthony FW, Curzen N, Ohri SK, Hanson MA 2008, 'Statin treatment in hypercholesterolemic pregnant mice reduces cardiovascular risk factors in their offspring', *Hypertension*, 51, 4, 939-44

Flores R, Alam N 2008, 'Video-assisted thoracic surgery lobectomy (VATS), open thoracotomy, and the robot for lung cancer', *The Annals of Thoracic Surgery*, 85, 2, 710-15

Kalade A, Lau E, Conron M, Wright G, Desmond P, Hicks R, Chen R 2008, 'Endoscopic ultrasound-guided fine needle aspiration when combined with PET improves specificity and overall diagnostic accuracy in unexplained mediastinal lymphadenopathy and staging of non-small cell lung cancer', *Journal Internal Medicine*, 38, 11, 837-844

Newcomb A, Marasco S, Powar N 2008, 'Non-transplant surgical options for cardiomyopathy', *Cardiomyopathies: Causes, Effects and Treatment*

Newcomb A, Frawley G, Fock A, Bennett M, d'Udekem Y 2008, 'Hyperbaric oxygenation in the management of cerebral arterial gas embolism during cavopulmonary connection surgery', *Journal of Cardiothoracic and Vascular Anaesthesia*, 22, 4, 576-80

Newcomb AE, David TE, Lad VS, Bobiarski J, Armstrong S, Maganti M 2008, 'Mitral valve repair for advanced myxomatous degeneration with posterior displacement of the mitral annulus', *Journal of Thoracic and Cardiovascular Surgery*, 136, 6, 1503-9

Newnham G, Thomas D, McLachlan S, Wright G, Conron M 2008, 'Molecular profiling of non-small cell lung cancer: of what value in clinical practice?', *Heart Lung Circulation*, 17, 6, 451-462

Rosalion A 2008, 'Therapeutic hypothermia induced during cardiopulmonary resuscitation using large-volume, ice-cold intravenous fluid', *Resuscitation*, 76, 311-13

Sposato L, Powar N, Yap C, Tatoulis J, Newcomb A 2008, 'Acute mediastinitis secondary to venous perforation of a peripherally inserted central venous catheter', *Journal of Cardiothoracic and Vascular Anaesthesia*

Wright G, Keating C 2008, 'Thymus gland pathology: clinical, diagnostic and therapeutic features', *Totally Endoscopic Techniques: Right-Sided Thoracoscopic Thymectomy*, Springer-Verlag, Milan, 201-7

Yan B, Clark D, Buxton B, Ajani A, Smith J, Shardy G, Farouque O, Yii M, Yap C, Adrianopoulos N, Brennan A, Reid C 2008, 'Clinical characteristics and early mortality of patients undergoing coronary artery bypass grafting compared to percutaneous coronary intervention: insights from two large multi-centre Australian registries', *Heart, Lung and Circulation*

Yap C, Lau L, Krishnaswamy M, Gaskell M, Yii M 2008, 'Age of transfused red cells and early outcomes after cardiac surgery', *Annals of Thoracic Surgery*, 86, 2, 554-9

Yap C, Andrianopoulos N, Dinh D, Billah B, Rosalion A, Smith J, Shardey G, Skillington P, Tatoulis J, Mohajeri M, Yii M, Reid C 2008, 'Short and mid-term outcomes of coronary artery bypass surgery performed by surgeons in training', *Journal of Thoracic Cardiovascular Surgery*

Yap CH, Skillington PD, Matalanis G, Davis BB, Tait BD, Hudson F, Ireland L, Nixon I, Yii M 2008, 'Human leukocyte antigen mismatch and other factors affecting cryopreserved allograft valve function', *Heart Surgery Forum*, Abstract 11, (1) E42-5

Zulli A, Widdop R, Morten S, Rosalion A, Matalanis G, Buxton B, Hare D 2008, 'Dysfunctional AT2R in radial arteries of diabetic patients', *Heart, Lung and Circulation*, 17, S19-S20