

St. Vincent's Cardiology Department is actively involved in echocardiology, clinical, drug and novel interventional cardiac device research studies.

About us

The Cardiology Department has a large clinical caseload and provides coronary angiography/catheterisation, coronary angioplasty/stenting, exercise testing, pacemaker testing and transthoracic/transoesophageal echocardiography. A significant effort is devoted to teaching and clinical research, particularly studies in the field of device and technological advances.

Research in the department continues with Dr Andrew Burns recently completing his MD thesis and Dr Andre La Gerche continuing his PhD studies supervised within the department and in Belgium. The department has five research nurses and a scientific officer to coordinate clinical trials and other research projects.

Projects in progress or completed

The echo/heart failure research group studies abnormalities of

cardiac function using ultrasound techniques. A study of cardiac functional abnormalities in triathletes following an ironman triathlon was presented nationally and internationally with further work planned. Echocardiographic predictors of prognosis in heart failure have been identified and ultrasound measurements identifying patients at higher risk of death or hospital admission have been developed.

The role of cardiac 'twist' in normal cardiac function is being investigated; a concept first raised at St. Vincent's in the late 1960s. Non-invasive assessment of cardiac pressure during exercise is currently being used to improve evaluation of patients with breathlessness, heart failure and pulmonary hypertension.

The COACH Program (Coaching patients On Achieving Cardiovascular Health), developed by Assoc Prof Michael Jelinek, has been verified as a more effective method of secondary prevention than conventional cardiac rehabilitation.

Studies of new interventional cardiology devices is another focus. St. Vincent's is consistently amongst the highest enrollers in the world for various drug-eluting stent (DES) studies. We currently lead the Branch Bifurcation stent study, Care 2 microstent study, and continue evaluation of DES versus Bare Metal stents in real world practice. Our interventional group continues to grow its reputation as a premier site for new cardiac device evaluation.

Following his return from Stanford in late 2007, Dr Andrew Wilson has continued with his research interest in obesity, insulin resistance, inflammation and biomarkers of atherosclerosis. Dr Wilson is an NHMRC Neil Hamilton Farley Fellow and receives support from the NHMRC CCRE in Diabetes.

Research applications in the clinical setting

As a result of these studies, resolute drug eluting stents are now available for clinical use in treatment of patients with coronary artery disease. The COACH program is now a clinical program to improve secondary prevention and risk factor profile of patients in major Melbourne hospitals. The work on non-invasive assessment of cardiac pressure during exercise has been used in the assessment of patients with breathlessness. The department's research has offered new insights into the mechanisms of sudden cardiac death in endurance athletes.

Research outcomes in relation to patient care

As a result of the Department of Cardiology's research activities in 2008, we have enhanced patient care through risk factor reduction, in-stent re-stenosis reduction and elucidation of causes in the breathless patient.

The team

Assoc Prof Robert J. Whitbourn;
Dr Andrew T Burns; Christine Jellis;
Jamie Layland; Assoc Prof Andrew
I Maclsaac; Dr David L Prior; Dr
Andrew M Wilson

Highlights

Dr Andrew T Burns

- Cardiovascular Travel Grant, Pfizer Australia, 2008

Higher degrees conferred in 2008

- Andrew T Burns, MD, University of Melbourne

Grants

Campbell D, Prior DL, Black MJ

Investigation of the pathogenesis of diastolic dysfunction. National Research Foundation – National Heart Foundation (2008), \$61,500

Cooke J, Wilson A

Biomarkers of Advanced Atherosclerosis (Gene-Pad Substudy). Quest Diagnostics Inc, CIPHERgen, NHLBI, (2007-2008), USD\$500,000

La Gerche A, Prior DL, Inder W

The role of pro-inflammatory cytokines and neuro-hormones in the aetiology of acute myocardial dysfunction following endurance exercise. CVL Pfizer Cardiovascular Lipid Research Grant, (2008), \$55,000

Wilson A

Obesity, insulin resistance and inflammation: role of AMP Kinase. St. Vincent's Research Endowment Fund, (2008), \$36,000

NHMRC Neil Hamilton Farley Fellowship. NHMRC, (2005-2009), \$30,000

Royal Australasian College of Physicians, (2005-2009), \$380,000

Wilson A, Cooke J

Genetic determinants of peripheral arterial disease. NHMRC, (2005-2009), \$356,391

Selected presentations

Burns AT, La Gerche A, Maclsaac AI, Prior DL

- 'Left ventricular untwisting is a determinant of early diastolic function', Annual Scientific Meeting of the Cardiac Society of Australia and New Zealand 2008, Adelaide, Australia, August 2008
- 'Load dependence of left ventricular torsion parameters', Annual Scientific Sessions of the American Society of Echocardiography 2008, Toronto, Canada, June 2008

Jellis C, Layland J, Stevens W, Prior DL

- 'Accuracy of non-invasive assessment of pulmonary vascular resistance and pulmonary artery systolic pressure in suspected pulmonary hypertension', Cardiac Society of Australia and New Zealand Annual Scientific Meeting 2008, Adelaide, Australia, August 2008
- 'Early effects of Bosentan on pulmonary arterial hypertension in a real world setting', Cardiac Society of Australia and New Zealand Annual Scientific Meeting 2008, Adelaide, Australia, August 2008

Layland J, Jellis C, McCann A, Leiti G, Gutman J, Mehta N, Maclsaac AI, Whitbourn RJ

- 'Unprotected left main coronary artery stenting is associated with low in-hospital MACE', Cardiac Society of Australia and New Zealand Annual Scientific Meeting 2008, Adelaide, Australia, August 2008

Prior DL

- 'Cardiac screening in football – acceptable guidelines', Football Australasia 2008, Melbourne, Australia, October 2008
- 'Exercise – when is it too much of a good thing?', Victorian Association of Cardiac Rehabilitation Inaugural State Conference, Melbourne, Australia, October 2008
- 'Exercise and pulmonary hypertension', Australian Pulmonary Hypertension Experts Meeting, Melbourne, Australia, May 2008
- 'Role of cardiac imaging in selection of device therapies in heart failure', Western Hospital Cardiology Seminar, Melbourne, Australia, July 2008
- 'The evidence for beta-blockers in heart failure', Cardiac Society of Australia and New Zealand Annual Scientific Meeting, Adelaide, Australia, August 2008
- 'Use of echo for decision making with device therapy', ASEANZ Cardiovascular and Metabolic Forum, Melbourne, Australia, July 2008

Publications

Meta-analysis Research Group in Echocardiography [MeRGE] Heart Failure Collaborators, 'Independence of restrictive filling pattern and LV ejection fraction with mortality in heart failure: an individual patient meta-analysis', *Eur J Heart Fail*, 10, 8, 786-92

Burns AT, La Gerche A, Maclsaac AI, Prior DL 2008, 'Augmentation of left ventricular torsion with exercise is attenuated with age', *Journal of the American Society of Echocardiography*, 21, 4, 315-320

Burns AT, Maclsaac AI, La Gerche A, Prior DL 2008, 'Reduced and delayed untwisting of the left ventricle in patients with hypertension and left ventricular hypertrophy: a study using two-dimensional speckle tracking imaging', *Eur Heart J*, 29, 6, 825

Burns AT, McDonald IG, Thomas JD, Maclsaac AI, Prior DL 2008, 'Doin' the twist – new tools for an old concept of myocardial function', *Heart*, 94, 978-983

Burns AT, Connelly KA, La Gerche A, Mooney D, Chan J, Maclsaac AI, Prior DL 2008, 'Effect of heart rate on tissue doppler measures of diastolic function', *Echocardiography*, 21, 4, 315-320

Chevalier B, DiMario C, Neumann FJ, Ribichini F, Urban P, Popma JJ, Fitzgerald PJ, Cutlip DE, Williams DO, Ormiston J, Grube E, Whitbourn RJ, Schwartz LB 2008, 'A randomised, controlled, multi-centre trial to evaluate the safety and efficacy of zotarolimus-versus paclitaxel-eluting stents in de novo occlusive lesions in coronary arteries', *J Am Coll Cardiol Interv*, 1, 524-532

Fearon WF, Shah M, Ng M, Brinton T, Wilson A, Tremmel JA, Schnittger I, Lee DP, Vagelos RH, Fitzgerald PJ, Yock PG, Yeung AC 2008, 'Predictive value of the index of microcirculatory resistance in patients with ST-segment elevation myocardial infarction', *J Am Coll Cardiol*, 51, 5, 560-5

Fox K, Ford I, Steg PG, Tendera M, Ferrari R, Investigators B 2008, 'Ivabradine for patients with stable coronary artery disease and left-ventricular systolic dysfunction: a randomised, double-blind, placebo-controlled trial', *Lancet*, 372, 9641, 807-16

Fung ET, Wilson AM, Zhang F, Harris N, Edwards KA, Olin JW, Cooke JP 2008, 'A biomarker panel for peripheral arterial disease', *Vascular Medicine*, 13, 3, 217-24

Jellis C, Hunter A, Sutton R 2008, 'Multimodal imaging of an atrial myxoma', *Cardiovascular Pathology*

Kamel J, Spain L, Jellis C, Hunter A, Peel T 2008, 'Drug fever due to Labetolol', *Internal Medical Journal*, 38, 11

Koo BK, Yamasaki M, Ako J, Waseda K, Honda Y, Fitzgerald PJ, Abizaid A, Whitbourn RJ 2008, 'Intravascular ultrasound analysis of small-vessel lesions treated with novel ultra-low profile, guidewire-based self-expanding stent system', *J Invasive Cardiol*, 20, 647-650

La Gerche A, Connelly KA, Maclsaac AI, Mooney D, Prior DL 2008, 'Biochemical and functional abnormalities of left and right ventricular function following ultra-endurance exercise', *Heart*, 94, 860-866

Layland J, Jellis C, Doyle J, Wilson A 2008, 'Abiotrophia Endocarditis: the great masquerader', *Australian and New Zealand Journal of Psychiatry*, 42, 11, 991-3

McCann A, Whitbourn RJ 2008, 'When bigger is not better: angiographic appearance of iatrogenic dissection', *Int J Cardiol*, 6, 1

Sung KC, Ryan MC, Wilson AM 2008, 'The severity of nonalcoholic fatty liver disease is associated with increased cardiovascular risk in a large cohort of non-obese Asian subjects', *Atherosclerosis* Vol. 203, Issue 2, 581-586

Tobing D, French J, Varigos J, Meehan A, Billah B, Krum H, Group PA, Ku R, Horrigan M, Brown L, New G, Roberts L, Counsell J, Martin M, Hendricks R, Tullock G, Rogers J, Conway B, French J, Newland E, Harper R, Jenkins L, Coverdale S, Murray S, Walsh W, Russell A, Garrahy P, Christensen T, Adjani A, Sallaberger M, Nelson G, Loxton A, Thompson P, Taaffe P, Rees D, Paull G, Whitbourn RJ, Christensen B 2008, 'Do patients with heart failure appropriately undergo invasive procedures post-myocardial infarction? Results from a prospective multicentre study', *Intern Med J*, 38, 11, 845-51

Yamasaki M, Ako J, Honda Y, Hassan A, Koo BK, Abizaid A, Fitzgerald PJ, Whitbourn RJ 2008, 'Novel guidewire-based stent delivery system: examination by intravascular ultrasound', *Cath Cardiovasc Interv*, 72, 47-51