

2009

AMREP RESEARCH REPORT

The Alfred Medical Research & Education Precinct



The Alfred Medical Research and Education Precinct

AlfredHealth



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About AMREP

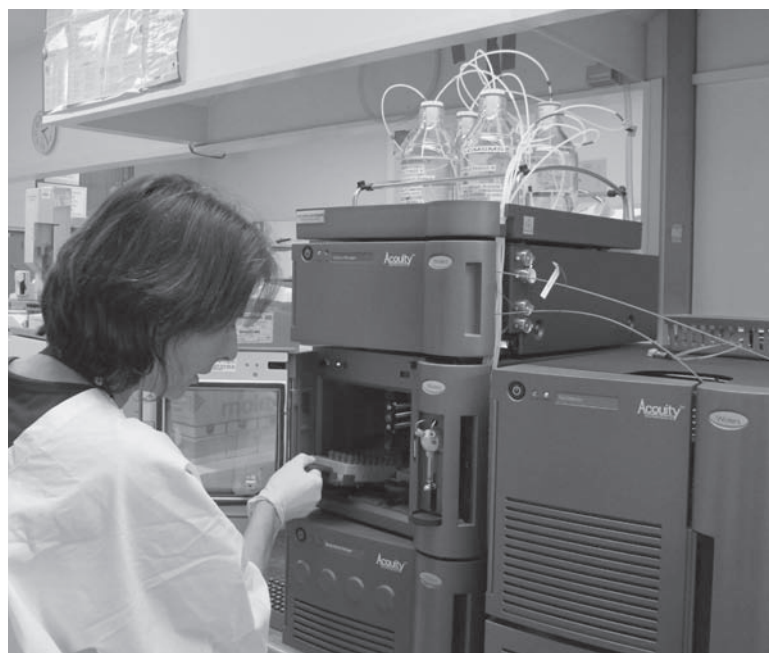
AMREP – Alfred Medical Research and Education Precinct – was established in 2002 as a partnership between Alfred Health, Monash University, Baker IDI Heart and Diabetes Institute and the Macfarlane Burnet Institute for Medical Research and Public Health (Burnet Institute). La Trobe University and Deakin University joined the partnership in 2005. AMREP is located on the campus of the Alfred Hospital, Melbourne and is one of Australia’s leading centres for medical research.

Located at AMREP

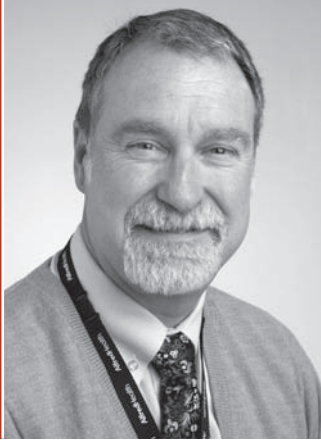
- ◆ The Alfred Hospital (Alfred Health)
- ◆ Baker IDI Heart and Diabetes Institute
- ◆ Burnet Institute
- ◆ Monash University School of Public Health and Preventive Medicine
- ◆ Monash University Central Clinical School (Departments of Medicine, Surgery and Immunology)
- ◆ Australian Centre for Blood Diseases (Monash University)
- ◆ Nucleus Network (including an early phase clinical trials facility)
- ◆ National Trauma Research Institute
- ◆ Australian Centre for Health Innovation
- ◆ Monash Alfred Psychiatry Research Centre
- ◆ La Trobe Alfred Clinical School of Nursing

Research Priorities

- ◆ Cardiovascular disease, diabetes and obesity
- ◆ Infectious diseases, immunology, allergy and respiratory disease
- ◆ Trauma, critical care and anaesthesia
- ◆ Blood diseases
- ◆ Mental health and neurosciences
- ◆ Public health and preventive medicine
- ◆ Global health



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AMREP IN 2009/2010

Andrew Way
Chief Executive, Alfred Health
Chair, AMREP Council

AMREP remains one of the nation's treasures. As this report sets out, significant research output has once again been created from the AMREP partners. In my first year as Chair of the AMREP Council I am pleased not only to have seen this output sustained in an environment of constraint, but also that so much else has been achieved to support the overall aims of the partnership. The Council has embarked on an ambitious program to transform the AMREP partnership into Australia's leading Academic Health Centre. I set out below some of that work which includes refreshing our research strategy and leadership, identifying our contribution to education of healthcare professionals, not only in their clinical roles but also uniquely in their research roles, and creating a stronger infrastructure.

AMREP Strategy Development

A strategy event was held in February 2010 to discuss the future development of AMREP, including the vision and research themes. We are now focusing this work on clarifying our major five research themes and how they are integrated with our four main underpinning platforms. The group also considered several alternative models for the future of our partnership with varying levels of integration of the partner institutions. A project officer has been appointed to consult with a wide range of stakeholders and report back to the steering committee with a plan. We would hope to conclude this work during 2010.

Research Performance

AMREP's research performance continued to show impressive growth in 2009. Revenue from external research funding increased from \$83 million in 2008 to nearly \$91 million. Of this, \$43.8 million was funding received from the NHMRC and US National Institutes of Health (NIH). The number of journal articles published by AMREP staff rose from 1,051 in 2008 to 1,106 in 2009. Further details are provided on page 4 of this report.

Funding and Award Success

AMREP researchers continued their success in attracting major competitive research grants and prestigious awards. These are some of the highlights.

Professor Murray Esler of Baker IDI was awarded the Victoria Prize, the State's top science prize, in 2009 for pioneering new ways of treating heart failure, stress and blood pressure.

The NIH awarded \$US50 million for the ASPirin in Reducing Events in the Elderly (ASPREE) trial to determine whether the potential benefits of low dose aspirin outweigh the risks specifically for people aged 70 and over. ASPREE is the largest international trial ever sponsored by the NIH and will be conducted in the US and Australia. Principal investigator of the Australian component is Professor John McNeil, Head of the Monash University School of Public Health and Preventive Medicine.

AMREP researchers were successful in gaining almost \$36 million in new direct NHMRC grant funding starting in 2010. Major highlights were an Australia Fellowship awarded to Professor Shaun Jackson (Australian Centre for Blood Diseases), a \$5.4 million Program Grant to Professor Henry Krum (Monash Department of Epidemiology and Preventive Medicine), 28 new

Project Grants and 11 Research Fellowships. Associate Professor Josephine Forbes (Baker IDI) was awarded the top-ranked Career Development Award.

Australian Research Council (ARC) Future Fellowships were introduced to give outstanding mid-career researchers incentives to conduct their research in Australia. In the inaugural funding round for 2009, three AMREP scientists were awarded these prestigious fellowships: Professor Karlheinz Peter and Dr Julie McMullen of Baker IDI, both also receiving NHMRC Research Fellowships; and Dr Amanda Gavin of the Burnet Institute.

Promotion of Research

The Research Poster Display is a highlight of Alfred Week, held annually in October, and showcases research carried out across AMREP. Prizes were awarded for the best of the 182 posters displayed in 2009; details of the winners and their posters are in the back section of this report. Thanks are extended to our prize sponsors, as well as the many AMREP staff who judged the poster prizes.

At the award ceremony, Monash University Vice-Chancellor, Professor Ed Byrne, delivered a stimulating keynote address entitled 'Monash and The Alfred – the Next 10 Years', and followed with presentation of the 2009 AMREP Research Prize to Professor Susan Davis (Women's Health Program, Monash University). This annual prize is awarded to the AMREP first or senior author whose original research paper was published in the previous year in the journal with the highest impact factor. Professor Davis's article entitled 'Testosterone for low libido in postmenopausal women not taking estrogen' was published in the *New England Journal of Medicine* (impact factor: 50.017).

AMREP Honours Scholarships

The AMREP Honours Scholarships scheme was devised to attract outstanding Science and Biomedical Science students to undertake their Honours year at AMREP. The scholarship recipients for 2010 were Lauren Giuffrida (Monash Department of Immunology) and Elisha Horat (Burnet Institute). Photographs of Lauren and Elisha are on page 8 of this report.



Professor Shaun Jackson (Australian Centre for Blood Diseases) was one of ten recipients of a 2010 NHMRC Australia Fellowship.



The Alfred Centre (left).

Burnet Tower and Baker IDI Heart and Diabetes Institute (right).

Putting the 'E' in AMREP

Whilst concentrating on research has brought considerable success as I have outlined above, much of this would not have been possible had individual researchers not learnt how to develop research proposals or plan and undertake research. Together with mapping our educational activity across Alfred Health and Monash University, AMREP has started to reprofile and prioritise the often forgotten contribution made every day by teachers and clinicians alike.

Completion of Stage 2 of the Alfred Centre

The first stage of the Alfred Centre, a healthcare facility delivering short-stay elective surgery and diagnostic procedures, opened three years ago on a high-profile site on the corner of Punt Road and Commercial Road, Melbourne. The innovative design incorporated provision for future expansion, later to be known as Alfred Centre Stage 2.

Stage 2, a 17,000 square metre project adding four storeys to the top of the existing building and eight storeys to its southern side, was completed in early 2010. The expansion was a collaborative AMREP initiative driven by the need for further clinical facilities and operating theatres for Alfred Health, new education and office space for Monash University, and laboratories and other facilities to accommodate additional staff and activities resulting from the mergers of AMREP's two medical research institutes with smaller institutes. The Burnet Institute merged with the Austin Research Institute in 2006 to form a new, larger Burnet Institute, and in 2008 the Baker Heart Research Institute merged with the International Diabetes Institute to become Baker IDI Heart and Diabetes Institute.

The extensive, new state-of-the-art research facilities include the Burnet Institute's nine PC2 laboratories, PC3 facility and X-ray crystallography suite, and Baker IDI's Healthy Lifestyle Research Centre, which incorporates a research gymnasium.

New AMREP Lecture Theatre

Plans are under way for construction of a 220 seat lecture theatre in the central AMREP courtyard between Baker IDI and the Burnet Tower. The new theatre, to be integrated with the current AMREP Lecture Theatre and classroom complex, will have a frontage to Commercial Road to allow access by members of the public. Building is expected to begin in early 2011 and take less than a year to complete. This facility is possible only through the generous support of The Alfred Whole Time Medical Specialists (WTMS) Trust, and we are extremely grateful for their support.

Retirement of Director Research Strategy

It was with considerable sadness that I accepted the resignation of Professor Graeme Ryan AC, Director Research Strategy, Alfred Health. Graeme retired in December 2009 after more than nine years of service. Graeme's outstanding contribution to the planning, development and success of AMREP is gratefully acknowledged. A new and important role encompassing both this role and leadership within Monash University and Alfred Health, with a consensus creating role across the partnership, has been developed and is currently being recruited.

The AMREP Council

The AMREP Council has a major governance role in providing the infrastructure and environment in which research at AMREP can flourish. Meetings are held every two months.

The Council comprises two representatives from each of the four original AMREP partners and one from each of the newer partners (Deakin University and La Trobe University). Additional members are the Chief Medical Officer and Chief Nursing Officer, Alfred Health (representing the interface between research and clinical practice), the Chairs of the Alfred Human Research Ethics Committee, the AMREP Animal Ethics Committee and the AMREP Scientific Advisory Committee.

Members

Andrew Way (Chair)

Representative, Alfred Health

Hilary Bolton

Representative, Baker IDI Heart and Diabetes Institute

Professor Mari Botti

Representative, Deakin University

Professor Brendan Crabb

Representative, Burnet Institute

Professor Karen Dodd

Representative, La Trobe University

Associate Professor Sharon Donovan

Chief Nursing Officer, Alfred Health

Professor Mark Cooper

Chair, AMREP Scientific Advisory Committee

Dr Lee Hamley

Chief Medical Officer, Alfred Health

Professor Geoff Head / Dr Robert Andrews (to June 2010)

Chair, AMREP Animal Ethics Committee

Professor Mark Hogarth

Representative, Burnet Institute

Professor Garry Jennings

Representative, Baker IDI Heart and Diabetes Institute

Professor John McNeil

Chair, The Alfred Human Research Ethics Committee

Professor Graeme Ryan (to December 2009)

Representative, Alfred Health

Professor Napier Thomson / Professor Hatem Salem

Representative, Monash University

Professor Steve Wesselingh

Representative, Monash University

In attendance

Heather Gallichio (Secretary)

General Manager, Alfred & Baker IDI Research Office

Gillian Holley

Manager, Monash University Central Clinical School

Bill O'Shea

Alfred Health Corporate Counsel

Geoff McDonald

Director, Capital and Infrastructure, Alfred Health

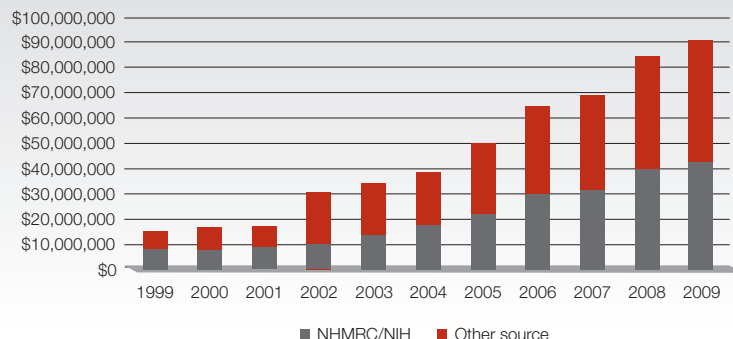
AMREP'S RESEARCH PERFORMANCE

Included in these composite data are The Alfred hospital, Baker IDI, Burnet Institute and Monash University departments based at AMREP.

External research funding

External research funding includes funds received from peer reviewed funding schemes (eg. NHMRC, National Heart Foundation, NIH), other government grants (eg. Department of Human Services), industry and university grants (eg. Monash University funding schemes). Funds received from commercially sponsored clinical trials/contract research are not included.

Total external research funding received 1999-2009



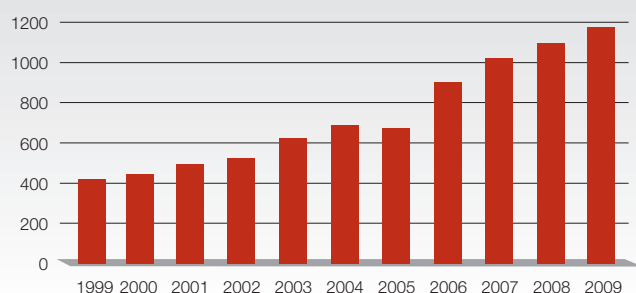
New NHMRC funding awarded to AMREP chief investigators

Funding commencing in:	2006	2007	2008	2009	2010
NHMRC commitment to new grants with AMREP Chief Investigator A	\$19,822,393	\$30,007,548	\$46,532,123	\$40,455,169	\$35,990,647
Total NHMRC commitment to all new grants	\$473,179,729	\$695,410,802	\$667,554,946	\$766,190,424	\$721,042,52
% NHMRC funding to AMREP	4.19%	4.32%	6.97%	5.28%	4.99%

Amounts include total funding committed for all years of each successful grant. NHMRC commitment was obtained from the NHMRC website (www.nhmrc.gov.au; report 1 June 2010). Page 86 shows the breakdown of AMREP's NHMRC funding commencing in 2010 into individual schemes.

Publications

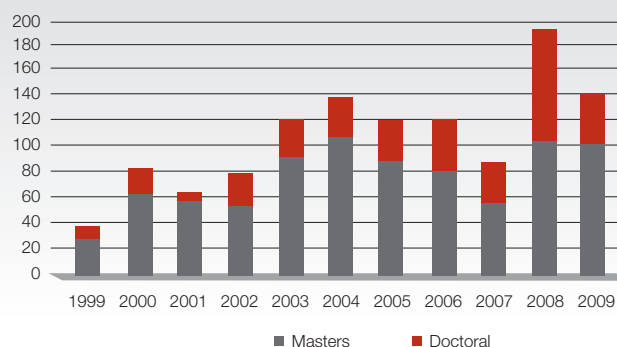
Total publications 1999-2009



Includes refereed journal articles, book chapters, books and electronic publications but not abstracts, conference proceedings or 'in press' articles.

Higher degrees

Higher degrees completed and passed 1999-2009



Commercially sponsored clinical trials approved by The Alfred Human Research Ethics Committee

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Approvals (number)	53	40	44	41	56	67	67	95	94	93	90
Income (millions)	\$1.101	\$2.530	\$2.348	\$2.968	\$3.362	\$4.783	\$5.868	\$11.091	\$17.191	\$18.383	\$23.709

The Healthy Lifestyle Research Centre at Baker IDI

In a bid to combat the epidemic of diabetes and its most serious complication, heart disease, Baker IDI, with support from the Commonwealth Government, has established the Healthy Lifestyle Research Centre (on level 4 of the Alfred Centre) to examine how genetic and environmental factors interact to regulate body weight and body composition in humans as a basis for development of lifestyle interventions.

The Healthy Lifestyle Research Centre's research program will provide the foundation for the ongoing development and refinement of evidence-based, sustainable, physical activity and nutrition intervention strategies for people in the wider community living with or at risk of the complications of obesity, particularly its metabolic and cardiovascular consequences. This will include development and testing of novel intervention delivery strategies via families, communities and the workplace for dissemination nationally.

Research will take a 'whole of day approach' to understand and improve an individual's health. This information will be used as to individualise nutrition and physical activity interventions for maintaining health or regaining health for patients with obesity-related disease.

Physical Activity Research

There is substantial evidence that physical activity contributes to the primary and secondary prevention of several chronic diseases and is associated with a reduced risk of premature death. Regular physical activity plays an important role in preventing obesity via its substantial influence on energy expenditure.

Improving physical activity, particularly in older adults who are inactive, may have significant health benefits. Indeed programs developed at Baker IDI such as the Lift for Life strength training program have demonstrated the benefits of exercise programs as both a preventive measure and as an alternative to common drug therapies.

The state-of-the-art research gymnasium is specifically designed to accommodate overweight and obese individuals, and will serve as the basis for development of further prevention and intervention programs for individuals who are healthy, at risk of disease, or who have a metabolic disease.

Nutrition Research

Diet and nutrition are important factors in the promotion and maintenance of good health throughout life. Their role as determinants of chronic non-communicable diseases is well established and consequently they occupy a prominent position in prevention activities.

The burden of chronic diseases is rapidly increasing worldwide and almost half of the total chronic disease deaths are attributable to cardiovascular diseases. Obesity and diabetes are also showing worrying trends, not only because they already affect a large proportion of the population, but also because they have started to appear in younger age-groups.

Lifestyle modification is the cornerstone of treating and preventing diseases of obesity. The nutrition program will examine and endeavour to optimise diets for people with obesity, cardiovascular disease, insulin resistance and Type 2 diabetes.

Clinical Physiology Research

The roles of both energy intake and expenditure in determining body fat gain throughout life will be examined in human physiological studies. Hormonal and cellular investigations will also be conducted to identify the underlying metabolic causes of individual differences in body composition and energy regulation. Using the research platforms of epidemiology, physiology, cell biology and behavioural research, impacts of physical activity and nutrition will be investigated to address knowledge gaps and contribute to the translation of this research into new drugs, devices and treatment options for patients, and to translation of the research into public health policy and practices.

The Healthy Lifestyle Research Centre will cater for a variety of human physiological studies including calorimetric measurements of energy expenditure, aerobic and strength capacity, body composition analyses, muscle and fat biopsies, glucose clamps and metabolic tracer assessments, blood, tissue and urine specimen processing.

Access

Enquiries about accessing any facilities at the Healthy Lifestyle Research Centre should be directed to the Centre Manager Dr Renée Dutton on 8532 1131 or renee.dutton@bakeridi.edu.au



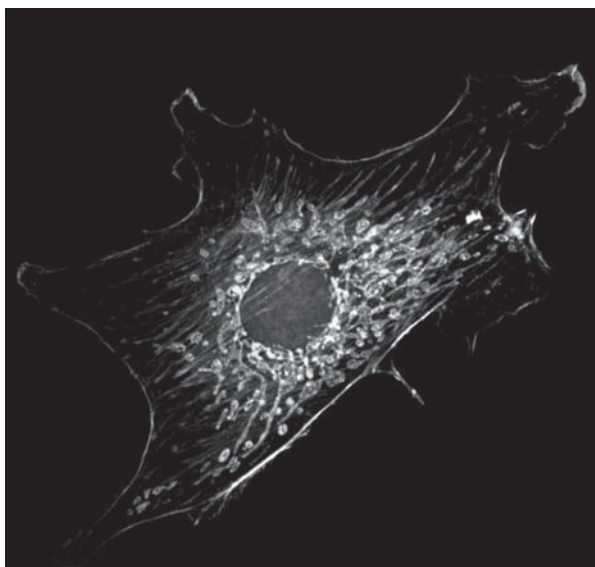
Physical activity intervention research will be conducted in the research gymnasium.



Nutritional interventions will be conducted in the research kitchen and neighbouring research dining room.



Clinical research rooms will support human physiology studies, including physical activity, nutrition and metabolic studies.



Bovine pulmonary artery endothelial cell imaged in the MMI@AMREP facility.

Monash Micro Imaging at AMREP (MMI@AMREP)

Monash Micro Imaging established a node at AMREP to manage the core imaging resources of Baker IDI, the Burnet Institute and Monash University Central Clinical School. Stephen Cody has joined MMI to manage and develop the MMI@AMREP facility. Stephen coordinates and facilitates microscopy developments, and is responsible for microscopy training and research support. Training seminars and workshops are also conducted to help broaden understanding of imaging.

Currently MMI@AMREP manages three confocal and several conventional fluorescence microscopes within PC2 laboratories. There is also a dedicated deconvolution microscope within a PC3 facility if required. MMI@AMREP staff are available to assist with experimental design, and techniques such as live and fixed cell imaging, time-lapse, 3D, high resolution of large areas, fluorescence, brightfield, phase, DIC, and ion imaging such as Ca^{2+} and pH.

MMI@AMREP has an office in Baker IDI (lower ground floor) and a Monash office on the sixth floor of Burnet Tower. Contact Stephen Cody (stephen.cody@med.monash.edu.au) for further information.



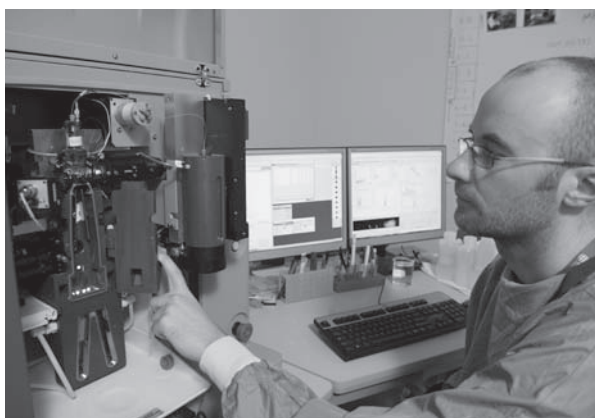
Ettan robot workstation.

Omics (DNA and Blood Profiling) Facility

The DNA and Blood Profiling Facility at Baker IDI integrates the Genomics, Epigenomics, Metabolomics and Proteomics laboratories (Omics) with the Bioinformatics group.

This systems biology approach enables a more rapid and precise look at biological questions from multiple starting sources (i.e. DNA, RNA, plasma, protein). The facility contains state-of-the-art instruments, including the Illumina Genome Analyzer II (next generation sequencing) and iSCAN System (gene expression microarrays), the Sequenom MassArray for genotyping and highly sensitive quantitative gene expression analysis, as well as a number of specialised mass spectrometers for lipid profiling, peptide mass fingerprinting, biomolecule separation and protein profiling.

For more information on the platforms available and the services offered, contact Dr Farhad Shafiei (email: farhad.shafiei@bakeridi.edu.au), or visit http://www.bakeridi.edu.au/core_facilities/OMICS/



Michael Thomson sets up the FACS Aria for a cell sort.

Flow Cytometry Facility

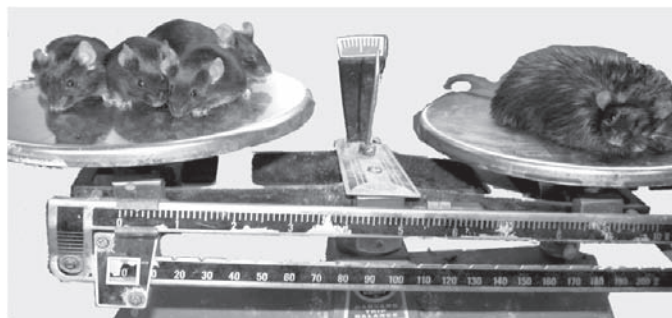
The AMREP Flow Cytometry Facility is a state-of-the-art, world class cell sorting and cell analysis laboratory, catering for the scientific research community based at AMREP and broader Melbourne. The facility is located in the Monash Department of Immunology, AMREP, and some of the instruments are located within Baker IDI and the Burnet Institutes.

The Flow Cytometry Facility offers comprehensive training and education, experimental design and protocol guidance specifically targeting effective data generation and interpretation. Services catering for both animal and human cell sorting in a PC2 environment are offered. The facility can also handle infectious sample sorting (e.g. HIV, hepatitis C) in a dedicated PC3 environment which is unique to Melbourne.

For more information on the platforms available and the services offered, contact the manager of the facility, Geza Paukovics (email: paukovic@burnet.edu.au), or visit <http://www.amrep.org.au/intranet/index.php/flow-cytometry>

Mouse Metabolic Phenotyping Facility

Devising new therapies to combat obesity is challenging due to the complex nature of metabolic disease, which involves the interaction between genetics and the environment. Mice provide an essential model for studying metabolic disorders since the whole mouse genome has been sequenced and candidate genes for coronary disease, cardiomyopathy, diabetes, obesity and other disorders of metabolism have been identified. Transgenic technology and gene targeting protocols have allowed researchers to create new mouse lines with specific phenotypes and well-defined DNA structural changes that enable diseases of metabolism to be better understood.



The Mouse Metabolic Phenotyping Facility at Baker IDI Heart and Diabetes Institute was recently established to provide services to scientists using mice to study obesity, diabetes, cardiovascular disease and other metabolic diseases. Using state-of-the-art tools and methods, the facility provides sophisticated, standardised, high quality metabolic and physiologic phenotyping services for rodent models of obesity, diabetes and related disorders. This service will enable scientists to identify and study new mouse models of complex metabolic diseases. By manipulating candidate genes in mice, scientists will gain a much better understanding of the genetic origins of obesity and related diseases, and the effects of different environmental factors.

Professor Mark Febbraio (email: mark.february@bakeridi.edu.au) or Dr Clinton Bruce (email: clinton.bruce@bakeridi.edu.au) may be contacted for information on services.

Burnet ImmunoMonitoring Facility

The Burnet ImmunoMonitoring Facility (IMF) was officially launched on 3 June 2010 by Peter Williams, National Association of Testing Authorities (NATA) State Manager for Victoria and Tasmania. He presented the certificate of NATA Research and Development (R&D) accreditation to the Director of the Burnet IMF, Associate Professor Rosemary French. The Burnet IMF is the first Victorian facility to receive NATA R&D accreditation. The facility develops optimised and validated immunological assays for clinical trials and pre-clinical research compliant to ISO/AS17025.

The development of vaccines and immunotherapies requires the sophisticated assessment of immune responses in both animals and in human clinical trials. Cell-mediated immunity is a key biomarker for most vaccines and immunotherapies and involves the activity of specialised cells including macrophages, dendritic cells, natural killer cells, antigen-specific cytotoxic T-lymphocytes, helper T-lymphocytes and the release of various cytokines in response to antigen stimulation.

The Burnet IMF aims to support both internal and external research in vaccine development by conducting and validating relevant immunological assays to Good Laboratory Practice standards. Increasingly, regulatory authorities request that assays showing markers of vaccine efficacy are robust and standardised. These assays are often difficult to complete and require a high level of operator skill and specialised equipment.

Analysis of the biological samples is performed using the following appropriately validated analytical techniques and processes:

- ◆ Isolation and cryopreservation of mononuclear cells, plasma and serum
- ◆ ELISpot assays
- ◆ Multiplex bead array systems
- ◆ ELISA
- ◆ Neutralisation activity assays
- ◆ Phagocytic function and oxidative burst activity analysis

Enquiries about the Burnet IMF should be directed to Associate Professor Rose French, Facility Director (email: rfrench@burnet.edu.au) or Kylie Goy, Facility Coordinator (email: kgoy@burnet.edu.au).



From left: Peter Williams presents Associate Professor Rose French and Professor Brendan Crabb with the NATA certificate of R&D accreditation.



Burnet ImmunoMonitoring Facility.

IAN POTTER LIBRARY



The Ian Potter Library provides a single integrated library and information service to staff and students of AMREP. Acting as the hub of the Alfred Health Library Service, the Ian Potter Library also supports the local library services at Caulfield Hospital and Sandringham Hospital.

Supporting Research

The library organises its information resources to support patient care, educational training and research activities of the AMREP institutions. Supporting research is a major focus for the library, and keeping abreast of new research programs and developments is important. With representatives of all the AMREP institutions, the Library Advisory Committee advises on information services and resources required by research scientists and students. Key resources include access to full-text electronic journals, bibliographical databases in biomedicine, technical monographs, specialist reference texts and overseas document requests. The library also provides frequent training classes for the use of electronic resources in its computer training room.

Improving Access to Online Resources: e-books

Although the usage and demand for e-journals continues to be the stand-out feature of the library service, e-books are slowly growing in importance for library users. The recorded online usage of e-books for 2009 was 5,200. This compares with about 20,000 loans for print books in 2009. E-books are purchased by the library either on a subscription basis or as a one-time purchase, and can be accessed easily via the library's online e-book list.

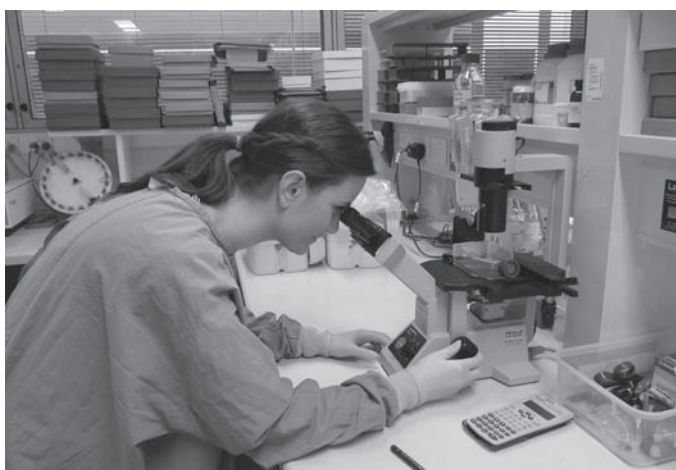
International Collaboration

Li Hongmei is Head of the Information & Teaching Department of the Kunming Medical University Library in Yunnan Province, China. She was invited to join the Alfred Health Library Service between January and July 2009 as a visiting scholar. Li Hongmei's visit was supported by a scholarship provided by the China Scholarship Council. Kunming Medical University has 14,000 students, most of which are doctors in training. During her stay, Li Hongmei researched medical library practice in Australia and gained ideas regarding library user training and education.

Green Initiatives

What is photocopying when you take away the paper and toner? Answer: rapid scanning. In 2009, the Ian Potter Library introduced a new service by hooking up a Ricoh photocopier and a PC station to provide rapid scanning. This service is proving to be popular with library users, who often only need to read a chapter or small section from a large textbook. The scans are converted automatically to portable document format (PDF), are high-resolution, and include colour images. The PC station allows the PDF to be viewed and then saved onto a USB memory stick. This new service is simple, fast, reduces the consumption of paper and toner, and is provided free to library users.

AMREP 2010 HONOURS SCHOLARSHIP AWARDEES



Lauren Giuffrida
Autoimmune Diseases Laboratory, Department of Immunology, Monash University



Elisha Horat
Intracellular Signalling and Gene Expression Laboratory, Burnet Institute



HUMAN RESEARCH ETHICS COMMITTEE

Professor John McNeil AM
Chair, The Alfred Ethics Committee

The Alfred Ethics Committee

The Ethics Committee received 458 research projects for review in 2009. The full committee reviewed 143 health and social sciences applications and 159 drugs and interventions applications. One hundred and fifty-six 'low risk' projects were reviewed by a sub-committee of the Ethics Committee. This alternative method of review is allowable under the NHMRC National Statement on Ethical Conduct in Human Research, provided the reviews are professional and competent.

A Victorian Government initiative to streamline ethical review of multicentre clinical trials was implemented in 2009. Under the program, a single accredited human research ethics committee (HREC) undertakes an ethical and scientific review of a research project, which is accepted by other institutions involved in the research. It is anticipated that the single review system will lead to faster time to approval and commencement of research across multiple hospitals. The Alfred Hospital Ethics Committee was one of the first to review a project under the new program and Alfred Health was an 'accepting' site for three projects reviewed by other HRECs in the program.

The committee reviewed six first-time-in-human (FTIH) applications. Reviews of high risk research involve in-depth scrutiny of the scientific aspects by the Research Review Committee and, in most cases, additional review by an external independent expert. For each such project, the Ethics Committee conducted an interview with the principal researcher about the scientific and ethical aspects of the research. FTIH studies generally test the safety of new drugs, how the body responds to them and establishes the dose to be used in the next phase of the drug development. The six studies involved a vaccine aimed to prevent invasive disease caused by *Staphylococcus aureus*; drugs for the treatment of psoriasis; rheumatoid arthritis; Type 2 diabetes and dyslipidemia; solid tumours; and haematologic cancer. No major side effects have been reported.

General Ethical Issues

The General Ethical Issues Sub-committee (GEI S-C) of the Alfred Hospital Ethics Committee met ten times in 2009 and considered a wide variety of issues, in line with its brief to consider ethical matters relevant to Alfred Health and the wider community.

Research Ethics Issues

- ◆ Compensation for injury to participants in clinical trials: wording for participant information sheets which accurately reflects participants' compensation options was refined in 2009 before being recommended for wider use by Victorian HRECs.
- ◆ Genetic testing in research and implications for life insurance: undergoing genetic testing as part of a research project may give participants information about their future health which could adversely impact on life insurance applications. Standard wording to convey this risk was developed for inclusion in participant information sheets.

- ◆ The use of social networking sites in research: it is not always possible to employ traditional ethical 'safeguards' in collaborative web environments. Research participants in social media contexts are more vulnerable to risks, such as breaches of privacy and confidentiality, and areas such as recruitment, consent, anonymity and the potential for manipulation of participants' social behaviour are potentially problematic. An ongoing project for the GEI S-C is to monitor the situation, keep abreast of current discussions in academia and the media, and identify areas where guidance needs to be developed.
- ◆ Establishing participant registers for 'healthy control' research participants: many clinical research projects have a healthy control arm in which participant involvement is usually limited to providing one or more blood samples. Recruiting controls can be difficult, time consuming and resource-wasteful. Having a register of willing volunteers who can be contacted as required would help to address this problem; however, registers need to be appropriately set up and operated. Appropriate criteria were developed.
- ◆ Media publicity for research in progress: publicising research can be a valuable means of raising the profile and public acceptance of research; however, it may also be misleading, raise false hopes and impact negatively on the informed consent process. The GEI S-C identified some key dos and don'ts to assist researchers.

Guidelines developed or currently under development:

- ◆ Alfred Hospital Ethics Committee safety monitoring and reporting requirements.
- ◆ Retaining data when participants withdraw from clinical trials: guidance on what is ethically acceptable and consistent with Australian privacy laws.
- ◆ Electronic record keeping: advice to researchers about storage, accessibility, nomenclature, expectations of the Ethics Committee and institution, interactions with Information Technology Services.
- ◆ Research in private practice settings: guidelines for ethics committees and researchers.

Input into Alfred Health and AMREP policies and guidelines:

- ◆ Alfred Health Clinical Photography guidelines.
- ◆ Alfred Health Patient Privacy brochure.
- ◆ Clinical Quality Registries: a Guideline for Human Research Ethics Committees (Monash University, Faculty of Medicine, Nursing and Health Sciences).

Discussion of Ethical Issues in the Media

Criteria for the diagnosis of brain death were called into question in the media in relation to a court case involving alleged misdiagnosis. The Alfred Health guidelines, and criteria used by the hospital, were reviewed from an ethical perspective and endorsed.

HUMAN RESEARCH ETHICS COMMITTEE MEMBERSHIP

Ethics Committee

Professor John McNeil (Chair)
Roy Olliff (layman, Deputy Chair; Chair, Health and Social Science Group – from February 2010)
Dr Stephen Duffy (Chair, Health and Social Science Group – to December 2009)
Professor Mari Botti (nursing representative; Deputy Chair, Health and Social Science Group)
Marta Ago (lawyer – to December 2009)
Emily Bingle (laywoman)
Elizabeth Burns (laywoman)
Dr Tracey Caulfield (laywoman – to December 2009)
Dr Catherine Cherry (from February 2010)
Simon Cohen (lawyer – from February 2010)
Brad Crammond (member with knowledge of relevant research areas)
Fiona Ellis (lawyer – to December 2009)
Dr Judith Frayne (member with knowledge of professional care and treatment)
Peter Gallagher (layman)
Samantha Gault (laywoman – from February 2010)
A/Professor Richard Gerraty (member with knowledge of relevant research areas)
Reverend Sam Goodes (minister of religion)
Linton Harriss (member with knowledge of relevant research areas)
Reverend Marilyn Hope (minister of religion)
Linda Hornsey (laywoman)
A/Professor David Hunt (member with knowledge of relevant research areas)
Dr Michael Hurley (member with knowledge of professional care and treatment)
Professor Colin Johnston (member with knowledge of relevant research areas)
A/Professor Victor Kalff (member with knowledge of professional care and treatment)
Andrew Kauler (layman – to December 2009)
Professor Henry Krum (member with knowledge of relevant research areas)
Jim Mahoney (lawyer – from February 2010)
Maria McKenzie (member with knowledge of relevant research areas)
Stephen Moloney (lawyer)
Fr Ian Morrison (minister of religion – from February 2010)
Shefton Parker (member with knowledge of relevant research areas – from February 2010)
Dr James Shaw (member with knowledge of relevant research areas)
Fran Westmore (laywoman – to February 2009)
Michael Wildenauer (layman – to February 2010)
Dr Fran Wise (Caulfield Hospital representative; member with knowledge of professional care and treatment – to May 2010)
David Zarfaty (layman – from February 2010)
Paul Zawa (lawyer – from February 2010)
Rabbi Dr Gershon Zylberman (minister of religion – to December 2009)
Rowan Frew (Secretary)
Dr Angela Henjak (Assistant to Secretary – Drugs and Interventions Group)
Nicole Rosenow (Assistant to Secretary – Drugs and Interventions Group)
Kordula Dunscombe (Secretary – Health and Social Science Group)
Tracey Scheller (Secretary – Health and Social Science Group to December 2009)
Anna Parker (Secretary – Health and Social Science Group – from February 2010)

General Ethical Issues Sub-committee

Professor John McNeil (Chair)
Professor Paul Komesaroff (Deputy Chair)
Professor Alison Street
Dr Susannah Ahern (Medical Administration representative; from January 2010)
Marta Ago (from January 2010)
Dr Tracey Caulfield
Simon Cohen (from February 2010)
Brad Crammond (to December 2009)
Professor Frank Dudley (Medical Administration representative; to December 2009)
Reverend Marilyn Hope
A/Professor Peter Hunter (Caulfield Hospital representative; from April 2010)
Andrew Kauler (to December 2009)
Peter Gallagher
Dr Phoebe Mainland
Dr Roderick McRae
Dr Annett Miller (from January 2010)
Elizabeth Mullaly (Caulfield Hospital representative)
Janine Roney (from June 2009)
Professor Graeme Ryan (to December 2009)
Dr Tim Sutton
Professor John Wilson
Michelle Wright
Kordula Dunscombe (Secretary)
Rowan Frew (Ethics Manager)

Research Review Committee

Professor Colin Johnston (Chair)
Professor Henry Krum
Dr Sharon Avery
Dr Catherine Cherry
Dr Andrew Davies
Dr Amanda Davis (from February 2010)
Dr Judith Frayne
A/Professor Richard Gerraty
Dr Andrew Haydon
A/Professor Victor Kalff (to December 2009)
Dr William Kemp
Anne Mak
Professor John McNeil
Dr James Shaw
Dr Alan Young
Rowan Frew (Secretary)
Dr Angela Henjak (Assistant to Secretary)
Nicole Rosenow (Assistant to Secretary)

Low Risk Sub-committee

Maria McKenzie (Chair)
Fran Westmore (to February 2009)
Dr Phoebe Mainland (to December 2009)
Dr Scott Presnell (to December 2009)
Nicole Rosenow (to December 2009)

The low risk process was reviewed in 2009 and was changed at the start of 2010 to an out of session process involving review by individual Ethics Committee members overseen by the Chair and without meetings or a sub-committee.

ANIMAL ETHICS COMMITTEE

The AMREP Animal Ethics Committee (AEC) assesses all proposals for the use of animals for scientific purposes from the Baker IDI Heart and Diabetes Institute, Burnet Institute, Monash University Central Clinical School and The Alfred. The AEC decides whether the proposal to use animals is justified on ethical grounds, and whether the welfare of the animals will be adequately protected. For animal use to be justified, the AEC must be convinced that the benefits of the use outweigh the potential costs to the animal.

The AMREP AEC must ensure that all animal use for scientific purposes at AMREP complies with the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes 2004* (the Code), which sets out the responsibilities of investigators, teachers, institutions and AECs regarding the use of animals. Compliance with the Code is required under the *Animal Care and Protection Act 2001*.

The Code requires that all proposals to use live animals are assessed by a quorum of AEC members; that is, at least one committee member in each of the following categories must be present: (A) veterinarian, (B) scientific, (C) animal welfare and (D) lay.

Applications in 2009

One hundred and seventeen new experimental proposals were reviewed by the AEC in 2009. Many of the applications received during the year were very complex and innovative. The animals used were principally mice and rats, but a small number of rabbits, ducks and dogs were also used.

To manage the large number of applications, the meeting frequency was doubled to twice each month and the membership increased, drawing on the expertise of three lay people, three veterinarians and three animal welfare representatives. While scientific expertise is derived primarily from the AMREP research community, welfare and lay membership comprises independent individuals who are not affiliated with any of the AMREP institutions in order to ensure that committee decisions are impartial.

Education and Training of Animal Users

A number of workshops were held during the year to promote the common goal of the researchers and the AEC of ensuring compliance at the highest levels. Topics covered in the workshops included the role of the AEC, research conduct, record keeping and occupational health and safety.

Animal Ethics Committee Restructure in 2010

A significant restructure of the AMREP AEC was recently implemented (from July 2010) to improve governance, consistency of review and the quality of applications. Two review committees (A and B), both chaired by Dr Alana Mitchell, will meet each month and report to a parent/policy committee that meets quarterly. While previous practice was to constitute both review committees from the one pool of members, the new committees will have fixed membership; that is, members will be on either committee A or committee B. The responsibilities of the parent committee include development of policies and standard operating procedures, education of members and users, dispute resolution, reporting and auditing.

2009 Membership

Professor Geoff Head (Chair)
Dr Raffi Gugasyan (Chair)
Dr Robert Andrews (Deputy Chair/Scientific)
Dr Judy de Haan (Deputy Chair/Scientific)
Dr Carol Ginns (Veterinarian)
Dr Mandy Errington (Veterinarian)
Dr Kay Juliff (Veterinarian)
Dr Ashish Banerjee (Scientific)
Professor Jaye Chin-Dusting (Scientific)
Dr Charles Hardy (Scientific)
Associate Professor Frank Alderuccio (Scientific)
Dr Chris Tikellis (Scientific)
Dr Michael Skilton (Scientific)
Dr Marissa Bowden (Scientific)
Robyn Sullivan (Animal welfare)
Nicholas Kanarev (Animal welfare)
Ian Burns (Animal welfare)
Noel Ansell (Lay)
Patricia Baitz (Lay)
Mary Klein (Lay)
Debra Ramsey (Animal Care/Facility Manager)
David Spiteri (Animal Care)
Leia Demtschyna (Secretary)
Michaela Lodewyckx (AEC Administrative Assistant)





A Lift for Life trainer closely supervises the strength training program designed specifically for this Lift for Life participant.

Lift for Life

Pioneering research by Baker IDI scientists continues to help guide the development of prevention and treatment programs in diabetes. Research into the benefits of resistance training by Baker IDI researchers, including a two-year trial of a progressive strength training program, showed improvements in blood glucose control which matches and sometimes exceeds that typically produced by conventional drug treatments. This program, which offers people a simple way to manage their diabetes, attracted international attention from diabetes experts and led Baker IDI specialists to develop a dedicated exercise program for older people with, or who are at risk of Type 2 diabetes, called Lift for Life. Funded by the Federal Government in 2007, the program was rolled out nationally resulting in the program being offered in commercial health and fitness centres across Australia. At the conclusion of Government funding, the rights were licensed to Fitness Australia, resulting in greater program resourcing and improved promotion and access to potential providers. The program is now offered in around 70 centres nationally and in all but one of Australia's states and territories.

The same science that developed Lift for Life is also being used to run a pilot research program introducing progressive strength training in the Rumbalara indigenous community in Northern Victoria. This small study is introducing strength training activities through the community's football and netball club and will examine both the clinical and social benefits of physical activity and its potential to address greatly increased rates of chronic disease and decreased life expectancy amongst indigenous Australians.

In 2010, through funding made available by the Federal Government's Healthy Communities Initiative, Baker IDI and Fitness Australia aim to implement Lift for Life in as many as 72 local government areas. Implementation will focus on disadvantaged Australian communities.

Investigators: D Dunstan, P Zimmet, J Shaw

Magnetic seizure therapy for treatment resistant depression

Depression is a common and disabling disorder affecting up to one in five Australians during their lifetime. There are a small number of patients who do not improve with antidepressant medication or psychotherapy. Electroconvulsive therapy (ECT) is currently the only established intervention for treatment resistant depression but has considerable limitations, including memory related side effects. The development of a new effective therapy for treatment resistant depression without cognitive side effects would have great clinical value. The Monash Alfred Psychiatry Research Centre (MAPrc) conducts research into magnetic seizure therapy (MST), a novel experimental brain stimulation technique that appears to have similar clinical effects to ECT but without the memory side effects. It involves induction of a focal seizure for therapeutic purposes via high frequency repetitive transcranial magnetic stimulation (rTMS).

Magnetic fields are able to pass freely into the brain, making it possible to produce a focal seizure in a specific brain area. In contrast, ECT uses direct electrical current which does not pass freely into the brain, and the resultant seizure involves deeper brain areas. It is this widespread seizure that is thought to be responsible for the memory loss reported following ECT.

MST is in the early stages of research, and is only available in a few locations worldwide. The MAPrc MST pilot trial is ongoing, with four patients completing the trial to date. If MST is found to be an efficacious treatment for treatment resistant depression, it has considerable implications. MST could be rapidly rolled out using existing ECT infrastructure, which would result in an increased availability of treatment for patients where ECT is not an option due to the risk of cognitive side effects and associated stigma. Reduced reorientation time could also cut hospital costs and increase outpatient availability for patients seeking relief from treatment resistant depression.

This research is funded by the National Health and Medical Research Council and the beyondblue Victorian Centre of Excellence in Depression and Related Disorders.

Investigators: P Fitzgerald, K Hoy, A Clinton, G Downey, K Yap



Dr Kate Hoy and Professor Paul Fitzgerald with the magnetic seizure therapy machine.

A clinical pharmacist in an ambulatory heart failure clinic: impact on patient symptoms and hospital admissions

The aim was to determine the benefit of a pharmacist-led intervention to educate patients with heart failure about modifying their own diuretic doses (fluid medication) in response to fluid retention. The study was conducted over a six-month period in 2008 in conjunction with Dr Peter Bergin and Louise MacFarlane (Department of Cardiovascular Medicine).

Seventy patients with heart failure were randomised to usual care (35) or usual care plus pharmacist intervention (35), and were followed for three months. The pharmacist intervention focused on improving self-care, symptom recognition of fluid retention, daily weight measurements and appropriate diuretic dose self-adjustment using a flexible dose frusemide regimen. The primary outcome was the average number of appropriate weight-titrated frusemide dose adjustments. Secondary outcomes included hospital admissions due to fluid overload, heart failure-related knowledge and understanding, and quality of life.

The average number of appropriate weight-titrated frusemide dose adjustments per patient per month in the control group was 0.32 ± 0.08 compared with 0.85 ± 0.13 in the intervention group ($p=0.006$). The proportion of hospital readmissions due to fluid overload was 31% in the control group versus 14% in the intervention group ($p=0.044$). There were significant differences in heart failure-related knowledge and understanding and quality of life between the groups.

This study has demonstrated that the intervention by the pharmacist and the use of an educational dosing guide can increase the number of appropriate dose adjustments of diuretic in heart failure patients and subsequently decrease hospital readmissions due to fluid overload. The success of this project has resulted in The Alfred's ongoing support for the role of the pharmacist in the Heart Failure Outpatient Clinic, with responsibilities in patient education, development of policies and guidelines and as a member of the multidisciplinary team.

Investigators: A Korajkic, P Bergin, M Dooley, L MacFarlane, S Poole



Pharmacist Amela Korajkic discusses the management of heart failure with a patient in The Alfred Heart Failure Outpatient Clinic.

Irreversible electroporation for the treatment of focal liver, kidney and lung cancer ablation: a pilot study

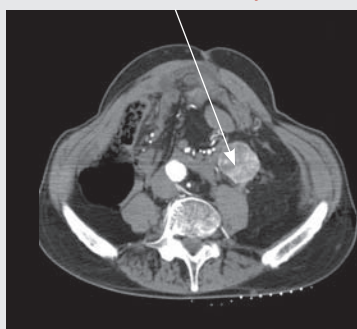
A study investigating the safety of irreversible electroporation (IRE) using the NanoKnife for the ablation of tumours in the liver, kidney and lung was conducted at The Alfred from November 2008 to October 2009. The NanoKnife sends a low energy direct electrical current between two needle electrodes that are placed directly into a tumour. An electrical field is created between the two needles that ablates the tissue between them. Animal data suggested that the current can permanently open the cell membrane and cause the cancer cells to die, without causing any detrimental thermal damage to adjacent vessels and structures as is seen in radiofrequency thermal ablation (RFA). The permanent opening of the cell membrane is called irreversible electroporation.

Forty-one patients were enrolled in the clinical study; 38 were treated and 68 procedures were performed. The procedure was carried out under general anaesthetic with a muscle relaxant. Blood tests, clinical examination and computed tomography scans were carried out prior to, immediately after, and at one month, three months and six months after treatment.

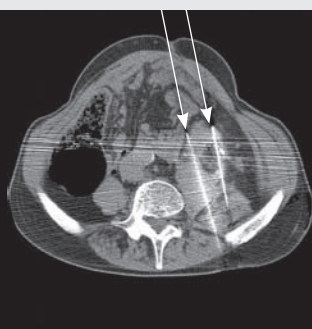
The device for local tumour ablation appears to be safe for human clinical use. There was no evidence of organ damage, giving the NanoKnife a favourable safety profile in comparison with thermal ablation devices currently in use. Provided similar efficacy to other ablation modalities is proved, IRE should have a significant impact on current cancer management. The Department of Diagnostic and Interventional Radiology plans to undertake a comparative trial of RFA and IRE for the treatment of tumours.

Investigators: K Thomson, S Lyon, W Cheung, S Ellis, J Koukounaras, H Kavvoudias, D Loader-Oliver, C Ball, D Federman

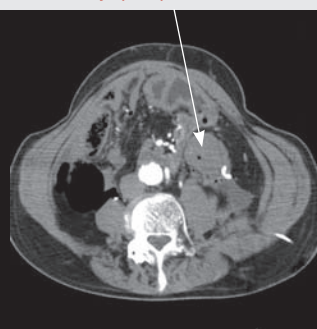
Pre-procedure
Tumour visualised with contrast dye



Procedure
Placement of needle electrodes for ablation



One month post-procedure
Tumour cells destroyed; therefore, there is no uptake of contrast dye post-procedure



Irreversible electroporation (IRE) is used to destroy cancer cells in focal tumours. Pictured is a kidney tumour successfully ablated.

Professor Matthew Naughton, Head General Respiratory and Sleep Medicine, and Sally Ho, Home Monitoring Coordinator, discuss the portable 'greyflash' machine that is being tested. It is a portable sleep device that could help more people, including shiftworkers and those in the transport industry, be tested for sleep problems.



Allergy, Immunology and Respiratory Medicine

Director: Professor Robyn O'Hehir BSc, MBBS, PhD, FRACP, FRCP, FRCPath

Clinical Director: Professor Trevor Williams MBBS, MD, FRACP

The Department of Allergy, Immunology and Respiratory Medicine (AIRmed) has a comprehensive spectrum of expertise across clinical and basic allergy, respiratory medicine and clinical immunology. Specific disciplines include severe asthma, allergic diseases, non-HIV primary and acquired immune deficiencies, chronic obstructive pulmonary disease, interstitial lung diseases, sleep apnoea and sleep disordered breathing, lung cancer, cystic fibrosis (CF; State Centre of Excellence), bronchiectasis, pulmonary vascular disease and adult and paediatric lung transplantation. 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 in allergy and respiratory medicine 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 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.

Departmental Highlights

- ◆ Academic promotion in the Department of Medicine, Monash University to Honorary Professor Matthew Naughton in recognition of his outstanding contributions to the field of respiratory and sleep medicine.
- ◆ Vanessa Kelly, PhD student from Physiology Service, was awarded an NHMRC Biomedical Postgraduate Scholarship, to support her research into the effect of heterogeneity and airway closure on distensibility measurements in asthma.
- ◆ Physiotherapist Associate Professor Anne Holland was awarded a Churchill Fellowship to support travel to Europe and North America to examine models for delivering pulmonary rehabilitation to rural and remote areas by web technology.
- ◆ Dr Kirk Kee was awarded a Royal Australasian College of Physicians ResMed Foundation Research Scholarship for 2010 to support his doctoral research on the effects of continuous positive airway pressure on loop gain in congestive heart failure with central sleep apnoea.

- ◆ Associate Professor Tom Kotsimbos and national colleagues were awarded a six-month \$430,000 multicentre NHMRC grant to monitor the impact of the H1N109 influenza virus. This is the first project in Australia to collect data on influenza-related admissions in real-time.
- ◆ Dr Alan Sharp was appointed Honorary Emeritus Consultant Medical Officer to the Allergy, Asthma and Clinical Immunology Service.
- ◆ Dianne Goeman from the Allergy, Asthma and Clinical Immunology Service was awarded the Helen Macpherson Smith Trust Grant of \$20,000 by the Asthma Foundation of Victoria in order to undertake an adult asthma mortality study.
- ◆ Professor Matthew Naughton, Head of General Respiratory and Sleep Medicine Service, is a chief investigator on an NHMRC Project Grant for 2010–2012 'Duty cycle: a simple method for quantifying loop gain'.
- ◆ Associate Professor Bruce Thompson and Professor Frank Thien are chief investigators on an NHMRC Project Grant 2010–2012 'Ventilation heterogeneity and airway remodelling in asthma'.
- ◆ Professor Robyn O'Hehir, Professor Fabienne Mackay, Professor Jennifer Rolland and Dr Charles Hardy received a CASS Foundation grant for 2010 to support their proof-of-concept murine study 'Follistatin therapy for cystic fibrosis and other lung inflammatory disorders'.
- ◆ Professor Robyn O'Hehir, Professor Jennifer Rolland and Dr Sara Prickett obtained an Ilhan Food Allergy Foundation Project Grant for 2010 for their continuing research on peptide immunotherapy for peanut allergy.
- ◆ Professor Matthew Naughton and colleagues were awarded a Monash University Faculty of Medicine, Nursing & Health Sciences Strategic Grant for 2010 for their research titled 'An investigation of drowsiness whilst driving in hospital night shift workers and sleep disordered patients. The Monash Drowsy Driving (MONRI) study'.
- ◆ Professor Matthew Naughton and colleagues were awarded a ResMed Foundation Grant for 2010 for their research on 'Investigation of long term use of non invasive ventilation in Australia'.
- ◆ Dr Andrew Gillman, Senior Clinical Fellow, AIRmed 4, won an inaugural fellowship for 2010 from the Picchi Brothers Foundation for his research on asthma in older people.
- ◆ Vanessa Kelly was awarded the Australian & New Zealand Society of Respiratory Science Young Investigator Award. The title of her presentation was 'The effect of short acting bronchodilators on the compliance of airway diameter and length'.

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 and New Zealand. It has strong links to clinical programs in severe interstitial lung disease, pulmonary hypertension and severe chronic obstructive pulmonary disease. It includes a Paediatric Lung Transplant Service.

Current Projects

- ◆ Mechanisms and predictors of chronic allograft rejection with emphasis on airway remodelling and novel strategies for prevention and reversal
- ◆ Immunological and clinical evaluation of viral (cytomegalovirus) infections
- ◆ Human donor lung evaluation and resuscitation
- ◆ *Ex vivo* evaluation of humanised transgenic GAL knockout porcine lungs
- ◆ Randomised placebo-controlled drug trials of conventional and novel therapeutics in pulmonary hypertension and interstitial lung disease
- ◆ Investigation of bronchoscopic interventional treatment for emphysema by valve, decompression airway stents and bronchial thermal ablation techniques
- ◆ Evaluation of emphysema using sound wave analysis
- ◆ Human clinical experience with donation after cardiac death lung donors

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.

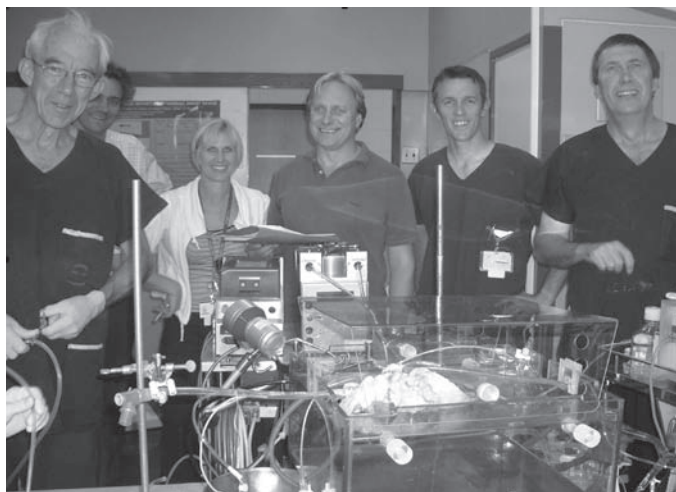
Current Projects

- ◆ Stem cell sciences in advanced lung disease: potential role of stem cell therapy in CF
- ◆ 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
- ◆ 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 related breathing disorders across a wide cross-section of pulmonary, cardiac and neurological conditions.



The Lung Transplant Research Team (from left: Prof. Franklin Rosenfeldt, Dr Glen Westall, A/Prof. Bronwyn Levvey, Prof. Greg Snell and senior perfusion specialists Mark Mennen and Robin McEgan), evaluates the function of genetically modified pig lungs perfused with human blood using the specially designed ex vivo perfusion rig.

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

AIRmed 4: Allergy, Asthma and Clinical Immunology Service

Head: Associate Professor Jo Douglass

The service cares for patients with asthma, allergic diseases 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
- ◆ Spirometry evaluation in the ageing population
- ◆ Severe asthma and bronchopulmonary aspergillosis
- ◆ Transition to adult care in adolescents with primary immunodeficiency disorders
- ◆ Novel strategies for immunomodulation including nanoparticles
- ◆ Drug allergy: clinical and laboratory studies
- ◆ Immunological and molecular characterisation of peanut allergens and seafood allergens
- ◆ Clinical and immunological mechanisms of subcutaneous injection and sublingual allergen immunotherapy
- ◆ Investigation of follistatin as an anti-inflammatory, anti-fibrotic therapeutic

Physiology Service

Head: Associate Professor Bruce Thompson

The Lung Function Laboratory underpins many of the AIRmed clinical and research programs and takes a leading role in developing new diagnostic tests for measuring small airway function. In addition, the Physiology Service has a leading role in quality assurance of lung function testing internationally.

Current Projects

- ◆ Novel non-invasive measures of small airways disease in asthma and lung transplantation
- ◆ Early detection of lung disease
- ◆ Mechanics of individual airways in asthma
- ◆ Early detection of airway remodelling in asthma
- ◆ Imaging ventilation and perfusion of the lung using MRI
- ◆ Assessing quality control in the lung function laboratory

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

7 PhD Students

Publications

47 Journal Articles

1 Cochrane Systematic Review

2 Book Chapters



Anaesthesia and Perioperative Medicine

Director: Professor Paul Myles MBBS, MPH, MD, FANZCA, FFARCSI, FRCA

The Department of Anaesthesia and Perioperative Medicine is amongst the largest in Australia, consisting of 28 fulltime and over 50 visiting specialist anaesthetists, as well as 40 registrars in training. The department provides anaesthesia, perioperative care, pain management, resuscitation and referral services for Alfred Health. The academic affiliation with Monash University is strong, with Professor Paul Myles being Chair of the Academic Board of Anaesthesia and Perioperative Medicine. A dynamic research unit within the department focuses on patient safety, quality of care, improving pain relief and avoiding serious complications after surgery.

The research unit is headed by Professor Paul Myles, and funded through a number of large NHMRC grants. Paul is supported by an NHMRC Practitioner Fellowship. Staff members include Senior Lecturer Dr James Tomlinson, Research Manager Sophie Wallace and Research Assistants Sonia Noske and Andrea Ditoro. The unit manages and participates in numerous multicentre and local clinical trials.

Medical staff in the department have achieved recognition presenting, lecturing, visiting and attending a large number of hospitals, conferences and universities around the world.

Each registrar undergoing specialist training in anaesthesia must undertake a research project as part of their specialist qualification. During 2009, eight projects were completed, including some randomised trials and audits.

Current Projects

ENIGMA-II Trial www.enigma2.org.au

Professor Paul Myles

One of the department's largest research initiatives is to investigate the safety of nitrous oxide (laughing gas) in 7,000 patients with risk factors for coronary artery disease who are undergoing major surgery. It is hypothesised that avoidance of nitrous oxide will reduce the incidence of cardiac complications or death when compared with otherwise identically managed surgical patients who receive a non-nitrous anaesthesia regimen. This study received a \$2.8 million NHMRC Project Grant, and is coordinated by the department and the Australian and New Zealand College of Anaesthetists (ANZCA) Trials Group. The rationale for the study protocol has been accepted for publication in the *American Heart Journal*. This international multicentre trial commenced in May 2007 and has collaborators in Australia, New Zealand, Hong Kong, Canada, USA, India, Saudi Arabia, UK, Malaysia, Switzerland and Singapore.

The ATACAS Trial www.atacas.org.au

Professor Paul Myles

The Aspirin and Tranexamic Acid for Coronary Artery Surgery (ATACAS) Trial is a large multicentre, randomised, controlled trial investigating whether

aspirin or tranexamic acid, or both, should be used in people having coronary bypass surgery. Despite concern that recent aspirin ingestion can increase blood loss after coronary artery surgery, there is some evidence that it may also reduce thrombotic complications. In contrast, antifibrinolytic drugs can reduce blood loss in this setting, but there is concern that they may increase thrombotic complications. Published guidelines are limited by a lack of large randomised trials addressing the risks and benefits of each of these commonly used therapies in cardiac surgery. This NHMRC and ANZCA funded trial is coordinated by the department and the ANZCA Trials Group, and aims to enrol 4,600 patients. Collaborating sites include hospitals in Australia, UK, India and Canada.

MASTER Recurrence Trial

Professor Paul Myles

The proposed study builds on the MASTER Trial, which was a large multicentre, randomised trial conducted between 1996 and 2001 that compared epidural regional block with opioid-based analgesia with standard, non-epidural analgesia in 915 high-risk patients having major thoracic or abdominal surgery. The majority of these patients underwent surgery for intra-abdominal cancer. The MASTER Recurrence Trial will test the hypothesis that intraoperative and postoperative epidural analgesia for high-risk (ASA III-IV) patients undergoing major abdominal surgery and complete resection of cancer results in a significant decrease in cancer recurrence and death 7–12 years after surgery. Patients who underwent cancer surgery will be followed up to determine if their cancer has returned and when it returned, as well as their survival status. During this pilot phase, all other MASTER Trial sites will be contacted to coordinate and complete follow-up of the entire MASTER Trial cohort.

Other research projects include:

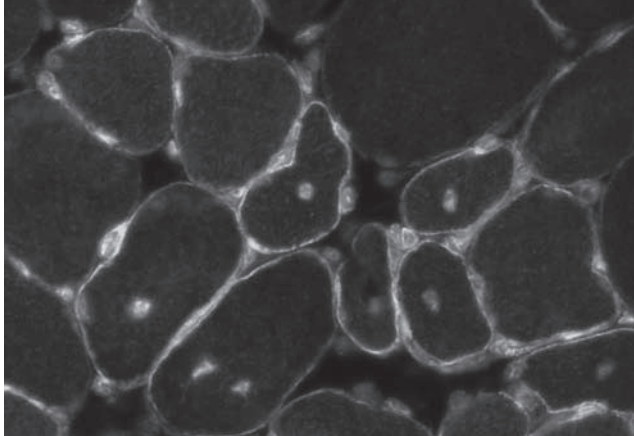
- ◆ A randomised, double-blind, placebo-controlled, multicenter study of IK-1001 to evaluate safety, pharmacokinetics and proof-of-concept efficacy for reduction of ischemia-reperfusion mediated cardiac injury in subjects undergoing coronary artery bypass graft surgery – Professor Paul Myles
- ◆ Anaesthesia Cognition Evaluation (ACE) Study – Professor Paul Myles
- ◆ Can endothelial dysfunction predict perioperative cardiac morbidity? – Dr David McIlroy and Dr Joel Symons
- ◆ Victorian Anaesthesia Safety (VAS) Project – Dr Chris Bain
- ◆ Enhanced Recovery After Surgery (ERAS) – Professor Paul Myles

Postgraduate Students

3 Masters Students
2 PhD Students

Publications

19 Journal Articles



Immunofluorescence study of utrophin in the muscle of an FHL1/MDX transgenic mouse.

Anatomical Pathology

Head: Professor Catriona McLean BSc, MBBS, FRCPA, MD

Research Activities

- ◆ **Cell-specific temporal infection of the brain in a simian immunodeficiency virus model of human immunodeficiency virus encephalitis** *Dr Katherine Thompson* – This project utilised a macaque model of simian immunodeficiency virus (SIV) encephalitis to detect SIV *env* DNA from laser micro-dissected brain cell populations at specific time points to determine when and in which brain cells SIV infection occurred. The results showed that the virus entered early into the brain with productive infection of perivascular macrophages. However, following acute infection, virus became undetectable. Re-entry of virus into the brain during late stage infection was via perivascular macrophages, rather than re-activation of virus from a brain cell reservoir. Thus the perivascular macrophage can be seen to be the ‘Trojan horse’. This work challenges current notions of an HIV reservoir within latently infected, semi-permanent brain cells such as parenchymal microglia and astrocytes and was published in the *Journal of NeuroVirology* in 2009.
- ◆ **HIV neuropathogenesis** *Dr Katherine Thompson* – This research examines the timing and type of brain cells infected by HIV and the events that lead to the establishment of the virus in the brain. The overall hypothesis is that the brain perivascular macrophage is a pivotal cell in relation to spread of systemic viral infections into the brain and, as such, represents the main focus for targeted treatment.
- ◆ **Progressive multifocal leucoencephalopathy (PML) pathogenesis** *Dr Julianne Bayliss* – This research examines the establishment of latent reservoirs of JC virus in the brain, blood and kidney of healthy patients.
- ◆ **Breast cancer sub-typing and epidemiology** *Professor Catriona McLean* – Collaborating partner: Cancer Council Victoria. This multinational study (with Cambridge University) highlights the relationship of various subtypes of breast cancers with diet, environmental factors and a new prognostic marker in breast cancer.
- ◆ **The role of phosphatases in breast cancer** *Professor Catriona McLean* – Collaboration with Professor Christina Mitchell, Department of Biochemistry and Molecular Biology, Monash University. This study investigates a novel tumour suppressor factor.
- ◆ **The Australian Breast Cancer Family Study** *Professor Catriona McLean* – Collaboration with Professor John Hopper, University of Melbourne. The major goal is the maintenance and further collection of epidemiological, genetic and pathology information from over 1,000 well-characterised population-based breast cancer families for the Breast Cancer Family Registry as well as the genetic testing for *BRCA1* and *BRCA2*.
- ◆ **Analysing key molecules in multiple sclerosis** *Professor Catriona McLean* – Collaboration with Professor Trevor Kilpatrick, University of Melbourne.

- ◆ **Neurotrauma brain bank** *Dr Tony Frugier (NTRI), Professor Catriona McLean* – Collaborating partner: National Trauma Research Institute (NTRI). This study investigates the acute inflammatory response in the two weeks following human brain trauma including cytokine RNA expression and morphologic change.
- ◆ **JC virus latency in lymphocytes and spleen** *Eleanor Harrison* – This study was part of a BMedSc project investigating potential sites of latency for JC virus in the blood of healthy and immunosuppressed patients.
- ◆ **Neuroimaging (using novel binders) of neurodegenerative diseases** *Professor Catriona McLean* – Collaborating partner: National Neuroscience Foundation. This research highlights novel binders and their utility in the neuroimaging diagnosis of Alzheimer’s disease.
- ◆ **A study of TDP-43 in motor neurone disease** *Professor Catriona McLean* – Collaborating partner: University of Melbourne. This research highlights a possible novel cerebrospinal fluid marker of disease.

Major Achievements

In 2009, Professor Catriona McLean was CIA on a successful five-year NHMRC Enabling Grant to facilitate continued brain banking for neurodegenerative diseases. This grant runs through the Mental Health Research Institute of Victoria. Professor McLean was CIA on two philanthropic grants into neurodegenerative disease and was CIB on a successful NHMRC Project Grant with Professor Christina Mitchell, Monash University, on a project related to breast cancer. She is also one of multiple national and international investigators on a five-year NIH grant administered by the University of Melbourne that will investigate genetic causes of familial breast cancer. Professor McLean continues her work as CI on three other NHMRC Project Grants into multiple sclerosis, Alzheimer’s disease and breast cancer, and as CIA on a Victorian Neurotrauma Initiative Grant for brain banking of neurotrauma.

She won a national citation award for outstanding contribution to student learning from the Australian Learning and Teaching Council, and received an honourable mention from the Adelaide Medical Students’ Society in recognition of teaching.

Eleanor Harrison received a Royal College of Pathologists of Australasia medical student scholarship.

Postgraduate Students

1 PhD Student

Publications

16 Journal Articles



Australian Centre for Blood Diseases

Head: Professor Hatem Salem MD, FRACP

The Australian Centre for Blood Diseases (ACBD) is a leading national and international centre with recognised research, treatment, and educational programs for blood diseases. ACBD is affiliated with Monash University, Alfred Health, Eastern Health and Southern Health, and is organised into three integrated divisions:

- ◆ Clinical and Diagnostic Haematology/Oncology
- ◆ Clinical and Basic Research Programs
- ◆ Teaching and Education

The objectives of ACBD are to:

- ◆ provide leadership in the advancement of knowledge of blood diseases
- ◆ establish an information resource for medical practitioners and the general public
- ◆ apply and commercialise discoveries that arise from basic research in blood
- ◆ act as an advisory body to State and Federal Governments
- ◆ raise the centre's national and international profile by attracting leading clinicians and researchers

Serpin Biology Unit

Head: Associate Professor Paul Coughlin

The prevention and treatment of blood clots is a delicate act: too much anti-platelet or anti-coagulant therapy can lead to unwanted bleeding, which can have catastrophic consequences (such as haemorrhagic stroke), while fibrinolysis therapy can cause brain damage. The unit examines alternative ways of treating and preventing blood clots by focusing on the serpin (serine protease inhibitor) superfamily of proteins.

When blood clots form in response to injury, a naturally occurring process of dissolution is also activated. This leads to the clearance of clot from blood vessels during the healing process. Similarly, in diseases such as heart attack, stroke and deep vein thrombosis, clots are usually dissolved over time. In many people this mechanism is inefficient. In the past, activators of clot dissolution were exploited to treat people with thrombosis. In blood there is a balance between the main clot dissolving factor, plasmin, and its regulator, antiplasmin. The unit studies the ways these proteins recognise each other and bind together, and has shown that by interfering in this interaction, the clot dissolving process can be accelerated. Ongoing work involves the development of agents which will ultimately be used to treat blood clots and thereby hasten recovery from thrombotic diseases.

Thrombosis Research Unit

Head: Professor Shaun Jackson

Haemostasis is initiated by adhesion of platelets to damaged vessel walls, culminating in the formation of a platelet plug. When triggered within

diseased blood vessels, this normally protective haemostasis becomes exaggerated and results in an abnormal platelet plug that blocks blood flow through the vessel (arterial thrombosis). Thus, platelets represent a key ingredient in the development of blood clots (thrombosis) that lead to devastating diseases such as heart attacks and strokes.

The unit aims to further understand the basic principles surrounding normal haemostasis, with the ultimate goal to discover a 'magic bullet' that selectively targets pathological thrombosis without compromising haemostasis. The unit has also expanded its research to acknowledge the broadening role of platelets in various pathological processes and disease states.

First recognised more than 150 years ago, disturbed blood flow is a key factor provoking disease-causing blood clots but the underlying mechanism has not been identified. Studies from this unit, published in *Nature Medicine* in 2009, have uncovered the molecular basis by which mechanical forces promote clotting. Moreover, these studies have revealed that this new clotting mechanism is resistant to the effects of commonly used anti-clotting drugs, such as aspirin, clopidogrel or warfarin, identifying a potentially important mechanism of antithrombotic drug failure. This raises the interesting possibility that therapeutic targeting of platelet biomechanical processes may represent an effective approach to reduce the prothrombotic effects of disturbed blood rheology and enhance the overall effectiveness of commonly used antithrombotic drugs.

Current Projects

- ◆ Novel insights into platelet function and thrombus formation
 - Investigating novel approaches to regulate blood clot contraction and arterial thrombolysis (S Schoenwaelder, S Jackson)
 - Investigating the implications of platelet apoptosis (S Schoenwaelder, S Jackson)
 - Investigating the prothrombotic implications of diabetes (S Jackson, S Al-Daher)
 - Examining a role for platelets in inflammation (Y Yuan, S Jackson)
- ◆ Biochemical and physical factors regulating platelet function
 - A role for Dok2 proteins in regulating haemostasis and thrombosis (S Hughan)
 - The effects of disturbed blood flow on blood clot formation (W Nesbitt, S Jackson)
 - Investigating Type II PI 3-kinases in haemostasis and thrombosis (J Hamilton, S Jackson)
- ◆ Platelet receptors and their roles in haemostasis and thrombosis
 - The von Willebrand factor receptor GPIb/V/IX (S Cranmer, S Jackson)
 - Thrombin and the protease activated receptors (J Hamilton)

Major Awards

Professor Shaun Jackson was awarded an NHMRC Australia Fellowship. He was also honoured by the International Society on Thrombosis and Haemostasis (ISTH), and selected to deliver the Marion I. Barnhart Memorial Lecture at the XXII Congress of the ISTH in Boston. The ISTH Congress is the premier international haemostasis and thrombosis meeting. Professor Jackson delivered his lecture on 'Modern concepts of platelet activation during thrombus development'. This lecture is one of the main presentations at the ISTH meeting and is a rare honour for an Australian scientist.

The Fibrinolysis and Gene Regulation Unit

Head: Associate Professor Robert Medcalf

The removal of blood clots from the circulation and the turnover of extracellular matrix proteins are facilitated by specialised enzymes. One of the most important enzymes in this setting is plasmin, which is the end product of the fibrinolytic system. Plasmin performs many functions, but it is generally accepted that its primary role is to degrade fibrin, the structural scaffold of a blood clot.

The main interests of the unit are in the molecular and cellular biology of this enzyme system, particularly in gene regulation at the transcriptional and post-transcriptional levels, in various cell types. Efforts are also devoted towards understanding the biology and pathophysiology of the plasminogen activator system in the central nervous system, mainly in relation to ischaemic stroke and neurotrauma, and modulation of the blood brain barrier.

Current Projects

- ◆ Regulation of tissue-type plasminogen activator (t-PA) gene expression *in vitro* (R Medcalf)
- ◆ The role of t-PA in the central nervous system (R Medcalf, A Samson, M Sashindranath)
- ◆ Understanding the means by which t-PA modulates the blood brain barrier (R Medcalf, B Niego)
- ◆ Regulation of the plasminogen activator inhibitor type 2 gene (S Stasinopoulos)

Malignant Haematology & Stem Cell Transplantation

Head: Associate Professor Andrew Spencer

Myeloma Research Group

- ◆ Epigenetic targeting of haematological malignancies
- ◆ Small molecule development program
- ◆ Cell adhesion mediated drug resistance
- ◆ Tissue array as a predictive tool in multiple myeloma drug response

Immunotherapy Research Group

- ◆ Generation of cytomegalovirus (CMV)-specific T cells for prevention of CMV disease following stem cell transplantation (SCT)
- ◆ Generation of minor histocompatibility antigen specific-T cells for use in immunotherapy as a potential treatment for leukaemia patients
- ◆ Role of natural killer cells and HLA-E in the recovery of patients after SCT
- ◆ The expression of the calcitonin receptor on leukaemia cells and its role in the disease process
- ◆ Modulation of immune function by anti-fungal drugs

Stem Cell Transplantation Research Group

- ◆ Late effects clinic
- ◆ Immune reconstitution following novel reduced intensity conditioned SCT
- ◆ Longitudinal audit of invasive fungal infections in SCT and acute leukaemia induction

Clinical Trials Program

Clinical trial activities remained high during 2009, with an increasing proportion of Phase 1 and first time in human studies.

Vascular Biology Laboratory

Head: Dr Robert Andrews

Platelet receptors glycoprotein (GP) Ib-IX-V and GPIIb/IIIa form an adhesion-signalling complex unique to human platelets that controls the function of platelets in flowing blood. The overall aim of the group's research is to increase understanding of the mechanisms of ligand binding, signalling and expression of GPIIb/IIIa and GPIIb/IIIa relevant to many different diseases involving human platelets – that is, thrombotic diseases such as heart attack or stroke, autoimmune diseases involving anti-platelet autoantibodies, inflammatory diseases such as rheumatoid arthritis, and tumour metastasis.

Research progress in 2009 includes:

- ◆ Developed a new blood test for measuring soluble shed GPIIb/IIIa (sGPIIb/IIIa) in human plasma generated by the platelet metalloproteinase ADAM10;
- ◆ Applied this assay to the measurement of sGPIIb/IIIa in healthy individuals and patients with immune thrombocytopenia, heparin-induced thrombocytopenia, stroke, disseminated intravascular coagulation, acute coronary syndrome and other diseases;
- ◆ Identified new pathways for activation of ADAM10, including pathological levels of hydrodynamic shear stress, and activation of coagulation pathways in human plasma;
- ◆ Defined critical binding sites on GPIIb/IIIa for transmitting ligand-induced signals leading to platelet activation, including new signalling pathways involving the NADPH oxidase complex (Nox2) directly linked to the cytoplasmic domains of both receptors via TRAF4 that provide a mechanism for redox-regulation of platelet function at arterial shear rates.

Together, these findings reveal new strategies for diagnosis and/or inhibition of GPIIb/IIIa-dependent platelet dysfunction in human disease.

In 2009, Dr Mohammad Al Tamimi was awarded the Scientific Medal of the Australasian Society for Thrombosis and Haemostasis for the discovery of coagulation-induced shedding of GPIIb/IIIa.

Eastern Clinical Research Unit (ECRU)

Clinical Research Trials Division

The Eastern Clinical Research Unit (ECRU) is an initiative of the Monash University Department of Medicine and is based at Box Hill Hospital, Maroondah Hospital and The Alfred. ECRU has been involved in clinical trials since 1996 and has consolidated its position as the premier clinical research facility in Australia. ECRU employs over 50 medical and nursing staff who are involved in the management of over 150 clinical trials in both medical and surgical specialities.

ECRU Biotechnology Research Division

ECRU Biotechnology (ECRU Biotech), headed by Dr Anthony Dear, aims to expand the capabilities of ECRU beyond clinical research to a better understanding of the activity of existing pharmaceuticals and the development of new and better treatments. Active contributors to ECRU Biotech include members of several disciplines from the clinical activity at ECRU, including endocrinology, neurology and oncology, together with recent significant support from the pharmaceutical industry.

Postgraduate Students

18 PhD Students

Publications

31 Journal Articles



Australian Centre for Health Innovation

General Manager: Cathie Steele BSc, BAppSc, MPhty, MBus, AFACHSE

Director of Research: Professor Peter Cameron MBBS, MD, FACEM

The Australian Centre for Health Innovation (CHI) provides health technology evaluation, innovation and simulation education services that enhance patient safety and quality of care. Over 7,000 clinicians, managers and technology developers from across Australia used CHI services in 2009.

Key Findings

The impact of rapid roaming user access on workforce efficiency and attitudes to online documentation in aged care

The implementation of CHSL and terminal services at a 40-bed aged care facility led to a five-fold reduction in the average time taken for nursing staff to uniquely log on to computer systems and access clinical information systems (25 seconds with CHSL, 135 seconds without CHSL). At the same time, there was a four-fold increase in the number of times that staff accessed the computers.

The use of rapid access systems such as CHSL has the potential to significantly reduce non value adding activities such as logging into computers and applications for the nursing workforce. The concomitant increase in the number of times records were entered or accessed also has the potential to improve clinical care and the accuracy of record keeping.

The wireless operating suite: a review of good practice

A literature review and a practical workshop were undertaken to assist clinicians and IT staff to better understand and use existing and emerging wireless technologies in their perioperative settings.

Development of a GS1 barcode translation system for pathology services

The blood barcode translation system developed by CHI was studied in a clinical trial and was found to accurately enter barcode information from GS1 coded blood products into three of the more commonly used pathology information systems in use on Australia. Use of this system will help reduce errors due to the current manual transcription of barcodes.

Simulation education

New courses at CHI included:

- ◆ Patient safety for fifth year Monash University medical students
- ◆ Crisis resource management for perioperative nurses
- ◆ Paediatric life support
- ◆ Crisis resource management for trauma nurses

Current Projects

- ◆ Blood barcode translation
- ◆ The wireless operating suite: a review of good practice
- ◆ Wireless for surgical services technology workshop
- ◆ The impact of rapid roaming user access on workforce efficiency and attitudes to online documentation in aged care
- ◆ Wrong blood in tube: reducing patient harm from blood transfusion (with the Centre of Research Excellence in Patient Safety)
- ◆ Advising on information and communications technology developments for digital hospital design
- ◆ Workshops on point of care devices
- ◆ An evaluation of clinical requirements for videoconferencing and clinical communications



Monash Malaysia students study patient safety at CHI.



SimMan® goes to Sandringham Hospital as CHI education services go mobile.



Head of the Metabolomics Laboratory, Associate Professor Peter Meikle, and Research Assistant, Jacqui Weir.



Baker IDI Heart and Diabetes Institute

Director: Professor Garry Jennings AM, MBBS, MD, FRCP, FRACP, FAHA

Baker IDI Heart and Diabetes Institute is a world renowned medical research facility. Our work extends from the laboratory to hospital research and wide-scale community studies with a focus on diagnosis, prevention and treatment of diabetes and cardiovascular disease.

Our mission is to reduce death and disability from cardiovascular disease, diabetes and related disorders, two complex diseases responsible for the most deaths and the highest costs in the world in terms of treatments and hospitalisation.

Our main laboratory facilities located at AMREP are complemented by a national network that includes a research facility in Alice Springs dedicated to Indigenous health, and a preventative health laboratory in South Australia with a focus on nutrition and community intervention research.

The institute's work covers five broad themes of research, each of which supports groups of scientists who work in a laboratory setting as well as researchers who work in the community. This integration of basic scientists with epidemiologists, clinicians and public health professionals is central to Baker IDI's strategy to perform research that is directly informed by community needs and to translate discoveries into everyday clinical practice.

Population Studies and Profiling

This group works at understanding the prevalence of disease and disease risk in the population and improving health of the community. The focus is on prevention and education, as well as development of better profiling tools.

Metabolism and Obesity

The group explores the complex relationship between physical activity, weight regulation and the genetic and environmental underpinnings of metabolism to address the causes and complications of metabolic disorders and obesity.

Diabetic Complications

Diabetes is a chronic, insidious disease that is on the rise in the community. Among its many debilitating complications are heart and vascular disease, kidney and eye disease. This group focuses on understanding which people are most at risk of the complications of diabetes and discovering ways to mitigate the effects of the disease.

Vascular and Hypertension

This group brings together studies on high blood pressure, kidney disease, the neurobiology of the relationship between depression and heart disease as well as research into the damage to arteries caused by atherosclerosis, and the damage caused by heart attack.

Cardiology and Therapeutics

Heart failure, acute coronary syndromes and how better to treat atrial fibrillation are among the research areas for this group. These forms of cardiovascular disease are increasing the health burden of communities. The focus is on taking laboratory findings and translating them into better drugs, surgical and therapeutic devices for people suffering from heart disease.

As well as these research themes, we have a strong presence in health care which includes a multidisciplinary, evidence-based diabetes clinic, diabetes education, and the Healthy Hearts Clinic, providing cardiovascular disease risk assessments to the community.

Baker IDI is also active in training health professionals and collaborating on international projects in heart disease and diabetes.

The Baker IDI Research Framework

Baker IDI's research agenda is based on the notion of a disease continuum from birth to death, with the opportunity of preventing the progression of disease at any stage. These themes encompass our activities ranging from cellular and molecular biology, to integrative physiology, population studies, preventative health initiatives and clinical services focussed on:

- ◆ **Early life:** and the experiences during pregnancy and infancy that may be a determinant of an individual's propensity to develop diabetes, metabolic syndrome and subsequently cardiovascular disease in middle age.
- ◆ **Childhood and adolescence:** with a view to informing policy and developing novel ways of altering the balance in an individual between energy expenditure, food intake and nutrient density as well as providing better information on optimal diets and physical activity programs.
- ◆ **Adults with risk factors:** including assessment of cardiac and metabolic risk; the causes and treatment of the major cardiovascular risk factors particularly diabetes, hypertension and abnormalities of blood fats; and risk factor clusters such as the metabolic syndrome.
- ◆ **Sub-clinical organ damage:** with a focus on the time in life when asymptomatic risk factors cause measurable changes in the body, particularly the arteries of the heart, brain, kidneys and eyes.
- ◆ **Acute complications:** heart attack, stroke and sudden death; with a focus on understanding the mechanisms underlying the development and rupture of unstable plaques.
- ◆ **Clinical complications:** angina, kidney failure, dementia; with a focus on the development of disease management programs, particularly in high risk communities such as the Australian Indigenous community.
- ◆ **Heart failure and terminal disease:** including work ranging from fundamental research on maintaining the viability and function of heart cells in the context of advanced disease, the prevention of complications of a failing heart such as arrhythmia, the development of new devices to cure atrial fibrillation, and stem cell research to replace damaged heart muscle or help arteries heal.

Research Highlights

In a productive and successful year, research has continued in a range of areas from cellular and molecular studies to wide-scale community screening and intervention programs, and the translation of research findings into the next stage of therapy development. Findings have been published in high-impact journals including *The Lancet*, *New England Journal of Medicine* and *Circulation*.

Some highlights across our research groups include a focus on disease and disease prevention in the following life stages:

Early life

- ◆ Recent advancements by the Laboratory for Muscle Research and Therapeutic Development shed new light on the potential use of gene therapy to treat the complications of inactivity and advancing age, as well as a host of conditions that are caused or complicated by the loss of muscle mass and strength.
- ◆ The molecular mechanism that explains how blood vessels are damaged by prior episodes of high glucose, a well described clinical phenomenon, is now for the first time starting to be unravelled using modern molecular biology.

Childhood and adolescence

- ◆ Discovery that a heat shock protein in muscle inhibits inflammation and prevents insulin resistance (pre-diabetes) in the context of obesity and high-fat feeding. Plans are now under way to test these findings in human clinical trials.
- ◆ Breaks in sedentary time have beneficial associations with metabolic risk. These findings suggest new public health recommendations regarding breaking up sedentary time that are complementary to those for physical activity.
- ◆ Discovery that high density lipoprotein (HDL) cholesterol has an important role in glucose and fat metabolism. These findings suggest a potential role for HDL, raising therapies beyond vascular disease to address key aspects of the metabolic syndrome. Research is now under way to see if there is a sustained benefit with prolonged HDL elevation over a long period.

Adults with risk factors

- ◆ In *The Lancet*, data from AusDiab (the largest Australian longitudinal population-based study ever conducted) was used to question the whole basis on which the diagnostic blood sugar levels for diabetes have been set. AusDiab also published the first ever national statistics in any developed country on the incidence of diabetes, and identified the potential for a novel intervention to improve metabolic health – in addition to reducing total sedentary time; any prolonged sedentary periods should be avoided.
- ◆ A score for assessing the risk of developing diabetes has been developed from AusDiab, and is now being used nationally (and as part of a new Medicare item) to select people for diabetes prevention programs.
- ◆ In Victoria, we have been involved in setting up and piloting the WorkHealth program, which aims to screen all Victorian workers for cardiovascular disease, diabetes and other chronic diseases over the next five years.
- ◆ During 2009 we have been busy working on the Healthy Hearts: Beyond City Limits screening program with regional partners (including East Gippsland, Shepparton and Ballarat). Thus far, over 2,000 community participants have benefited.
- ◆ The second international Heart and Mind conference organised by Baker IDI will be held in Prato, Italy, in September 2010.
- ◆ The discovery of important interactions between cell compartments in generating potentially harmful reactive oxygen species which damage the kidney in diabetes. These findings have direct clinical implications, emphasising the multiple sources of damaging molecules in the diabetic environment that need to be blocked or scavenged in order to reduce blood vessel and kidney injury in diabetes.
- ◆ The demonstration that HDL has profound anti-inflammatory effects on monocytes, helping to explain why this ‘good cholesterol’ helps avoid atherosclerosis.

- ◆ A world-first breakthrough in the treatment of high blood pressure was pioneered by Baker IDI researchers, with a study showing a new catheter-based treatment is delivering remarkable improvements in blood pressure levels to clinical trial participants. The procedure involves the insertion of a catheter through the femoral artery and uses radio frequency to ‘silence’ sympathetic nerves in the renal artery. The results of this study, which were published in *The Lancet*, are expected to revolutionise treatment options for high blood pressure around the world.

Sub-clinical organ damage

- ◆ We developed a new poly-marker approach for the diagnosis of coronary artery disease using urine samples. Using capillary electrophoresis coupled to mass spectrometry we could define proteome patterns that are highly specific for coronary artery disease.
- ◆ Identification of novel pathways that contribute to myocardial hypertrophy and cardiac fibrosis – key factors in the damaging effects of a large heart in disease and explaining how heart enlargement in athletes which occurs through different pathways is beneficial.
- ◆ The description of the role of two relatively recently discovered proteins, ACE2 and RAGE, which could potentially become new drug targets for cardiovascular and metabolic disorders.
- ◆ In recently completed animal studies, Baker IDI researchers have found that a short course of relaxin treatment in older rats with hypertension has led to marked changes in the large artery structure and a reduction in blood pressure. This suggests a possible therapy in humans is worth exploring and it is hoped that joint studies through the Alfred & Baker Medical Unit will develop this approach in the near future.

Clinical complications

- ◆ Nucleus Network was clearly established as the premier early phase clinical trials organisation in Australia and a second unit was opened at the Austin Hospital.
- ◆ This year saw the first application of a medical device developed at Baker IDI into clinical trial, in conjunction with Osprey Medical. The device allows people with kidney disease to have coronary angiography without further damaging their kidneys.
- ◆ Our staff were key investigators in the publication in the *New England Journal of Medicine* of landmark studies on the best drug treatment for diabetes (ADVANCE) and for people at high risk after stroke, heart attack or other vascular event (ONTARGET, TRANSCEND).
- ◆ We launched the Heart of the Heart program in Central Australia. Alex Brown and his team have now screened 200 Indigenous adults as part of this landmark study of cardiovascular disease.
- ◆ We have continued to support the Heart of Soweto Study in South Africa with over 8,000 patients now captured via Africa’s largest study of heart disease to date.
- ◆ Discovery that inhibition of the hormone angiotensin II reduces aortic diameter in patients with Marfan syndrome.
- ◆ Development of a novel method for assessing cardiac fibrosis in the human heart using MRI.
- ◆ Orthostatic intolerance is a disordered control of blood pressure and causes recurrent fainting and severe fatigue when people stand up. Our molecular research has uncovered a new mechanism that may be responsible for this and this discovery will be the basis for new treatments. Former Wiggles, Greg Page, is a sufferer and has supported our research by establishing a new fund.

Acute complications

- ◆ Research has uncovered what appears to be the basic cause of heart attack risk in depressive illness. This finding suggests specific treatment to protect patients with depression from heart attack beyond treating their depression alone.

Future Directions

New research initiatives planned for Baker IDI will enhance diabetes and heart disease research and management. State-of-the-art facilities recently established or under way include:

Metabolomics

Devising new therapies to combat obesity is challenging due to the complex nature of metabolic disease. To develop treatments for metabolic disorders such as obesity, therapies must first be tested in isolated cell systems before progressing to clinical trials. The knowledge gained through research conducted in the planned new facility will allow researchers to devise more effective prevention and treatments. Once the gene functions and defects implicated in particular diseases are identified, researchers can develop ways to screen people for risk factors and design remedies that target the causes and complications of disease.

DNA and Blood Profiling

The establishment of this new facility in 2008 represented a major advance in the area of personalised medicine. By more effectively understanding the genetic underpinnings of disease, clinicians will be able to diagnose, treat and care for their patients in a holistic manner. The central idea behind the new facility is to integrate existing research disciplines so that health problems are understood and resolved in a way that takes into account individual responses to risk factors.

Clinical Metabolism: The Healthy Lifestyle Research Centre

Diet, exercise and genetics all play important roles in body weight regulation. However, it is important to understand the specific underlying causes of obesity, which remain unclear. The Healthy Lifestyle Centre, which opened in May 2010, will allow researchers to examine how genetic and environmental factors combine to influence body weight. This unique new facility will improve understanding about the effects of physical activity and nutrition for the prevention, management and treatment of obesity and its complications, including diabetes and cardiovascular disease.

Medicinal Chemistry

This new facility will promote and enhance existing Baker IDI research projects by providing scientists with the tools they need to further examine the therapeutic potential of particular compounds. Medicinal chemistry is the science of providing small, technically accessible, synthetic molecules. These molecules can be used to induce a change to the human system or better facilitate scientific observations.

Baker IDI Central Australia: Indigenous Health Research

As part of our mission to address the health inequalities of disease between Indigenous and non-Indigenous Australians, the institute has established a dedicated Indigenous health research facility based at Alice Springs. Baker IDI's research program is conducted in close consultation with local communities, working with existing community services and designed to have an immediate effect on vascular health, while improving mortality rates in future generations. In 2010, the institute will continue to expand its research and prevention work in Central Australia.

International Projects

By providing an extension of its Australian research to vulnerable societies around the world, Baker IDI improves the understanding of health and disease and provides a powerful presence in countries that can benefit from its research expertise. Part of Baker IDI's mission is to reduce premature ill health and mortality from diabetes and heart disease wherever it occurs; increasingly it is a major threat to the future of many developing nations. There is a great disparity in health outcomes between Western and developing communities. Poverty is one of the strongest indicators of poor health and it is this inequality that must be addressed. Some projects now under way include:

Mauritius: The Institute's long-standing relationship with Mauritius passed a major milestone in late 2009 with the signing of a Memorandum of Understanding between Baker IDI and the Mauritian Ministry of Health and Quality of Life to extend our research into non-communicable diseases, in

particular Type 2 diabetes, in Mauritius. The objectives of this agreement are to improve the current understanding of the mechanism of Type 2 diabetes through family studies so that effective treatment is possible in the future, and to facilitate an exchange of data between the two parties. The relationship also provides a framework for training and exchange between Mauritian scientists and students with an interest in medical research. To date, the institute has provided support in the form of equipment, expertise, data analysis and sample preparation. This is an important partnership documenting premature ill health and mortality in a multi-ethnic society that reflects our global population.

GIANT study: The GIANT study (General Practice Implementation in Asia of Normoglycaemic Targets) was a randomised controlled multinational study designed to investigate whether education of local general practitioners about the International Diabetes Federation Western Pacific Region diabetes management guidelines led to improved glucose control in their patients. The study enrolled 100 GPs across 10 countries, with each GP enrolling four patients with Type 2 diabetes. Half of the GPs received training about the guidelines and half did not. Over a 12-month period, the study determined that there was no statistically significant difference in glucose control, blood pressure or lipids between the two groups. Substantial numbers of patients had poor glucose control throughout the study, despite the education on guidelines. Barriers to good care at both the patient level and GP level appeared to explain some of the gap between guidelines and actual practice. The outcome of this study highlights the need to find more effective ways of motivating GPs to follow guidelines. The study was funded by GlaxoSmithKline.

Heart of Soweto: This landmark program of research is being conducted by Baker IDI in collaboration with the University of the Witwatersrand, South Africa. The team documents emergent heart disease in Africa's largest urban concentration of black Africans. Comprehensive data from more than 6,000 hospital and 1,000 primary care cases (2006-2009) resulted in unique reports on emergent heart disease (*The Lancet*), heart failure (*Circulation*), hypertension (*International Journal of Cardiology*) and rheumatic heart disease (*European Heart Journal*); the latter highlighting the need to reinstate rheumatic heart disease as a reportable condition in adults. With a new phase of interventional research planned, Heart of Soweto is now informing national health policy in South Africa and has resulted in the Heart of Africa collaboration involving many other African countries.

Rishi Valley, India: The Rishi Valley study is a collaborative project between Baker IDI, Monash University and the Rishi Valley Rural Health Centre. Although the most common causes of disease burden in countries such as India include malnutrition and infectious disease, vascular disease is increasingly recognised as an emerging epidemic. In urban Indian populations, changes in lifestyle exposures (resembling those seen in developed nations) may underlie this phenomenon. Even less is known about the burden of vascular disease in those living in rural communities. The aim of this study is to obtain important baseline data on the extent of vascular disease (heart disease and stroke) and its risk factors in a typical rural Indian community.

Surveillance and Monitoring Function of the National Non-Communicable Disease (NCD) Program of Vietnam: Baker IDI collaborates with Monash University, Ministry of Health, Menzies Research Institute and World Health Organization to conduct this study. In developing nations, the burden of cardiovascular disease, stroke, diabetes, and cancer is taking over from the traditional problems of infectious diseases, maternal and child illness and death, and disorders due to under-nutrition and deficiency disease. The burden of the NCD epidemic in Vietnam is accelerating in synchrony with economic development. This study aims to establish a sustainable system for NCD surveillance in Vietnam.

Postgraduate Students

5 Masters Students
56 PhD Students

Publications

303 Journal Articles
5 Book Chapters



Burnet Institute
Medical Research. Practical Action.

*Children at Phaung Daw Oo in
Mandalay, Burma.*



Burnet Institute

Director: Professor Brendan Crabb PhD

While 2009 was a very challenging year due to the global financial downturn, it was also a period of strong growth and productivity for the institute. The mission of addressing the health needs of the world's most disadvantaged populations continues to be the focus of Burnet's activities and the emphasis on excellence in research and public health innovation is paying dividends.

It was a record year for field and laboratory research performance, with a significant increase in the numbers and quality of peer-reviewed publications generated. In 2009, Burnet's researchers published 139 peer-reviewed journal articles, and importantly, more than doubled the publication rate in high-impact journals, a major indicator of research quality. It was especially pleasing to see high-profile studies published on very different topics: malaria, HIV, hepatitis C, tuberculosis, vaccine research, cancer studies and immunology all featuring prominently.

In addition, the institute published more than 60 commissioned public health reports. Many of these technical reports will inform future policy on a variety of national and international public health issues such as measles vaccination, adolescent health, hepatitis C transmission, HIV prevention, treatment and care, education and training, and drug and alcohol use.

The work in understanding, diagnosing, preventing and developing therapies to major global pathogens such as HIV, hepatitis C, malaria and tuberculosis remains the mainstay of the institute. As well as the pathogens themselves, we are focusing more and more on the immune system that responds to foreign invaders and to cancers. This understanding provides new avenues to develop therapies and the next generation of public health tools, particularly more effective and affordable vaccines. In addition, we continue to develop research and public health activities that focus on broader health issues of mothers and their babies, of adolescents in Australia and abroad, and increasingly, of Indigenous Australians.

Much of the focus of the institute's senior management during 2009 was directed towards the finance and construction of our new building The Alfred Centre Stage 2. It doubles the capacity of Burnet's laboratory facilities and floor space, and provides room for future growth across all programs. The four-year project completes the 2006 merger between the former Austin Research Institute and the Burnet Institute and enables all staff to operate as one institute on the same campus.

The institute now has 410 staff, with offices in eight countries outside of Australia. While some growth has occurred as a result of the merger, the Centre for International Health (CIH) has grown more than 100 per cent over the past four years and is now the largest centre at the institute, with almost 200 staff, 140 of whom are based overseas.

We are strengthening collaborations and partnerships with our AMREP partners and last year welcomed Professor Sharon Lewin, Head of The Alfred's Infectious Diseases Unit, as co-head of Burnet's Centre for Virology. Professor Lewin's expertise greatly strengthens Burnet while her dual role with The Alfred underscores the close partnership between our organisations.

Among the many highlights of 2009, congratulations are due to inaugural Gust-McKenzie Medalist, Associate Professor Heidi Drummer, and Fenner Lecturer, Professor Mark Hogarth. The institute's thanks are extended to the 2009 Burnet Orator, Professor Sir Gustav Nossal AC CBE, for an outstanding presentation.

The institute is very grateful for the support it receives from the Victorian State Government through its Operational Infrastructure Support Scheme, the various competitive grant funding bodies such as the AusAID, NHMRC, philanthropic trusts and foundations, and the many individuals who contribute to the institute.

Centre for Virology

The mission of the Centre for Virology is to find innovative solutions to the world's most serious viral diseases, focusing on understanding how viruses manipulate their host cells in order to infect them and persist in the body. Research in this area is vital in developing ways to block infection and prevent viruses replicating and causing disease. The management of chronic viral diseases requires new drugs and diagnostic tools, and research within the centre investigates new drug targets at the molecular level.

Highlights

Interaction between HIV and hepatitis B virus

Of the estimated 33 million people living with HIV infection, approximately 10 per cent are also infected with hepatitis B virus (HBV). In parts of Africa and Asia nearly 30 per cent of HIV-infected patients are co-infected with HBV. People infected with both viruses have a 15-fold higher chance of liver-related death than those infected with HIV or HBV alone. Occasionally, when patients start treatment for HIV and HBV, their liver disease gets worse and liver-related mortality does not improve, even with the availability of drugs active against both HIV and HBV.

Sharon Lewin and her team have worked closely with colleagues in Bangkok, Thailand, and from the National Centre for HIV Epidemiology and Clinical Research in Sydney to better understand the interaction of these two viruses. In 2009, these collaborators published seven papers that added significantly to understanding of how HIV changes a patient's capacity to respond to HBV and treatment for HBV.

In the *Journal of Infectious Diseases*, Crane and colleagues identified that the key immunological change associated with worsening liver disease following initiation of HAART was the striking elevation of the CXCL10 protein which guides infection-fighting cells to the liver. A novel strategy for the future management of HBV may be to use drugs that specifically block the activity of CXCL10 or related chemokines.

Neuropathy among people with HIV around the world

Neuropathy is common among people living with HIV, causing pain in the feet and impairing the patient's quality of life and ability to work. Kate Cherry and colleagues confirmed that more than 40 per cent of HIV patients attending clinics at The Alfred suffer neuropathy. This is a huge problem as there is no effective treatment and available analgesics typically provide inadequate relief of neuropathy pain. This laboratory aims to understand why neuropathy occurs and which patients are at risk.

Our studies in Australian HIV patients show that increasing age, increasing height and use of particular medications are important neuropathy risks in Caucasians. We also find that inflammation-related genes influence risk, suggesting that inflammation may underpin the nerve damage. Genetic risk factors may vary by ethnic group. We have therefore established collaborations in Malaysia, Indonesia and South Africa to gain a global understanding of neuropathy rates and risk factors among HIV patients. Through reciprocal site visits, Dr Cherry has trained all investigators in data collection and identical methods of patient assessment.

Using data from Australia, Indonesia and Malaysia we developed an algorithm based on age and height that predicts neuropathy risk. In 2009, this was confirmed in 500 black South African patients. By using this simple algorithm to guide medication choice, neuropathy rates could be reduced at no added cost, even in the most resource-limited setting.

Our genetic studies have confirmed that inflammation-related genes influence neuropathy risk in various Asian populations. Ongoing studies in Africans and investigation of inflammatory responses in Australians will further clarify the role of inflammation in neuropathy. We are also investigating proposed new neuropathy treatments. Our long-term goal is to reduce the impact of this debilitating problem in people living with HIV.

Centre for Immunology

Our mission is to develop novel ways to use the immune system to prevent or treat diseases such as cancer, autoimmunity and infection. Sir Frank Macfarlane Burnet was both a virologist and immunologist. His Nobel Prize winning work laid the foundation of modern immunological studies, with applications in an extraordinary range of diseases. Burnet's Centre for Immunology brings together outstanding research groups and integrates fundamental and applied research programs to understand the way the immune system functions in health as well as in disease. This knowledge is used for the development of novel treatments for incurable or chronic diseases.

Highlights

Pandemic H1N1 influenza study

Associate Professor Rose French and team were funded from a special initiative of the NHMRC to assess immune responses in individuals infected with the pandemic H1N1 influenza strain, compared to healthy controls. This study has involved recruitment of people with H1N1 influenza in collaboration with Professor Suzanne Crowe, and Dr Allan Cheng and Dr Julian Elliott of The Alfred hospital.

The aim of this project was to determine if there were some cross-reactive responses from earlier infections and to see how these responses correlated with disease severity. In addition, once the CSL PanVax vaccine became available in September, we also assessed immune responses in individuals given the vaccine, compared to those who had received the seasonal vaccine earlier in 2009 or those who were not vaccinated.

We have been able to show that the majority of those infected with the H1N1 strain developed very high titre antibody responses, and we could also detect responses to earlier strains of influenza in these individuals. We saw cross-reactive responses to the H1N1 strain in some individuals who did not appear to be infected, indicating the possibility of recent subclinical infection or cross-reactive responses. In addition, while most people made strong antibody and B-cell responses to the PanVax vaccine, some had responses that reacted predominantly to earlier H1N1 strains.

This ongoing study aims to develop a suite of assays of influenza immunity that can be used for future influenza research and vaccine development, as well as informing H1N1 pandemic vaccination strategies in the northern hemisphere. The interim results were presented at an NHMRC summit in Canberra in December.

Understanding how regulatory T-cells develop

CD4 regulatory T-cells (Tregs) are a specialised subset of T-cells that serve an essential role controlling immune function. Normally, Treg cells serve two main purposes. First, they suppress rare, detrimental self-reactive T-cells that have managed to escape elimination during the quality control process that normally occurs in the thymus during T-cell development. Second, they curtail normal T-cell-dependent immune function, ensuring that immune responses remain restrained and immune-mediated damage does not occur. Consistent with these roles, impaired or inappropriate Treg cell function has been linked to a wide variety of autoimmune diseases and the inability of the immune system to effectively eliminate cancer cells. Understanding how Treg cells develop and are maintained offers the potential to manipulate the size of this population and in turn influence the impact of Treg cells on immune functions associated with infection, autoimmune disease, cancer and transplantation.

Our laboratory has recently shown that expression of the gene regulatory factor c-Rel in T-cell precursors is crucial in ensuring that these precursor cells that have a capacity to develop into different types of T-cells, specifically develop into Treg cells (Isomura *et al.*, *J Exp Med* 2009;206(13): 3001-14). Our ongoing studies are directed towards understanding how c-Rel dictates this Treg cell specific genetic blueprint, and whether this information can be used to manipulate the number and function of Treg cells.

Centre for Population Health

The Centre for Population Health (CPH) improves the health of the community by conducting high quality, policy-relevant and innovative research that addresses the major public health problems associated with infectious diseases, drug use and related behaviours. Areas of specific interest include HIV, hepatitis C, sexually transmitted infections, malaria, tuberculosis, drug and alcohol misuse and justice health. All are serious health concerns in Australia and the Asia and Pacific regions and predominantly affect vulnerable populations. An important component of our work is developing effective mechanisms to communicate with these populations about how to improve their health.

Highlights

An Achilles heel in malaria offers new therapy hope

A major highlight for the Centre's Gilson/Crabb Laboratory (Malaria) was publication in *Nature* of their discovery of a protein pore that is a chink in the life cycle of malaria, offering hope for the development of new treatment options for this devastating disease. This research was undertaken in collaboration with the Walter and Eliza Hall Institute of Medical Research and Deakin University's Medical School.

Malaria is spread via mosquitoes and its most lethal form is caused by the parasite *Plasmodium falciparum*. The parasite grows inside red blood cells but to survive and cause illness it must transport hundreds of different proteins to the outside. While these proteins have many different functions crucial to parasite growth and survival, a common feature is that they must all pass through the same pore (PTEx) in the surrounding membrane. The main significance of the discovery of the identity of the PTEx pore is its implication for a new anti-malarial

therapy; the next step is to identify drugs that block this protein channel. These therapies could interfere with many different crucial processes in the one hit. In that sense, the pore is an Achilles heel of the malaria parasite.

There are more than 400 million cases of malaria each year and more than one million people, mainly children, die from the disease. New therapies are urgently needed to combat ever-increasing resistance to available drugs.

Sexual health and young people – new ways to communicate about risk

Young people are highly susceptible to health problems that begin in young adulthood but have life-time consequences. A prime example of such diseases is Chlamydia infection which can have long-term consequences including pelvic inflammatory disease and infertility in women. The prevalence of Chlamydia is on the rise, with Australian notifications increasing from 180/100,000 in 2004 to 271/100,000 in 2008.

Over the past five years, CPH has undertaken a series of innovative studies aimed at increasing young people's knowledge of Chlamydia. This includes recognising their risk and awareness of the importance of regular Chlamydia testing if they are sexually active and treatment if found to be infected. We have also undertaken work aimed at improving young people's access to Chlamydia testing and treatment programs through outreach testing programs based in locations like sporting clubs (the Sex and Sport Study).

For the past five years CPH has attended the Melbourne Big Day Out music festival, and each year we interview more than 1,000 people about their sexual health and behaviour. As part of this work, we conducted the first randomised controlled trial to evaluate the use of SMS and email messages to improve the sexual health of young people; half the group were sent regular sexual health-related SMS and email messages, and the other half received no messages.

An important outcome of the study was that young women in the intervention arm (the group who were sent messages) were significantly more likely to have had a sexually transmitted infection (STI) test compared to those who did not receive the messages. A second notable finding was that both young males and females in the intervention arm demonstrated increased STI knowledge after receiving these messages compared with the control group who did not receive messages. Similar results were found when the SMS approach was scaled up to reach a larger number of young people.

More recently, we have established the FaceSpace Project, which uses online environments such as Facebook, MySpace and YouTube, to communicate with young people about sexual risk behaviour. The project involves the development of fictional characters which exist online and communicate on social networking sites, with sexual health and behaviour messages embedded within their interactions.

This work brings together CPH and the Department of Information Systems at the University of Melbourne, with creative involvement from X:MACHINE, an online production company associated with the Victorian College of the Arts.

Centre for International Health

The Burnet's Centre for International health leads practical action to improve the health of people in low-income countries. Our expertise spans HIV prevention and care, women's and children's health, sexual and reproductive health, drug use, primary health care, strengthening national health systems, and education about all these fields. Our approach is based on innovative, inquiry and influence. We work with local communities, governments, the UN system and international organisations, including Australia's development agencies. We have country offices in Papua New Guinea, Indonesia, Lao PDR, Myanmar (Burma), China (including Tibet) and Mozambique. We have regional offices in Bangkok and Fiji, and selective small projects in other countries.

Highlights

Burma (Myanmar)

Burnet Burma's civil society partners are entering a new phase of maturation and effectiveness, working in HIV prevention, treatment, care and support. Our Local Resource Centre and post Cyclone Nargis programs continue to support civil society and address specific needs for psychosocial recovery after the disaster. A new program addresses the health needs of men who have sex with men. Another will develop partners' involvement in HIV treatment and Burnet staff will also work directly to deliver services at a local level. A new partnership with the International Rescue Committee will address maternal and child health in Chin State.

China

Burnet manages the China Australia Health and HIV Facility in Beijing, and also provides technical direction for the Australia-China health project in the Tibet Autonomous Region. We have community HIV and STI projects in Tibet, and a rural community health project supports communities to identify health needs and develop solutions themselves.

We supported training of senior health workers, and undertook Tibet's first HIV and STI prevalence study and a health resource study. Burnet assessed methadone services, conducted a review of best practice for HIV prevention, treatment and care in closed settings, and developed a training curriculum for law enforcement and prison officials.

Indonesia

Burnet signed a new Memorandum of Understanding with the Indonesian Co-ordinating Ministry of People's Welfare making us one of the first international non-government organisations to do this. Our training in HIV Voluntary Counselling and Testing expanded nationally, our Bali HIV Care, Support and Treatment Network grew, we developed training on HIV for doctors in public health centres and hospitals, and further developed the national network for men who have sex with men.

Lao People's Democratic Republic

Our Lao program now manages a wide-ranging portfolio of activities. Burnet is recognised for its strong research focus and in-depth expertise in HIV prevention, particularly among men who have sex with both men and women. We began major HIV prevention work along new road developments in northern Laos, for the Asian Development Bank, and we were commissioned by the WHO to evaluate national Community Events Based HIV Surveillance.

Mozambique

Burnet prepared three reference manuals which will enable counsellors to provide accurate information to people on a range of topics deemed critical by communities. The manuals are on Violence against Women and the New Family Law; Nutrition for HIV Positive People; and the Proper Use of Medicinal Plants and Herbs. We now have a new Country Representative, Dr José Carlos Lopez Seisdedos, who has many years' experience in Mozambique.

Pacific Program

Building on our previous work, Burnet formally established a Pacific Program in 2009. Funding from the Secretariat of the Pacific Community will allow us to support national HIV and STI strategic plans, guidelines for STI tests, a study of HIV and health behaviours among prisoners in Fiji, and STI surveys in Vanuatu and Fiji. We also commenced a review of Pacific responses to the H1N1 virus and contributed to the post-tsunami relief effort in Samoa.

Papua New Guinea

The Tingim Laip HIV prevention project and the East New Britain Sexual Health Improvement Project both continued. Our project on Improving Immunisation and Newborn Survival at the Aid-post Level showed that village health volunteers can deliver hepatitis B birth-dose vaccinations to women in remote locations. We also explored the potential for integrating post-natal care with programs in maternal and newborn mortality.

Postgraduate Students

13 Masters Students
42 PhD Students

Publications

134 Journal Articles
5 Book Chapters
1 Book



Research nurse Louise Higgins discusses a randomised trial of donor site dressings with a participant.

Burns

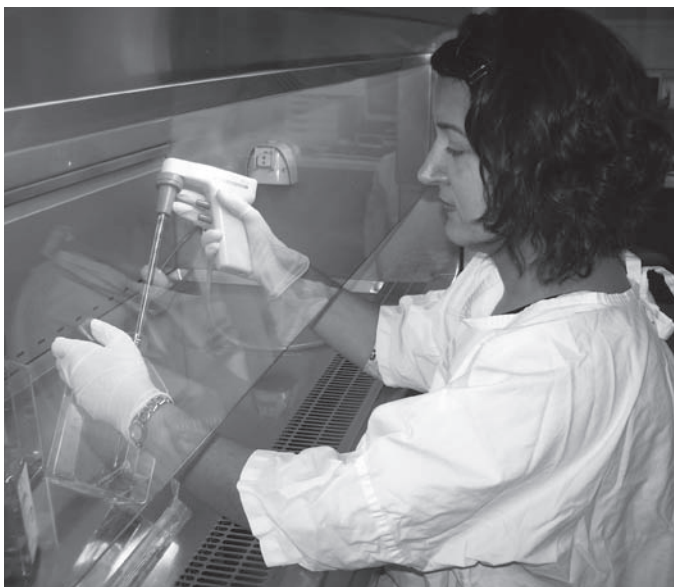
Director: Dr Heather Cleland MBBS, FRACS

The Burns Unit at The Alfred provides a state-wide service for adult, burn-injured patients. In addition to providing clinical care for all major burns patients in Victoria, the Unit engages in clinical, epidemiological and basic science research designed to improve multidisciplinary care for burns patients, and inform prevention and education programs.

Achievements

The Bi-national (Australia and New Zealand) Burns Registry successfully went live in 2009, and has produced two quarterly reports. In partnership with the Monash University Department of Epidemiology and Preventive Medicine, the Burns Unit has developed indicators that can measure the quality of care provided by participating burns units. Quality indicators provide a quantitative basis for clinicians, organisations and planners to direct improvements in care and the processes by which patient care is provided. This registry is the first burns registry to pilot the inclusion of outcome indicators in the core data set, and aims to become the first clinical quality burns registry in the world to collect validated data.

The Burns Unit is currently engaged in the assessment of the effectiveness of ongoing education programs aimed at non-specialist clinicians, especially in rural and regional Victoria. The development of the first burns specific Knowledge, Attitudes and Practices (KAP) study questionnaire will provide burns educators with a standardised assessment tool for burns education programs.



Dr Shiva Akbarzadeh heads the Skin Tissue Culture Laboratory, which is focused on basic research into keratinocyte cell biology and its application in skin regeneration and grafting.

Departmental Highlights

- ◆ Dr Edwina Moore (Monash Department of Surgery) won the DS Rosengarten Research Prize for Surgical Trainees with her presentation entitled: 'A simple tool for mortality prediction in burns patients: APACHE III score and burn FTSA'.
- ◆ Dr Heather Cleland was awarded the Murray Clarke Prize for best scientific paper at the Australian and New Zealand Burns Association 2009 Annual Scientific Meeting in Wellington, New Zealand.
- ◆ A Burns Unit publication was named by the Editor of *Burns* in the Year in Review as one of the most relevant articles for 2008: Mahar P, Wasiak J, Bailey M, Cleland H. Clinical factors affecting mortality in elderly burn patients. *Burns* 2008;34(5):629-36.

Current Research Projects

Clinical research

- ◆ Splinting regimes in axillary burns (Alison Kolmus – Master of Physiotherapy)
- ◆ Outcomes in burn injured patients (Jason Wasiak – PhD)
- ◆ Dressings for split skin graft donor sites randomised controlled trial
- ◆ Evaluation of fluid resuscitation regimes in major burns patients (in collaboration with The Alfred Emergency Department)
- ◆ Development of a mortality prediction tool for critically ill burns patients (in collaboration with The Alfred Intensive Care Unit)
- ◆ Management of patients with burn injury within the State Trauma System – analysis of VSTORM data (in collaboration with Monash University Department of Epidemiology and Preventive Medicine)
- ◆ Instruments for assessing burn care outcomes and burden of disease – the International Classification of Functioning, Disability and Health

Basic scientific research

- ◆ Use of three dimensional scaffolds for keratinocyte culture – organotypic cultures
- ◆ Optimisation of *in vitro* keratinocyte culture – role of laminins and growth factors

Collaborations

- ◆ Epithelial Stem Cell Laboratory, Peter MacCallum Cancer Centre (Dr Pritinder Kaur) – basic and applied research in keratinocyte stem cells and culture
- ◆ Monash University Department of Epidemiology and Preventive Medicine – outcomes research and registry
- ◆ Victorian Burns Prevention Partnership (VBPP): Royal Children's Hospital, The Alfred, Metropolitan Fire Brigade and Country Fire Authority – evidence-based burns prevention programs
- ◆ National Trauma Research Institute – evidence in burns care

Postgraduate Students

2 Masters Students
1 PhD Student

Publications

7 Journal Articles



TheAlfred



Dr Lesley Braun and Cathy Reardon (back left and right) coordinate the stress reduction after cardiac surgery by massage study.



Cardiothoracic Surgery

Director: Professor Donald Esmore AO, MBBS, FRACS, FRCS(Edin CT)

Head, Cardiac Surgical Research Unit: Professor Franklin Rosenfeldt MBBS, MD, FRACS, FRCS(Edin), FCSANZ

Main Research Areas

Donor heart preservation

The department strives to improve preservation of donor hearts for cardiac transplantation. Improved techniques of preservation can enhance the current results of cardiac transplantation and reduce the incidence of primary graft failure once a transplant has been done. Primary graft failure often necessitates the use of mechanical support for the heart to allow the patient to survive and recover. Improved preservation may also allow the use of a new source of donor hearts, namely donation after cardiac death (DCD) hearts. DCD donors are patients who have technically died because of cessation of heart beat followed by brain death. However, with improved techniques, it may be possible to restart the heart, revive it and subsequently use it as a transplant. This process would mirror the already very successful use of lungs from DCD donors pioneered at The Alfred.

We are currently investigating a new technique of preserving transplant hearts involving continuous perfusion between donation and transplantation with a novel blood-free protective solution at 4–8°C. Currently donor hearts are simply stored in ice, where gradual deterioration of function can occur.

Integrative medicine

Integrative medicine involves the use of non-conventional techniques to improve patient recovery after surgery and enhance post operative well-being. Following a successful trial of metabolic therapy involving coenzyme Q10, fish oils and antioxidants, the department now applies these treatments, combined with a wellness education program, to all patients undergoing elective cardiac surgery and is evaluating the results in terms of length of stay, cardiac damage and post operative complications.

Major Findings

Our previous research showed that it is possible to resuscitate a large animal heart 30 minutes after clinical death, perfuse it with blood and render it suitable for transplantation. We are now developing a cost-effective way of perfusing these hearts which will lead to clinical application.

Current Projects

Cardiac Wellness Program

Lesley Braun and Franklin Rosenfeldt

The Cardiac Wellness Program aims to improve patients' recovery from surgery and their post-operative lifestyle so as to prevent future cardiac disease and the necessity for further surgery. All patients undergoing cardiac surgery now receive perioperative metabolic therapy.

Donor heart preservation by perfusion

Franklin Rosenfeldt

Our preliminary results show a great superiority of perfusion preservation over cold storage for normal large animal hearts during a prolonged preservation period of 12 hours. After completing the study in normal hearts, we will apply the same technique to DCD hearts where improved preservation is critical.

Heart donation after cardiocirculatory death

Franklin Rosenfeldt

This project began with blood perfusion of DCD donor hearts showing good recovery compared to conventional cold storage. The overall plan is to test cold perfusion with blood-free perfusate by mounting the hearts on an extracorporeal circuit. This will be followed by transplantation in large animals. If successful, clinical application at The Alfred may follow.

Stress reduction after cardiac surgery by massage

Lesley Braun

We are currently completing a randomised trial of therapeutic massage versus 'quiet time' in postoperative patients. The purpose of massage is to reduce pain and anxiety in the postoperative period and thus reduce the need for pain relieving drugs and accelerate mobilisation of the patient after surgery. Preliminary results are encouraging, with a high degree of patient acceptance and satisfaction, and good indications of benefit.

Rib plating for chest trauma

Silvana Marasco

Enrolment is well under way and preliminary results show good stabilisation of fractured ribs.

Evaluation of carbon dioxide insufflation during cardiac surgery

Silvana Marasco

This study is designed to test the hypothesis that insufflation of carbon dioxide into the operative field during valve replacement can reduce the adverse effects of air bubbles on the brain.

Postgraduate Students

1 Masters Student
2 PhD Students

Publications

10 Journal Articles



Professor Murray Esler is an international expert on stress hormones and cardiovascular disease. In pioneering studies he investigates new ways to treat high blood pressure by procedures to limit stress hormone release in the kidney.



TheAlfred



Baker IDI
HEART & DIABETES INSTITUTE



MONASH
University

Cardiovascular Medicine

Director: Professor Anthony Dart BA, DPhil, BM, BCh, FAHA, FRCP, FRACP

The Department of Cardiovascular Medicine has an extensive research program covering most aspects of adult cardiovascular disease. Studies range from cardiac risk factors such as diet, hypertension and hyperlipidaemia to treatment options in late stage disease such as advanced heart failure and valvular heart disease. The majority of studies are investigator led by staff within the department or Baker IDI Heart and Diabetes Institute, and there are also a number of clinical trials. The research conducted spans the range from exploratory and early proof-of-concept studies to evaluation of definitive treatments. Research is funded by sources including the NHMRC, NHF and Alfred Health, as well as a number of commercial sources.

Coronary Artery Disease

Research into coronary artery disease includes continuation of single centre studies into the effect of iron chelation with deferoxamine on the outcome after myocardial infarction and on the use of novel biomarkers including level of oxidative stress and non-invasive assessment of vascular function in predicting acute cardiac events in patients undergoing major vascular surgery. Dr Stephen Duffy has the lead role in these studies and takes a prominent role in the Melbourne Intervention Group database for interventional procedures.

Other studies involving Dr Duffy and Prof. David Kaye evaluated two devices developed by Prof. Kaye for the treatment of mitral regurgitation and the capture of X-ray contrast dye in subjects at risk of contrast nephropathy. Prof. Karlheinz Peter continues studies on novel agents to inhibit platelets and the role of inflammation in vascular disease. Prof. Anthony Dart and Prof. Bronwyn Kingwell work with US collaborators on new methods for predicting cardiac output from arterial wave form measurements. New research is under way by Prof. Dart on monocytes and the outcome of coronary disease. There are several collaborative studies in progress with the Infectious Disease Unit and Burnet Institute in relation to cardiovascular risk in subjects with HIV.

Heart Failure and Transplantation

Prof. David Kaye leads a major research effort into the phenomenon of symptomatic heart failure in subjects with normal systolic (contraction) left ventricular function. This is recognised as a major cause of morbidity and is poorly understood. A particular focus is using exercise to unmask cardiac abnormalities. Other activities relate to the role of fibrosis and its detection and treatment, and whether the use of advanced imaging techniques can identify which patients will benefit from biventricular pacing (see atrial fibrillation below).

Non-invasive Cardiac Imaging

In addition to a large echocardiography service, the department is also active in cardiac MRI and CT research, with an extensive program directed by Dr Andrew Taylor. There is a particular interest in fibrosis and the use of cardiac MRI in predicting response to treatment and identifying patients with

anatomical substrates for significant arrhythmias. The role of cardiac CT in the intermediate risk group is also a research focus.

Metabolism and Nutrition

Nutrition studies conducted with colleagues at Baker IDI have focused on the ratio of n3-n6 fatty acids rather than individual components and have found significant benefits in increasing this ratio in regard to risk factors for coronary disease. Much work in the department has focused on various effects of HDL ("good") cholesterol. These have included effects on glucose and insulin as well as vascular plaque, with Prof. Kingwell and Dr Duffy playing a major role.

Atrial Fibrillation

A/Prof. Peter Kistler continues a program of research into atrial fibrillation. Recent studies have demonstrated that atrial fibrillation is much less common in patients recovering from a double lung transplant than a single lung transplant or lobectomy, confirming the importance of the pulmonary vein in the origin of atrial fibrillation.

Other studies are evaluating the role of cardiac MRI in predicting which patients are likely to suffer recurrence of atrial fibrillation following isolation of the pulmonary vein as well as studying the role of hypertension in causing atrial fibrillation. In collaboration with the Department of Cardiothoracic Surgery (Dr Silvana Marasco and colleagues), Prof. Dart and A/Prof. Elizabeth Woodcock (Baker IDI) are undertaking biochemical analyses on actual samples obtained at surgery in subjects with atrial fibrillation to study the basic biochemical basis for this important arrhythmia.

Brain-Heart Interaction

Prof. Murray Esler and his team have continued to investigate links between the brain and cardiac disease, in particular the role of depression and panic attacks. In pioneering studies, the team, in conjunction with Dr Tony Walton, has conducted the first evaluation of a new catheter-based device to damage the nerves leading to the kidney and hence effect a cure for patients with severe hypertension. These preliminary findings have been published and a formal controlled clinical trial evaluating this novel form of treatment for hypertension is now under way.

Current Projects

A complete list of current projects is available from <http://www.alfredresearch.org/research/researchrep09.htm>

Postgraduate Students

1 MD Student
17 PhD Students

Publications

51 Journal Articles



Centre for Obesity Research and Education

Director: Professor Paul O'Brien MBBS (Hons), MD, FRACS

The mission of the Centre for Obesity Research and Education (CORE) is to better understand the disease of obesity, obesity-related diseases and psychosocial conditions, and to identify optimal methods for the safe, cost-effective, long-term management of obesity, coupled with preventive strategies that can be implemented in the community leading to improved health.

CORE is unique in applying a multidisciplinary approach to the study of obesity, integrating a major clinical obesity management program with strengths in clinical research, clinical epidemiology, public health, basic sciences and professional and community education. Through this integration, CORE is able to measure the health consequences of obesity, along with the unique capacity to evaluate the health benefits of weight loss.

Research Areas

CORE is, first and foremost, a research centre. Research is central to its mission and its clinical research capability sets CORE apart from most other research groups.

Basic Research

- ◆ Weight regulation – appetite control and energy expenditure
- ◆ Mechanisms of obesity related diseases

Clinical Studies

- ◆ Randomised controlled trials
- ◆ Observational studies
- ◆ Optimising therapy
- ◆ Measuring outcomes – health, quality of life and survival

Public Health

- ◆ Population health
- ◆ Prevention of obesity – secondary
- ◆ Health impact of weight loss
- ◆ Epidemiological modelling
- ◆ Cost-effectiveness and health economic studies

Major Findings

- ◆ A detailed study of the cost efficacy and cost effectiveness of gastric banding in Type 2 diabetics showed the use of the gastric band to be less costly and generate greater quality of life than optimal non-surgical treatment.
- ◆ A randomised controlled trial of obese adolescents demonstrated the greater effectiveness of gastric banding in achieving weight loss.
- ◆ A series of studies on the physiology of the lower oesophagus and upper stomach with the gastric band *in situ* clarified the mechanisms of appetite control and transit in LAP-BAND patients.

Current Projects

- ◆ Adolescent randomised controlled trial (Professor Paul O'Brien)
- ◆ Type 2 diabetes and BMI 25–30 randomised controlled trial (Professor Paul O'Brien)
- ◆ Physical activity and weight loss in laparoscopic adjustable gastric banding (LAGB) patients – randomised controlled trial (Kristine Egberts)
- ◆ Optimised nutrition program for weight loss in LAGB patients – randomised controlled trial (Kristine Egberts)
- ◆ Meal frequency, weight loss and dietary satisfaction in LAGB patients – randomised controlled trial (Kristine Egberts)
- ◆ Metabolic syndrome study (Dr Lisa Doyle)
- ◆ Pregnancy outcomes and LAGB (Associate Professor Wendy Brown)
- ◆ Indigenous diabetes study (Professor Paul O'Brien)
- ◆ Early intervention psychological study (Dr Melissa Hayden)
- ◆ Survival study (Dr Anna Peeters)
- ◆ Intensive care study (Professor Paul O'Brien)
- ◆ Knee pain study (Dr Peter Baquie)
- ◆ Satiety: brain imaging II study with Howard Florey Institute (Dr Melissa Hayden)
- ◆ Psychological assessment study (Dr Melissa Hayden)
- ◆ Focus group stigmatisation study (Dr Melissa Hayden)
- ◆ Factor analysis of the BDI (Dr Melissa Hayden)
- ◆ Change in BDI factor scores (Dr Melissa Hayden)
- ◆ Nuclear medicine study: gastric emptying (Mr Paul Burton)
- ◆ Upper gastrointestinal symptoms study (Mr Paul Burton)
- ◆ Video manometry study (Mr Paul Burton)
- ◆ Physical activity and weight loss in LAGB patients – systematic review (Kristine Egberts)
- ◆ Erosions after LAP-BAND surgery – a systematic review of literature (Kristine Egberts)
- ◆ Nutrition programs for weight loss in LAGB patients – systematic review (Kristine Egberts)
- ◆ Cardiac study (Professor Paul O'Brien)
- ◆ Adipose tissue study (Dr John Wentworth)
- ◆ Cost-effectiveness review: diabetic study (Julie Playfair)
- ◆ Cost-effectiveness review: BMI 30–35 (Julie Playfair)
- ◆ Cost-effectiveness review: adolescent study (Cheryl Laurie)

Postgraduate Students

1 Masters Student
3 PhD Students

Publications

8 Journal Articles



PhD student Lavinia Tran conducts an iontophoresis study to assess vascular tone.



TheAlfred



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Clinical Pharmacology

Head: Professor Henry Krum, MBBS, PhD, FRACP, FCSANZ

The Clinical Pharmacology Unit provides drug-related services to The Alfred, including advice to and membership of the Drug and Therapeutics Advisory Committee and the Human Research Ethics Committee, leadership on the Adverse Drug Reactions Committee and consulting on drug and toxicology related clinical problems.

The Clinical Pharmacology Unit has a very active program of basic and clinical research on evaluation of new and established drug therapies.

Clinical Research

Clinical research is focused on drugs that may affect the cardiovascular system. Agents under current active research evaluation include COX-2 inhibitors, angiotensin receptor blockers, statin therapies, clozapine and beta-blockers, as well as various experimental agents. Evaluations include assessment of autonomic and endothelial function as well as microcirculation tone in health and disease.

The unit also serves as a coordinating centre for multicentre investigator initiated clinical trials.

Current ongoing trials include:

- ◆ ANGLE-HF: This study evaluates the utility of renal biomarkers in predicting worsened renal function and major cardiovascular events in patients with acute decompensated heart failure.
- ◆ SCREEN-HF (SCREening Evaluation of the Evolution of New Heart Failure): The SCREEN-HF study has now recruited all 3,500 elderly (>60 years) subjects with at least one risk factor for heart failure and is determining plasma brain natriuretic peptide (BNP) levels. Funding has been secured to longitudinally follow up all subjects for five years to assess for new heart failure development, and to randomise the highest BNP quintile to spironolactone versus placebo to lower BNP and reduce heart failure development.
- ◆ Triple R (Reverse Remodelling Resynchronisation) Study: Patients with heart failure may be eligible to receive a biventricular pacemaker (cardiac resynchronisation therapy) if they have evidence of dyssynchrony, either

on ECG or imaging. However, the mechanism by which cardiac function is improved is poorly understood and, furthermore, approximately 30% of eligible patients either have no response or deteriorate with this therapy. This randomised controlled trial seeks to determine mechanisms by which patients improve cardiac function and/or whether certain markers of disease predict non-response.

- ◆ Renal denervation: First-in-man assessment of a novel procedure to denervate renal sympathetic activation in resistant hypertension.
- ◆ Homeostasis: First-in-man assessment of an implantable device to assist in the management of heart failure.
- ◆ Iontophoresis: Assessment of skin microvessel tone in patients with heart failure and in healthy volunteers. Iontophoresis involves the administration of drugs through the skin of the forearm and allows for the non-systemic assessment of the vascular effects of the compound.
- ◆ INTEGRATE: Evaluation of physician inertia in hypertension management and strategies to improve this problem.
- ◆ Fibroscan: Evaluation of effect of heart disease on liver fibrosis/stiffness.

In addition, commercially sponsored trials are conducted with trial leadership provided by the department.

Basic Research

The unit also conducts a number of basic research programs within the Monash Medical School research laboratories at AMREP. Current programs include:

- ◆ Heart-kidney interactions in cardiac disease
- ◆ Role of soluble epoxide hydrolase inhibitors in cardiac disease
- ◆ Role of Rho kinase in cardiac fibrosis
- ◆ Role of novel agents in cardiac fibrosis and inflammation

Postgraduate Students

6 PhD Students

Publications

24 Journal Articles

1 Book Chapter

Diagnostic and Interventional Radiology continued from page 32

Interventional radiology

- ◆ CAFE Study: a multicentre, prospective, randomised, controlled study to compare balloon kyphoplasty to non-surgical fracture management in the treatment of painful, acute vertebral body compression fractures in cancer patients – Kyphon Inc (K Thomson; with A Spencer, Multiple Myeloma – Group)

Multi-slice computed tomography coronary angiography

- ◆ Effects of a 10 or 15 mg single intravenous bolus of ivabradine versus placebo on heart rate control during multislice CT coronary angiography for the evaluation of coronary artery disease (P Lew; with A Taylor, Cardiology)

Service delivery projects

- ◆ CT diagnostic reference levels (S Chew)
- ◆ Accuracy of limb X-ray interpretation by Emergency nurse practitioners (K Chou)



Diagnostic and Interventional Radiology

Director: Professor Kenneth Thomson MD, FRANZCR, FRCR

The Alfred Radiology Department has long been one of the most advanced radiology departments in the country. State-of-the-art facilities include the first completely robotic digital radiography room at The Alfred and the lowest radiation dose Computerised Tomography scanner in Victoria.

Under the directorship of Professor Ken Thomson, the Radiology Research Unit was established in 2002. The unit has seen rapid growth and is involved in internal, collaborative and commercially sponsored international studies across a number of disciplines. Imaging support and expertise are provided for over 120 research trials in other departments within the hospital. Funding and equipment support has been obtained through Cook Australia, Interventional Radiology Society of Australia, National Institutes of Health, Kyphon Inc and Angiodynamics Inc.

Current Projects

Tumour ablation and embolisation

- ◆ Phase 1 safety study of irreversible electroporation for the ablation of focal tumours in the liver, kidney and lung (K Thomson)
- ◆ A Phase 2 randomised, double-blind, placebo-controlled study of sorafenib or placebo in combination with transarterial chemoembolisation for hepatocellular carcinoma (S Lyon; with S Roberts, Gastroenterology)
- ◆ Postoperative pain management in patients undergoing uterine artery embolisation for symptomatic leiomyomata (K Thomson)
- ◆ Multiphase computed tomography in the management of hepatocellular carcinoma (W Cheung)

Trauma – spinal, brain, adrenal injury

- ◆ Anterior cervical discectomy and fusion in trauma patients (D Varma)
- ◆ Traumatic adrenal gland injury: epidemiology and outcome in a major Australian trauma centre (D Varma; with NTRI)
- ◆ Identifying susceptible critically ill patients who desaturate following hyperbaric treatment (D Varma; with I Millar, Hyperbaric Unit)

Vascular intervention

- ◆ Cardiovascular Outcomes in Renal Atherosclerotic Lesions – CORAL (K Thomson; with C Cooper, University of Toledo, USA)
- ◆ The rate of lower limb deep venous thrombosis in patients with traumatic brain injury: a pilot observational study (S Lyon, H Kavnaudias; with A Westbrook, ICU)
- ◆ Splenic embolisation in blunt abdominal trauma: is splenic function preserved? (S Lyon)
- ◆ PICC line trial (S Bush; with S Gonelli, Nursing)
- ◆ Uterine vascular malformations (L Hennington)
- ◆ Clinical evaluation of the Cook Celec™ inferior vena cava filter (S Lyon)
- ◆ PROTECT: PROphylaxis of ThromboEmbolism in Critical care Trial (K Thomson; with J Cooper, ICU)

- ◆ A randomised study to compare the technical difficulty of retrieval between the Bard G2X and the Cook Celec™ vena cava filter systems (S Lyon)

Neurovascular intervention

- ◆ Fluid-structure interaction modelling of patient-specific cerebral aneurysms: influence of hypertension, modulus of elasticity and aneurysm shape (A Madan, H Kavnaudias; with CSIRO)
- ◆ Cerebral aneurysm coiling study (A Madan)
- ◆ Alfred experience with axium coils (A Madan)
- ◆ Adult intracranial dural arteriovenous fistulas: illustrated review of hemodynamic patterns with correlation to clinical outcomes (A Madan)
- ◆ A Phase 2 multicentre, international, double-blind, randomised, placebo-controlled, parallel group, dose finding study for the prevention of cerebral vasospasm after aneurysmal subarachnoid hemorrhage by intravenous administration of clazosentan (A Madan; with P Hwang, Neurosurgery)

Utilisation of digital subtraction angiography

- ◆ Reflection of intracerebral aneurysm identification of multislice computed tomography (64 slice) and digital subtraction angiography (E Marshall, B Erskine, W Winslade)

Cellular physiology

- ◆ Arterio-venous malformations (K Thomson)

Magnetic resonance imaging

- ◆ Aspirin for the prevention of cognitive decline in the elderly: a neurovascular imaging study (A Kam; with E Storey, Neurology)
- ◆ Evaluation of cerebral arteriovenous malformations before and after radiosurgery utilising brain STAT cerebral perfusion with arterial input function (A Kam)
- ◆ CJD mimicking a stroke: MRI features (L Hennington)
- ◆ Correlation between MRI and operative findings in acute cervical spine injury (D Varma)
- ◆ A prospective, open label Phase 1b study of single dose intravenous KDF-07002 administered as a tumour imaging agent with MRI in male subjects with head and neck cancer (A Kam)

Continued on page 31

Postgraduate Students

10 Masters Students
2 PhD Students

Publications

12 Journal Articles



Dr Dev Mitra is undertaking a PhD on transfusion practice in trauma resuscitation.



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Emergency and Trauma

Director, Emergency and Trauma Centre: Dr De Villiers Smit MB, ChB, FACEM

Director, Trauma Services: Associate Professor Mark Fitzgerald ASM, MBBS, FACEM, MRACMA

There has been increasing research activity across the spectrum of conditions managed in the Emergency and Trauma Centre and an increasing number of collaborations with inpatient units and other institutions. Research in the Emergency and Trauma Centre is closely linked with the Department of Epidemiology and Preventive Medicine (DEPM), Monash University, and the National Trauma Research Institute (NTRI).

Large collaborations include:

◆ **Australasian Resuscitation In Sepsis Evaluation (ARISE)** – an NHMRC-funded, randomised controlled trial across 32 hospitals involving the emergency and intensive care areas, in collaboration with the Australian and New Zealand Intensive Care Society (ANZICS) research group. The study examines the role of early goal directed therapy in severe sepsis and will take a further two years to complete.

◆ **POLAR** – an NHMRC-funded, randomised controlled trial across six hospitals in collaboration with the ANZICS research group. The study, which aims to determine the role of hypothermia in protecting patients with traumatic brain injury from further secondary brain injury, is about to commence enrolment.

◆ **MEDACT** – an NHMRC-funded, randomised controlled trial across three hospitals in collaboration with RMIT University. The study, which investigates the role of acupuncture in acute pain syndromes presenting to the emergency department, is about to commence enrolment and is led by Dr De Villiers Smit.

◆ **HOLTT** – an NHMRC and TAC funded study in collaboration with the Hyperbaric Unit, examining the role of hyperbaric oxygen in lower limb trauma.

◆ **Patient Safety** – the NHMRC Centre of Research Excellence in Patient Safety located in DEPM bases many of its projects within the Emergency and Trauma Centre. Following on from the successful Trauma Reception and Resuscitation project led by Associate Professor Mark Fitzgerald, a number of subsidiary projects have been undertaken. These include projects examining team performance, handover and interactions between team members.

◆ **Ambulance Victoria** – a number of collaborative projects are under way with Ambulance Victoria, focusing on cardiac arrest, trauma and pain. The Victorian Ambulance Cardiac Arrest Registry is the largest in the world and has facilitated significant improvements in cardiac arrest outcomes. The recent addition of a fully electronic record for all ambulance cases will potentiate the ability to research emergency processes and outcomes from roadside to hospital.

◆ **Blood** – DEPM has an established collaboration with the Australian Red Cross Blood Service, examining the way blood is used and improving outcomes from blood product transfusion. Emergency and Trauma Centre PhD student, Dr Dev Mitra, is undertaking a PhD on massive transfusion in trauma, looking at the best way to deliver blood products during the initial stages of resuscitation.

◆ **Victorian State Trauma Outcomes and Registry Monitoring (VSTORM)** – as well as allowing many small projects for trainees, collaboration with the VSTORM group has enabled significant improvements in overall outcomes for trauma patients across the state. VSTORM is the only group worldwide which has the capacity to monitor major trauma patients on a long-term basis. It attracts interest internationally and will allow better monitoring of advances in processes and procedures.

International Emergency Medicine has continued to be a focus of the Emergency and Trauma Centre, with projects active in India, Sri Lanka and China. The international coordinator, Dr Gerard O'Reilly, studies trauma systems as part of his PhD and has been elected as Chair of the International Special Interest Group of the Australasian College for Emergency Medicine. The Director of Research has become President-Elect of the International Federation for Emergency Medicine, which will help facilitate The Alfred's leadership in the area of international emergency and trauma care.

A number of small projects led by trainees resulted in presentations and publications in peer reviewed journals on topics including bicycle, motorcycle and tram related injuries; splenic, aortic, urethral and thoracic spine injuries; accuracy of BNP testing; risk stratification of chest pain patients; and assessment of team performance.

Specific nursing and allied health projects undertaken include: assessment of hypothermia in major trauma patients; outcomes of patients who do not wait to be seen; exploration of nurse practitioner roles; and assessment of complex elderly patients and their fitness for discharge.

A special focus of this year's research included the effect of the bushfires on The Alfred emergency system and patients. Staff member, Sue Smith, received an award for her presentation.

Postgraduate Students

4 Masters Students
1 DN Student
4 PhD Students

Publications

26 Journal Articles
6 Book Chapters

Con

HSA

AGE-HSA

Glycated human albumin (AGE-HSA) decreases cell surface expression of NaK ATPase. Cells incubated without protein (Con) or non-glycated albumin (HSA) are outlined with a fluorescent probe for NaK ATPase, whereas this signal is absent or diminished in AGE-HSA treated cells.

Endocrinology and Diabetes

Head: Professor Duncan Topliss MBBS, MD, FRACP

Research Activities

Mechanisms of diabetic complications

Professor Leon Bach

Patients with diabetes develop complications including damage to the blood vessels, eyes, nerves and kidneys. Although high glucose levels are necessary for the development of these complications, the precise mechanisms remain incompletely understood. Professor Leon Bach's laboratory studies the role of proteins that are modified by glucose (advanced glycation end products – AGEs). In particular, his laboratory has identified a novel interaction between AGEs and ERM proteins that are important for maintaining cell shape and function. Current studies are aimed at identifying the role of this interaction in mediating diabetes-induced tissue damage. In 2009, the group has studied the relationship between proteases and AGE binding to ERM proteins and also how AGEs decrease activity of NaK ATPase, an important ion pump, in proximal tubule cells.

Professor Bach has commenced a clinical study with Associate Professor Dmitri Sviridov and Associate Professor Merlin Thomas from Baker IDI Heart and Diabetes Institute to investigate the effects of glucose modification on the anti-atherogenic properties of high density lipoprotein in diabetic patients.

Regulation of growth factor activity

Professor Leon Bach

Insulin-like growth factors (IGFs) are important for normal growth and development, and the IGF system is perturbed in many disease states, including growth disorders, diabetic complications, cancer and atherosclerosis. A family of six IGF binding proteins (IGFBPs) regulates their actions. For many years, Professor Bach's laboratory has focused on the biological role of IGFBP-6, particularly its role as an IGF-II inhibitor in cancer. These studies may lead to a new class of therapies aimed at modulating the IGF system, which may be relevant for IGF-dependent diseases.

The group has previously shown that IGFBP-6 promotes migration of cancer cells in an IGF-independent manner. Further work in 2009 showed that a number of intracellular signalling molecules are involved in this effect.

Clinical trials in diabetes and thyroid care

Professor Duncan Topliss

ADVANCE-ON is a long term follow-up of participants in the now-concluded ADVANCE trial in Type 2 diabetes. It seeks to provide evidence of a late benefit (legacy effect) of tight glycaemic control versus standard control in macrovascular disease prevention.

The ORIGIN study tests the effect of early insulin therapy using the new long-acting analogue glargine insulin to prevent macrovascular disease in Type 2 diabetes.

The HOPE study examines the effect of a novel vascular endothelial growth factor/multikinase inhibitor (E7080) on advanced thyroid cancers.

Research Achievements

Professor Leon Bach gave an invited lecture entitled 'Glycated proteins bind to ERM proteins and modulate their actions' at the 10th International Symposium on the Maillard Reaction, Palm Cove. Professor Bach and Dr Ping Fu received an NHMRC Project Grant entitled 'Pathways involved in the IGF-independent actions of IGF binding protein-6' (\$528,750 over three years). Professor Bach also received another NHMRC Project Grant entitled 'Impact of advanced glycation on anti-atherogenic properties of high density lipoprotein' together with Associate Professor Dmitri Sviridov and Associate Professor Merlin Thomas from Baker IDI.

Professor Duncan Topliss delivered an invited lecture at the Annual Scientific Meeting of the Joint Faculty of Intensive Care Medicine (of the Australian and New Zealand College of Anaesthetists, Royal Australasian College of Physicians, and Australian and New Zealand Intensive Care Society) on 'Alterations in the thyroid axis in critical illness'.

Postgraduate Students

1 PhD Student

Publications

3 Journal Articles

Gastroenterology continued from page 35

Research Achievements

The main research achievement for the year was the completion of a first-in-man study of a combination of a potent hepatitis C protease and polymerase inhibitor in hepatitis C patients. The results demonstrated an impressive reduction in viral load without the development of viral resistance and offer promise in the longer term for an interferon-free treatment regime.

A second major achievement was three publications in the high impact journal, *Hepatology*, including the results of an international study of induction therapy with peg interferon alpha-2a in chronic hepatitis C patients, a study examining the efficacy and safety of therapy in patients with cirrhosis and chronic hepatitis C, and a collaborative study with Murdoch University in Perth examining the role of HLA polymorphisms on viral adaptations in chronic hepatitis C patients.



Hepatology Research Nurse Paula Lewis takes blood for genetic studies from a hepatitis C patient.

Gastroenterology

Head: Associate Professor Stuart Roberts MBBS, MD, FRACP

Research Activities

The Gastroenterology Department's main research foci in 2009 were in the areas of chronic viral hepatitis, chronic liver disease and its complications, and inflammatory bowel disease.

Chronic viral hepatitis

Several novel therapeutic strategies were explored for the treatment of chronic hepatitis C including:

- ◆ Induction therapy with peg interferon alpha-2a in hepatitis C virus (HCV) genotype 1 patients (published in *Hepatology*)
- ◆ Combination therapy with a hepatitis C viral polymerase and protease inhibitor
- ◆ Telaprevir in combination with peg interferon alpha-2a plus ribavirin in both treatment naïve and treatment experienced patients
- ◆ Transfusion of HCV lipopeptide-primed autologous dendritic cells in prior non-responders to treatment

In addition, several other direct-acting antiviral agents underwent evaluation in hepatitis C patients, including a novel protease inhibitor, TMC-435, and a nucleoside polymerase inhibitor, R7128, both in combination with peg interferon alpha-2a plus ribavirin. The utility of a thrombopoietin agonist, eltrombopag, at improving sustained virological response rates was evaluated in patients with hepatitis C-related cirrhosis complicated by thrombocytopenia.

Several investigator initiated molecular and genetic based studies were conducted, including:

- ◆ Evaluation of host genetics and HLA-associated polymorphisms at predicting outcomes of treatment in chronic hepatitis C patients across all genotypes
- ◆ The role of Toll-like receptors in the development of hepatitis C-related liver inflammation and fibrosis in patients with hepatitis C and HCV-HIV coinfection
- ◆ The mechanisms by which GB virus C protects against the development of progressive severe liver disease in subjects with HCV-HIV coinfection

Important clinical research activities conducted in chronic hepatitis B subjects included:

- ◆ A national study evaluating the nature and prevalence of acquired viral mutations in chronic hepatitis B patients undergoing oral antiviral therapy (lead site: The Alfred)
- ◆ A collaborative study with the Austin Hospital examining the outcomes of tenofovir therapy in patients with a suboptimal response to adefovir therapy

Hepatocellular carcinoma

The Gastroenterology Unit has a detailed clinical trial program that offers a range of novel therapeutic strategies for patients with hepatocellular carcinoma across all stages of disease including:

- ◆ Sorafenib as adjunctive therapy in patients following liver resection or successful local ablation

- ◆ Sorafenib as adjuvant therapy to chemoembolisation therapy in patients with intermediate stage disease
- ◆ Evaluation of several multi-tyrosine kinase inhibitors including sunitinib, brivanib and erlotinib (in combination with sorafenib) in patients with advanced disease

The unit is also in the process of establishing a Victorian hepatoma database in conjunction with other major public hospitals to facilitate investigator initiated research in this field.

Fibroscan evaluation of fibrosis

The award of a \$1.4 million New Technology Grant from the Department of Health to obtain a second Fibroscan machine and large probe for the non-invasive evaluation of liver fibrosis in patients with liver disease has opened up further opportunities for research in this field. Several studies were successfully conducted evaluating the utility of Fibroscan in a number of liver diseases including cystic fibrosis, haemophiliacs with hepatitis C, and diabetics with non-alcoholic fatty liver disease. In addition, Fibroscan results were found to correlate well with the presence of portal hypertension in patients with chronic liver disease, while the effect of hepatic congestion on Fibroscan results in patients with acute and chronic heart failure was explored.

Inflammatory bowel disease

Several novel biological treatment strategies were evaluated in patients with Crohn's disease and ulcerative colitis, including golimumab for ulcerative colitis, and an adhesion molecule blocker, MLN002 in patients with severe Crohn's disease. In addition, a collaborative study was established with St Vincent's Hospital assessing the effectiveness of immunomodulator therapy with or without TNF α blockade in preventing recurrence of Crohn's disease following surgical resection. Key investigator initiated studies included the examination of the role of azathioprine and methotrexate metabolites in improving patient management and the role of capsule endoscopy in patients with quiescent Crohn's disease.

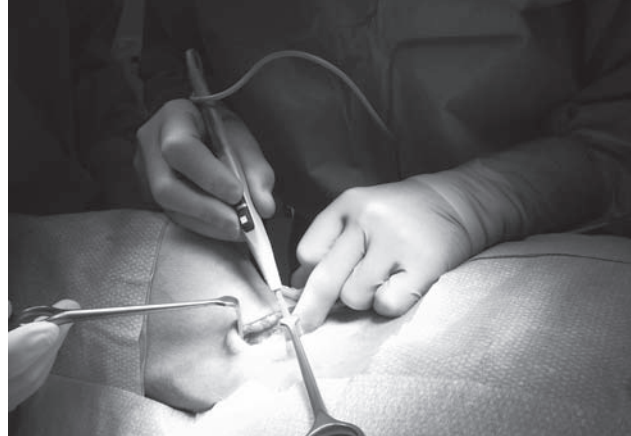
Endoscopy

The appointment of Dr Gregor Brown as Head of Endoscopy has led to new research within the unit, including a collaborative study with endoscopists at Westmead Hospital in Sydney looking at outcomes of patients with giant polyps undergoing endoscopic mucosal resection, and analysis of the safety of percutaneous endoscopic gastrostomy tube placement compared to radiologically inserted gastrostomy tubes.

Continued on page 34

Publications

12 Journal Articles
1 Book Chapter



General Surgery

Director: Professor Jonathan Serpell MBBS, MD, FRACS, FACS

The General Surgery Department remains committed to clinical research, basic science research, databases, clinical trials, and audit and quality assurance processes. Those entering into surgical training are well supported in research projects, and of the seventeen surgical trainee research presentations submitted to the DS Rosengarten Prize in December 2009, nine were from the General Surgery Department.

Breast, Endocrine and General Surgery

Significant databases in thyroid surgery, parathyroid surgery, adrenal surgery, parotid surgery, soft tissue tumour surgery and a dedicated thyroid cancer database are established and contribute to clinical research projects.

Current Projects

- ◆ Ongoing study of the rate of bifurcation of recurrent laryngeal nerves and the location of the motor fibres of the recurrent laryngeal nerve in the anterior branch (Prof. J Serpell)
- ◆ Changes in the diameter of the recurrent laryngeal nerve during thyroid surgery and the relationship of this to recurrent laryngeal nerve palsy (Prof. J Serpell)
- ◆ A model examining differences in tension in right and left recurrent laryngeal nerves (Prof. J Serpell)
- ◆ Hypothyroidism following hemithyroidectomy (Dr S Su, Prof. J Serpell)
- ◆ Incidence of thyroid tumours in thyroid nodules greater than 4cm in diameter (Dr M Raj, Prof. J Serpell, Dr S Grodski, Dr M Yeung)
- ◆ The role of fine needle aspiration cytology in the management of thyroid cancer (Dr M Raj, Prof. J Serpell)
- ◆ Follicular thyroid cancer presenting as bone metastases without a demonstrable primary thyroid tumour (Dr A Andrabi, Prof. J Serpell)
- ◆ Preoperative investigation of branchial cysts facilitates surgical management (Dr J Slater, Prof. J Serpell)
- ◆ Preoperative fine needle cytology and imaging facilitates the management of submandibular gland lesions (Dr M Taylor, Prof. J Serpell)
- ◆ Contribution to a tissue bank for follicular tumours (Prof. J Serpell)
- ◆ The investigation and management of thyroglossal duct cysts (Dr J Eteuati, Prof. J Serpell)
- ◆ The anatomy of the final 2cm course of the extra-laryngeal recurrent laryngeal nerve: a new operative surgery concept of two facial layers enveloping the recurrent laryngeal nerve (Prof. J Serpell)
- ◆ Axillary lymph node dissection for metastatic melanoma (Prof. J Serpell, Dr P Davies)
- ◆ The diagnosis and management of adrenal trauma and adrenal incidentalomas detected in trauma patients (Dr S Woodruff, Dr M Yeung, Dr S Grodski, Prof. J Serpell)
- ◆ The surgical management of Hashimoto's thyroiditis (Dr M Seifman, Dr S Grodski, Prof. J Serpell)
- ◆ The investigation and management of pheochromocytoma (Dr D Woon, Prof. J Serpell)

Colorectal and General Surgery

Current Projects

- ◆ Deficiencies in pathological reporting of colorectal cancer in Victoria (Dr S Bell, Dr K Farmer)
- ◆ Clinical and endorectal ultrasound staging of circumferential rectal cancers (Dr A Smith, Dr K Farmer)
- ◆ Prospective assessment of component training in laparoscopic colorectal resections
- ◆ A classification system for causes of faecal incontinence and their relative incidences
- ◆ Development of a standard protocol for management of colonic pseudo-obstruction
- ◆ Efficacy of dual therapy for anal fissure
- ◆ Examination of standards required for accreditation of endoanal ultrasound
- ◆ Sphincter preserving surgery for anal fistulas
- ◆ Utilisation of synoptic reporting for radiology in rectal cancer

Upper GI and General Surgery

The Upper Gastrointestinal Unit has several databases in hepatectomy, pancreatic surgery, oesophagectomy, gastrectomy and bariatric surgery.

Current Projects

- ◆ Randomised trial of very low calorie diet post FOLFOX chemotherapy prior to liver resection for colorectal metastases (Dr C Pilgrim, Dr A Smith, A/Prof. Wendy Brown)
- ◆ Vascular preconditioning of the gastric tube prior to oesophagectomy (Dr P Burton, Dr A Smith, A/Prof. W Brown)
- ◆ Traumatic bile duct injuries/leaks (Dr C Pilgrim, Dr V Usatoff, Dr M Smith, Dr P Evans)
- ◆ Outcome of patients with liver trauma (Dr P Evans, Dr V Usatoff, Dr P Burton)
- ◆ Follow-up of patients following traumatic diaphragmatic hernia repair (Dr P Burton, A/Prof. W Brown, Dr S Kemp)
- ◆ Follow-up of respiratory patients after laparoscopic fundoplication (Dr P Burton, A/Prof. W Brown, Dr A Smith, Dr S Hassen, A/Prof. P Nottle)
- ◆ Assessment of improvement of laparoscopic skills using a basic trainer (Dr J Choi, Dr P Evans, Dr V Usatoff, Dr A Smith, A/Prof. W Brown, A/Prof. P Nottle)
- ◆ Follow-up of patients treated surgically for achalasia (Dr K Heggie, Dr C Pilgrim, Dr A Smith, Dr S Hassen, A/Prof. W Brown, A/Prof. P Nottle)
- ◆ Survival following hepatectomy (Dr V Usatoff, Dr M Smith, Dr P Evans)
- ◆ Follow-up of liver resections for metastatic colorectal cancer (Dr V Usatoff, Dr M Smith, Dr P Evans)
- ◆ Motility disorders and LAGB surgery (Dr P Burton, A/Prof. W Brown, Dr A Smith, A/Prof. P Nottle)

Postgraduate Students

2 PhD Students

Publications

14 Journal Articles



'Grandmother Smiles' by Jonathan Lai. He says, 'While staying in a village in the mountains of Yunnan, I paid a visit to this wonderful Chinese great-grandmother. Despite the adversity and hardship of village life, she could still find reason to smile.' This was the winning picture from the IGNITE Photo Exhibition (organised annually by undergraduate medical students), held in conjunction with the AMREP World Health Day Forum.



Global Health

Co-Directors: Professor Brian Oldenburg, Head, International Public Health Unit, School of Public Health and Preventive Medicine, Monash University
Professor Mike Toole, Head, Centre for International Health, Burnet Institute

AMREP's Research Strategic Plan for 2007–2011 identified global health as a field of research and related activity that would benefit from further collaboration among AMREP partners. During its second year (2009), staff and students from the AMREP partners, and co-led by Burnet Institute (Centre for International Health) and Monash University (International Public Health Unit), have been involved in further activities and projects together.

3rd AMREP World Health Day Forum

'Global Health and Global Crises' was the theme of the 3rd Annual AMREP World Health Day Forum, which took place in Melbourne on 7 April 2009. Over 250 participants from South Africa, China, Indonesia, Fiji, New Zealand and Australia came to exchange ideas and discuss the ways in which the global financial crisis and its subsequent economic impact on all countries has affected the future health and wellbeing of citizens from developing nations. Researchers attended from Oxford University, the Papua New Guinea Institute of Medical Research and the Fiji School of Medicine, as well as professionals from the World Bank and AusAID.

There was a strong representation from the NGO community, with representatives from World Vision, Médecins Sans Frontières and Plan International. One third of participants were students from various disciplines, particularly from IGNITE, which is a group of medical students from Monash University with a strong interest in global health improvement. IGNITE coordinated a photographic exhibition of images relevant to the theme of the forum and attendees were asked to nominate the best image. The winning photo was submitted by Daniel Mason, entitled 'Mother and Child'. Significant forum contributions were made by individuals from the AMREP partners, including Monash University, Burnet Institute, Baker IDI Heart and Diabetes Institute and The Alfred hospital.

AMREP Global Health Seminar Series

Seminar presenters during the year included: Dr Julian Elliott, Burnet Institute and The Alfred; Professor Ed Fisher, University of North Carolina; Professor Richard Southby, George Washington University; Professor Alistair Woodward, University of Auckland; Associate Professor Bebe Loff, Monash University; Dr Wendy Holmes, Burnet Institute; Dr Steven Allender, University of Oxford; Dr Dianna Magliano, Baker IDI Heart and Diabetes Institute; Xu Zongyu, China Ministry of Health; Professor Mike Toole, Burnet Institute; and Professor Robert Hall, Monash University.

Research Projects

Bushbuckridge Water Project

This project investigates the relationship between water, HIV and diarrhoea, with seed funding from the Monash University Office of the Deputy Vice-Chancellor (International). The project includes researchers from Monash University (Australia and South Africa), The Alfred, Burnet Institute and the University of the Witwatersrand (South Africa), and was a baseline study of diarrhoeal diseases among people living with HIV/AIDS in a rural, resource limited setting in South Africa. Questions over access to safe water supply, water utilisation, quality of water, and interactions between HIV/AIDS and diarrhoea are currently being investigated. Further research will now be conducted to inform relevant interventions related to HIV/AIDS and diarrhoeal diseases.

Heart of Soweto Study

Baker IDI, in collaboration with the University of the Witwatersrand and the Hatter Institute, University of Cape Town, continues the Heart of Soweto Study in South Africa. This is the largest and most comprehensive study of heart disease in Africa, and there are plans to launch the Heart of Africa Study in 2010. To date, this project has studied more than 2,000 adults in the community, over 6,000 *de novo* tertiary care cases with heart disease and greater than 1,300 primary care patients, in addition to a range of sub-studies (including Africa's first trial of heart failure management). Seminal reports have been published in *The Lancet* (spectrum of heart disease), *Circulation* (new forms of heart failure in Africa) and *European Heart Journal* (rheumatic heart disease in adults), with a number of new reports in preparation. Importantly, the results of this project have directly influenced health policy in South Africa.

Surveillance and Monitoring Function of the National Non-communicable Diseases Program of Vietnam

Baker IDI collaborates with Monash University to conduct this study and relies on three main institutes: the Vietnam Ministry of Health, Menzies Research Institute and the World Health Organization. The aim of the study is to establish a sustainable system for non-communicable diseases surveillance in Vietnam. Such diseases include cardiovascular disease, stroke, diabetes and cancer as priorities. Surveillance is ongoing in both hospital and community settings.



Immunology

Head: Professor Fabienne Mackay BBIomedEng, PhD

Research Activities

The Monash University Department of Immunology is internationally renowned for its combined expertise in research, teaching and service delivery in immunology and immunopathology. There are extensive research programs in basic and translational immunology, including highly successful collaborations with The Alfred and other AMREP partners. The department's research activities target diseases including allergy, asthma, autoimmunity, inflammation, diabetes, organ fibrosis, cancer and malaria. The department also focuses on engineering novel treatments such as nanoparticle-based vaccines in cancer and infection, as well as therapeutic proteins and monoclonal antibodies. Researchers are funded by NHMRC, ARC, Cooperative Research Centre and other research grants, and have a strong publication output, patent portfolio and biotech activity.

Professor Fabienne Mackay became Head of Department in March 2009. She works enthusiastically with the department's teaching staff to ensure delivery of the most comprehensive and cutting-edge immunology program in the country. Promotion of immunology to students and encouragement of progression to Honours and postgraduate research studies has been a major focus of her activity. The department also organised a scientific retreat to promote scientific integration and spearhead new collaborations within the department. The retreat also inaugurated a unique and very successful mentoring program for young researchers aimed at providing important scientific strategies to prepare their transition from postdoctoral researchers to independent laboratory heads.

Highlights

- ◆ Associate Professor Mark Wright was an invited speaker at the 3rd European Symposium of Tetraspanin Biology in Paris, France.
- ◆ Dr Antonia Miller was awarded a Juvenile Diabetes Research Foundation International postdoctoral fellowship.
- ◆ Dr Sara Prickett, Astrid Voskamp and April Dacumos won the Professor Daniel Czarny poster prize, Alfred Week 2009.
- ◆ Dr Anja Scholzen and Professor Magdalena Plebanski's article 'Villains or heroes: T regulatory cells in malaria' was featured on the cover image of *Trends in Parasitology* in January 2010.
- ◆ Associate Professor Frank Alderuccio gave an oral presentation and was a session co-chair at the 4th Asian Congress on Autoimmunity in Singapore.
- ◆ Associate Professor Jun-Ping Liu was an invited speaker at the 21st IUBMB and 12th FAOBMB International Congress of Biochemistry and Molecular Biology in Shanghai, China.
- ◆ Professor Magdalena Plebanski, Dr Sue Xiang and Dr Karen Scalzo-Inguanti organised the first Synergy Symposium at The Alfred on Infection and Immunity.

- ◆ Professor Fabienne Mackay was an invited speaker and chair at the 10th International Symposium on Sjögren's Syndrome in Brest, France.
- ◆ William Figgett received a travel award to go to the European Congress of Immunology in Berlin, Germany, where he gave a short presentation.
- ◆ Dr Sara Prickett received a travel grant from the Asthma Foundation to attend and present at the 29th Congress of the European Academy of Allergy and Clinical Immunology in London, England, in June 2010.
- ◆ Dr Sara Prickett was invited to talk at the Young Guns Seminar Series held at St Vincent's, where she spoke on 'T-cell epitope-based peptide immunotherapy for peanut allergy'.
- ◆ Associate Professor Jun-Ping Liu was awarded the Beckman Coulter Discovery Science Award by the Australian Society of Biochemistry and Molecular Biology.
- ◆ Craig Nicholls was awarded a travel grant by the American Society for Biochemistry and Molecular Biology to attend the Experimental Biology 2009 Conference in New Orleans, USA. He was also awarded a prize for the poster 'Glyceraldehyde-3-phosphate dehydrogenase binds to C-rich telomeric ssDNA' at ComBio2009 in Christchurch, New Zealand.

Current Projects

Allergic Diseases

Heads: Professor Jennifer Rolland and Professor Robyn O'Hehir (Department of Allergy, Immunology and Respiratory Medicine, The Alfred)

Both clinical trials and *in vitro* studies are used to investigate mechanisms of allergen immunotherapy and optimal strategies for downregulation of the adverse T-cell response to allergens in allergic individuals.

- ◆ Identification of T-cell epitopes of peanut allergens and investigation of cross-reactivity with tree nuts
- ◆ Characterisation of major Bahia grass pollen allergens and identification of T-cell-reactive sites
- ◆ Modulation of the allergen-specific T-cell response and investigation of optimal strategies for inducing regulatory T-cell responses to allergens
- ◆ Effect of co-exposure to microbial inflammatory stimuli on T-cell cytokine response to allergen
- ◆ Identification and molecular characterisation of the major allergens found in important Australian crustacean species
- ◆ Role of natural killer cells in regulating allergen-specific T-cell responses
- ◆ Role of activin A in driving inflammation and remodelling in chronic airways disease
- ◆ Nanoparticle induction of lung resistance to development of allergen-induced lung inflammation in a mouse model: role for local dendritic cells

Autoimmune Diseases

Head: Associate Professor Frank Alderuccio

Research centres on processes associated with the autoimmune response and loss of immunological tolerance, with the aim of devising strategies to prevent or reverse autoimmunity. Experimental models of autoimmunity are used to explore the potential of gene therapy strategies aimed at treating these diseases.

- ◆ Use of haematopoietic stem cell manipulation to induce immunological tolerance
- ◆ Understanding and utilising expression of AIRE for tolerance induction in autoimmunity
- ◆ The use of corticosteroids in strategies aimed at promoting disease remission
- ◆ Role of regulatory T-cells in experimental models of autoimmunity
- ◆ Induction of tissue specific antigen expression using retroviral vectors

Diabetic Retinopathy

Head: Professor Jennifer Wilkinson-Berka

The contribution of vasoactive and growth factor systems to the development of diabetic microvascular complications is studied. Goals are to develop new, safe and effective treatment regimens for patients with diabetic retinopathy, providing a major advance over current invasive therapies such as laser treatment.

- ◆ The role of the prorenin receptor in ischemic and diabetic retinopathy
- ◆ Aldosterone and angiotensin II: are they conspirators in diabetic retinopathy?
- ◆ Pathogenic associations between the microvasculature, glia and neurons in ischemic and diabetic retinopathy
- ◆ Do interactions between glyoxalase I and angiotensin contribute to pericyte and endothelial cell death in diabetic retinopathy?

Diabetes

Head: Associate Professor Robyn Slattery

Elucidation of the role of β 2M and MHC in directing the autoimmune response in diabetes is crucial to learn how to regulate the disease in predisposed individuals. Early identification of patients through genetic markers will provide a therapeutic window in which to immunomodulate at-risk individuals before the onset of diabetes.

- ◆ The role of β 2 microglobulin in susceptibility and resistance to Type 1 diabetes
- ◆ The role of the human insulin promoter in the genetic predisposition to developing anti-insulin autoreactivity
- ◆ The role of antigen presenting cells in the pathogenesis of Type 1 diabetes

Molecular Signalling

Head: Associate Professor Jun-Ping Liu

Studies of the mechanisms regulating the maintenance of telomeres (chromosome ends) in health and disease:

- ◆ Cancer inhibition by targeting telomerase using peptide inhibitors
- ◆ Cancer inhibition by GAPDH signalling to telomeres
- ◆ Cancer inhibition by cytokine signalling to telomeres
- ◆ Immune senescence and the roles of telomere maintenance

Studies of trace metal homeostasis in health and disease:

- ◆ The roles of ATP13A2 P-type ATPase transporter in lysosomal homeostasis
- ◆ The roles of ATP13A2 P-type ATPase transporter in neurodegenerative diseases

Leucocyte Membrane Proteins

Head: Associate Professor Mark Wright

Molecules expressed on the surface of white blood cells serve as molecular antennae and thus play a critical role in the biology of white blood cells. Understanding the contribution of cell surface molecules to the immune system will ultimately lead to novel methods to promote and regulate immunity.

- ◆ Investigation of tetraspanin function *in vivo* using a gene targeting technology approach, in particular CD37
- ◆ Identification and characterisation of novel molecules expressed at the surface of dendritic cells

Vaccines and Infectious Diseases

Head: Professor Magdalena Plebanski

Research involves the development of novel vaccines against cancer and infectious diseases as well as immunoregulation (immune evasion and immune suppression).

- ◆ Development of malaria and cancer vaccines using a novel nanovaccine technology
- ◆ Investigation into the effect of nanoparticles on dendritic cells and other immune cells
- ◆ Nanoparticle induction of lung resistance to allergy and inflammation
- ◆ Understanding immunosuppression in malaria and cancer by studying changes in dendritic cells and regulatory T-cells (Tregs)
- ◆ Study of altered peptide ligand-mediated regulation of T-cell activity and use of peptide superagonists to enhance malaria vaccine efficacy
- ◆ Discovery and validation of new surface markers to distinguish Th1, Th2 and Treg subsets and their use to monitor diverse infectious diseases and cancer

B-cells, BAFF and Autoimmunity

Head: Professor Fabienne Mackay

BAFF is a cytokine from the tumour necrosis factor family that is essential for B-cell development and survival. BAFF production drives autoimmunity and is linked to many autoimmune conditions in humans, such as systemic lupus erythematosus (SLE), rheumatoid arthritis and Sjögren's syndrome. The BAFF gene was cloned by Professor Mackay in 1999 and her laboratory was the first to publish a role for BAFF in SLE. In 2009, the BAFF inhibitor belimumab showed efficacy in SLE clinical trials.

- ◆ Investigation of the cooperation between BAFF and the innate immune system
- ◆ Studies on the role of BAFF in immunoregulation and immune tolerance
- ◆ Studies on the role of BAFF in human diseases
- ◆ Investigating new forms of autoimmune processes independent of T-cells
- ◆ Development of a chemokine receptor inhibitor for the treatment of fibrosis

Generous charitable donation has enabled the beginning of an innovative Phase 2 trial in women with ovarian cancer which aims to rapidly improve the efficacy of treatment by timing the administration of chemotherapy to endogenous immune cycles. The trial is ongoing and if successful could greatly extend the survival of patients and also be adapted for enhancing the efficacy of chemotherapy in patients with other types of cancer. This is a collaborative trial between Professor Plebanski and Dr Karen Scalzo with Professor Michael Quinn at the Royal Women's Hospital.

Postgraduate Students

1 Masters Student
30 PhD Students

Publications

24 Journal Articles



Infectious Diseases

Director: Professor Sharon Lewin MBBS, PhD, FRACP

The Alfred Infectious Diseases Unit (IDU) incorporates a large clinical service with active research programs in the fields of human immunodeficiency virus (HIV), viral hepatitis, neurovirology, infections in the immunosuppressed (such as those with malignancy, in intensive care and post-splenectomy), and infection control and hospital epidemiology. With the recent outbreak of H1N1 influenza globally, the IDU has substantially increased its basic and clinical research programs in influenza over the last 12 months.

HIV

Research in HIV ranges from basic laboratory studies through to clinical and public health programs. How the immune system recovers from HIV infection, where HIV 'hides' in patients on treatment and how HIV interacts with dendritic cells (unique infection-fighting cells) are being investigated. The impact of a chronically stimulated immune system in patients with HIV infection is also of increasing interest.

PhD student Gregor Lichtfuss, co-supervised by Professor Sharon Lewin and Professor Suzanne Crowe, was awarded the best oral presentation in basic science at the Australasian Society for HIV Medicine 2009 conference in Brisbane. At the same meeting, Sharon Lewin presented a plenary lecture on her work investigating whether HIV might ever be cured.

The Clinical Research Unit is actively involved in multiple international studies to evaluate new antiretroviral agents. Over the last 12 months, there has been significant growth in the size and activity of the Clinical Research Unit as well as the appointment of the new head of clinical research, Dr Julian Elliott. The Clinical Research Unit is participating in the pilot phase of a very important global study, START, a randomised trial of when to start anti-HIV treatment.

Edwina Wright is the global chair of the neurology sub-study protocol team for START and Jennifer Hoy was recently awarded funding from the National Institutes of Health USA to examine the effects of anti-HIV drugs on bone as another substudy of START.

Viral Hepatitis

Research in viral hepatitis combines basic laboratory and clinical work. Researchers are currently determining how HIV and hepatitis B virus (HBV) may potentially interact in the same liver cell and how the immune system responds to HBV when a person also has HIV. Dr Megan Crane, a postdoctoral fellow in Professor Lewin's laboratory, was awarded a travel scholarship to attend a meeting in Tours, France, to present this work. She was also awarded a young investigator award for this work by the Australian Centre for HIV and Hepatitis.

The collaboration on a multicentre international study investigating the natural history of HIV-HBV infection continues, and there is an active program to identify and characterise drug resistance to the anti-HBV medication tenofovir in Australia and Thailand. Dr Jennifer Audsley, a postdoctoral fellow with Professor Sharon Lewin and Dr Joe Sasadeusz, was awarded an NHMRC Australian Clinical Research Training Fellowship to continue her work with these cohorts over the next four years.

Dr Michelle Giles was recruited to the IDU to establish a multi-site cohort to examine the effects of pregnancy on HBV infection and she is performing this study in collaboration with Monash Medical Centre, the Royal Women's Hospital and the Victorian Infectious Diseases Reference Laboratory. Michelle was also awarded an NHMRC Australian Clinical Research Training Fellowship.

Fungal Infections

Fungal infections are a major cause of death in patients with leukaemia and after transplantation. In the laboratory, researchers are examining differences in virulence in strains of the fungus *Aspergillus* and the patterns of resistance to the drugs used to treat deep tissue fungal infection. They are also developing new tests for the more sensitive and earlier diagnosis of deep tissue infection with *Aspergillus*.

On the clinical side, Orla Morrissey and her team are examining the efficacy of novel antifungal drug regimens for the prevention and treatment of deep tissue fungal infections and will determine the risk factors for the development of deep tissue infection in lung transplantation patients. Antifungal drug levels are measured and adjusted to ensure adequate amounts are available in the patient's system to cure the infection and prevent the development of drug side effects and drug resistance.

General Infectious Diseases

Associate Professor Allen Cheng was appointed Associate Chair in Infectious Diseases Epidemiology, a position jointly funded by IDU and the Monash University Department of Epidemiology and Preventive Medicine. Several new research programs were initiated in general infectious diseases, including basic, clinical and epidemiological studies of H1N1 influenza. Allen was co-investigator on four NHMRC Strategic Grants, a program initiated shortly following the H1N1 outbreak in Australia. There are also a number of new programs to evaluate optimal ways to administer antibiotics, particularly for severely unwell patients in the Intensive Care Unit.

Spleen Registry

The Spleen Registry commenced in late 2003 with the objective of improving the health of patients who have undergone splenectomy or who have a poorly functioning spleen. The registry has now enrolled over 1,400 patients from Victoria and it is planned for it to become a national registry. Associate Professor Denis Spelman, with Dr Jim Buttery (Royal Children's Hospital), was awarded an NHMRC Project Grant to examine responses to pneumococcal vaccine in splenectomised patients.

Major Findings

- ◆ Identified a novel genetic marker that is associated with efficient immune recovery in patients treated for HIV infection
- ◆ Identified the mechanism of how chemokines allow a resting cell to become infected with HIV
- ◆ Showed that the immune response to HBV is abnormal in patients co-infected with HIV and that this abnormality doesn't improve with antiviral treatment
- ◆ Identified that patients with HIV-HBV co-infection are at greatest risk of having abnormal liver function if they start treatment when their immune system is already damaged
- ◆ Established and currently co-ordinate hospital-based surveillance for influenza-related complications in conjunction with nine other sites in Australia and New Zealand
- ◆ Showed that healthcare workers were adequately protected from influenza by infection control measures, as their rate of influenza infection was not significantly greater than that found in the community
- ◆ Contributed to studies that demonstrate that adenovirus is a major cause of severe otitis media in indigenous children in a remote indigenous community
- ◆ Contributed to studies that show a high diversity of group A streptococcus in indigenous communities, suggesting that the proposed vaccine would not be useful in this setting
- ◆ Evaluated the sensitivity and specificity of a new rapid point of care test to detect *Treponema pallidum* IgM antibodies useful in the diagnosis of early syphilis in HIV infected patients

Grants

- ◆ Contribution to an NHMRC Project Grant (A/Prof Allen Cheng, 2010-2013) evaluating the effect of mass drug administration in controlling scabies and *Strongyloides* in a remote indigenous community in northern Australia
- ◆ Contribution to an NHMRC Project Grant (A/Prof Allen Cheng, 2010-2013) to examine the genetic diversity of *Burkholderia pseudomallei*, the bacterium that causes melioidosis, in northern Australia
- ◆ Contribution to four NHMRC strategic grants to examine the epidemiology, clinical profile and immunology of H1N1 influenza

- ◆ Australian Centre for HIV and Hepatitis Grants to Professor Lewin as a collaborator on three projects – including understanding HIV drug resistance to a new class of anti-HIV drugs (Associate Professor Paul Gorry, Burnet Institute), evaluating a new compound that blocks immune activation in HIV (with Professor Andreus Suhrbier, Queensland Institute of Medical Research, Brisbane) and the development of new drugs for HIV that block HIV integration (Johnson Mak, Burnet Institute)

Awards

Jennifer Audsley (postdoctoral research scientist with Professor Sharon Lewin and Dr Joe Sasadeusz) was awarded a Young Investigators Award to attend the Conference of Retroviruses and Opportunistic Infections (CROI) in San Francisco in early 2010, the largest international HIV scientific meeting held annually in the US.

Professional Achievements

Professor Sharon Lewin was appointed to the Scientific Program Committee for the International AIDS Conference, Vienna, Austria, 2010, and the Scientific Program Committee for the 5th International Workshop for HIV-hepatitis co-infection, Tel Aviv, Israel, 2010. Professor Lewin delivered plenary lectures at the 2009 meetings of the Australasian Society for HIV Medicine, Brisbane, and the Australian Society for Antimicrobials, Melbourne.

Current Research Programs

- ◆ Basic HIV research (Lewin/Cameron)
- ◆ HIV-hepatitis B co-infection (Lewin/Sasadeusz)
- ◆ Hepatitis B virus research (Lewin)
- ◆ NeuroAIDS research (Wright)
- ◆ HIV clinical research (Hoy/Elliott)
- ◆ Infections in the immunosuppressed (Morrissey/Spelman)
- ◆ Antibiotic and antibiotic-resistance studies (Cheng)
- ◆ Influenza clinical epidemiology and clinical research (Cheng/Elliott)
- ◆ General infectious diseases (Spelman/Cheng)

Current Projects

A complete list of current projects is available from <http://www.alfredresearch.org/research/researchrep09.htm>

Postgraduate Students

12 PhD Students

Publications

67 Journal Articles

7 Book Chapters

1 Book





TheAlfred



www.alfredicu.org.au

Dr Vincent Pellegrino runs a local ECMO training program attended by national and international participants twice a year.



Intensive Care

Director: Associate Professor Carlos Scheinkestel MBBS, FRACP, FCICM

Deputy Director and Head of Research: Professor Jamie Cooper BMBS, MD, FRACP, FCICM

In 2009, the Intensive Care Unit (ICU) consolidated its position as a national leader in critical care research, with many major journal publications and projects spanning most areas of this diverse speciality. Areas of research and publication included cardiac support devices, ICU outcomes, nutrition, traumatic brain injury, acute lung injury, renal failure, chest trauma, venous thromboembolism, sepsis, tracheostomy and hypothermia.

The ICU research group is led by Professor Jamie Cooper, and other intensivists are active clinical researchers: Dr Andrew Davies, Dr Alistair Nichol, Dr David Pilcher, Associate Professor Carlos Scheinkestel, Associate Professor David Tuxen, Associate Professor Stephen Bernard and Associate Professor Warwick Butt. The ICU research team manager is Shirley Vallance and the research coordinators are Victoria Bennet and Jasmine Board. The group works closely with the Australian and New Zealand Intensive Care Research Centre (ANZIC-RC) team at the Monash Department of Epidemiology and Preventive Medicine, and also with the Australian and New Zealand Intensive Care Society Clinical Trials Group (ANZICS CTG).

Highlights

ICU published three original research papers in the highest impact factor (IF) medical journals, *New England Journal of Medicine (NEJM)*; IF: 50.017) and *Journal of the American Medical Association (JAMA)*; IF: 31.718). Andrew Davies led a national team reporting the Australian extracorporeal membrane oxygenation (ECMO) experience during the H1N1 influenza pandemic (*JAMA*). Carlos Scheinkestel was on the writing committee of the RENAL study (*NEJM*), a randomised NHMRC-funded trial of 1,500 patients in 35 centres testing higher volume continuous renal support in critically ill patients. Jamie Cooper was on the writing committee of the INFINITE study (*NEJM*), which reported the entire Australian and New Zealand ICU experience during the 2009 H1N1 influenza pandemic.

The Victorian Neurotrauma Initiative (VNI) awarded a \$2.1 million Program Grant to a team led by Jamie Cooper to complete an NHMRC funding package for two five-year multicentre, randomised trials in traumatic brain injury. The combined NHMRC/VNI funding awarded for these trials is \$6 million.

A three-year NHMRC-funded, randomised, controlled trial led by Steve Bernard in Victoria concluded. It was found that pre-hospital rapid sequence intubation in severe head injury patients improved long term neurological function. This is likely to have substantial international impact and will translate into changes in clinical practice immediately.

Current Clinical Research Trials

ICU has up to 20 clinical trials running every year at any one time. Usually only one or two of these are commercial trials, with the others being investigator initiated and frequently NHMRC supported. Key studies in 2009 included:

- ◆ **DECRA:** This unique NHMRC-funded, randomised trial of a neurosurgical procedure to reduce brain pressure in severe head injury patients will complete recruitment in May 2010. It is led from The Alfred in collaboration with the Neurosurgery Department and has been running for seven years.
- ◆ **STATINS:** A NHMRC-funded Phase 2 randomised trial testing atorvastatin therapy for severe sepsis patients.
- ◆ **ENTERIC:** A Phase 2 randomised trial of an improved enteral feeding technique in ICU patients. This trial was completed in 2009.
- ◆ **RIBFIX:** A Phase 2 randomised trial with Silvana Marasco and other cardiac surgeons, testing a novel absorbable rib fixation technique for patients with traumatic flail chest.
- ◆ **PROTECT:** A multicentre, randomised trial led by the Canadian Critical Care Trials Group and McMaster University, Ontario, testing two alternative methods for thromboprophylaxis in critically ill patients (low molecular weight heparin and unfractionated heparin). This study of 3,500 patients will be one of the largest randomised trials ever performed in ICU patients and Australia, particularly at The Alfred, which is responsible for one quarter of the total recruitment.
- ◆ **PHARLAP:** An Alfred initiated randomised Phase 2 trial of an improved package of care for mechanical ventilation of patients with acute lung injury.
- ◆ **RENAL:** Completed and published in 2009, this was a randomised trial of 1,500 patients with The Alfred as the largest recruiting site. The primary paper was published in *NEJM*.
- ◆ **ICU Outcomes:** David Pilcher with Michael Bailey at the Monash ANZIC-RC interrogated the bi-national ANZICS database and completed major projects concerning the elderly in ICU, ICU admission block, and analyses of factors to provide early warning of impaired ICU performance (of relevance to Bundaberg Hospital, Queensland).

Major Research Findings and Translation

A VNI-commissioned Access Economics analysis of the previously published SAFE-TBI study (*NEJM* 2007) found that use of saline resuscitation fluid in head injury patients instead of 4% albumin would save Australia more than \$6,000 annually for every dollar invested by the VNI in the \$104,000 research grant which funded the project. The study found that the use of saline preferentially would also increase patient survival.

Postgraduate Students

5 PhD Students

Publications

29 Journal Articles

8 Book Chapters

1 Cochrane Systematic Review



Medical Oncology Research Nurse
Donna Gillen interviews a patient.

Medical Oncology

Head: Professor Max Schwarz MBBS(Hons), FRACP, FACP, FChPM

In 2009, the Medical Oncology Unit continued to contribute to Phase 1, 2 and 3 national and international research projects. The unit joined the Cancer Trials Australia (CTA) group in 2009, facilitating access to a wider range of clinical trials.

Late 2009 saw the commencement of the Streamlined Ethical Review Process (SERP) in Victoria. Medical Oncology participated in one of the first submissions to go through this new process, along with colleagues at other hospitals, and facilitated by CTA.

Of note, a Phase 1 study in which the unit participated in 2006–2008 was published in the international journal *Cancer Chemotherapy and Pharmacology* in July. This study demonstrated bioequivalence between the new intravenous form of temozolomide and the existing oral form, and has now been approved by both the US Food and Drug Administration and the European Commission providing a valuable alternative for patients unable to utilise or tolerate the oral form.

In 2010, a new full time Research Nurse is commencing, which will allow the unit to take on more research opportunities to benefit Alfred Health patients.

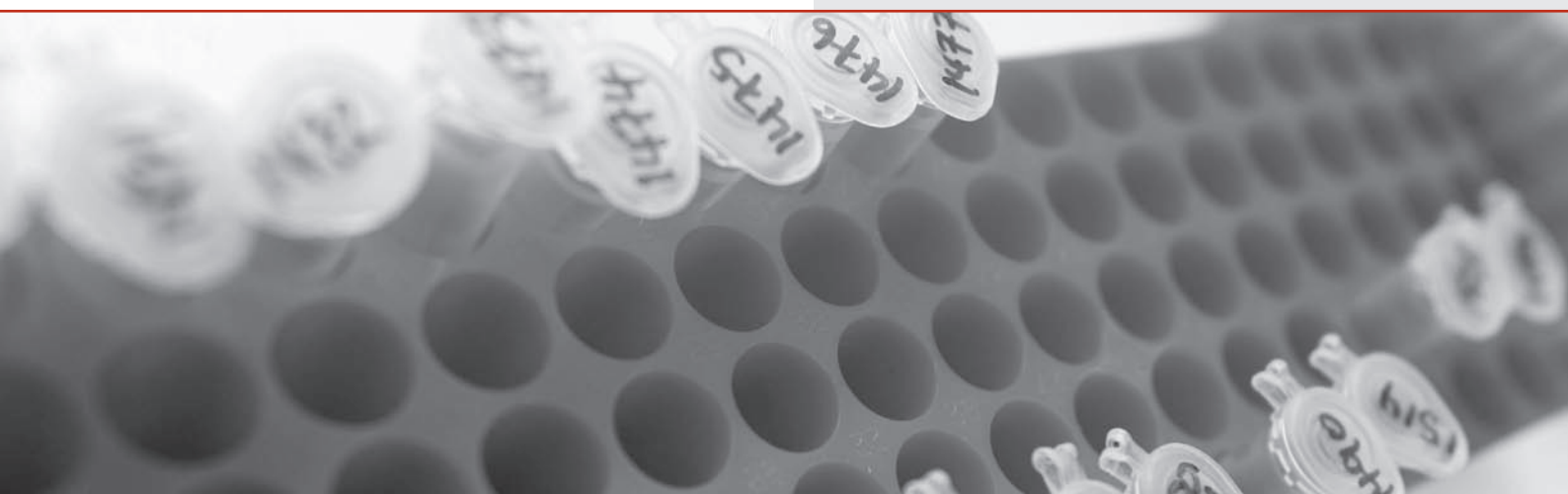
Current Projects

- ◆ Multicentre international study of capecitabine +/- bevacizumab as adjuvant treatment of colorectal cancer (Dr Andrew Haydon)
- ◆ Preoperative chemoradiotherapy and postoperative chemotherapy with capecitabine and oxaliplatin versus capecitabine alone in locally advanced rectal cancer (Dr Sanjeev Gill)
- ◆ A Phase 3 randomised trial of adding nitroglycerin to first line chemotherapy for advanced non-small cell lung cancer (Dr Andrew Haydon)

- ◆ A Phase 3 randomised study of brivanib alaninate (BMS-582664) in combination with cetuximab (Erbix, C225) versus placebo in combination with cetuximab (Erbix, C225) in patients previously treated with combination chemotherapy for metastatic colorectal carcinoma (Dr Andrew Haydon)
- ◆ A randomised Phase 3 study of weekly ABI-007 plus gemcitabine versus gemcitabine alone in patients with metastatic adenocarcinoma of the pancreas (Dr Sanjeev Gill)
- ◆ A multinational, randomised, double-blind study comparing aflibercept versus placebo in patients treated with second-line docetaxel after failure of one platinum based therapy for locally advanced or metastatic non-small-cell lung cancer (Dr Andrew Haydon)
- ◆ Suppression of Ovarian Function Trial (SOFT): a Phase 3 trial evaluating the role of ovarian function suppression and the role of exemestane as adjuvant therapies for premenopausal women with endocrine responsive breast cancer (Professor Max Schwarz)
- ◆ An open label, multicentre, Phase 3 trial of ABI-007 versus dacarbazine in previously untreated patients with metastatic malignant melanoma (Dr Andrew Haydon)
- ◆ A Phase 3 randomised double-blind study comparing sorafenib with placebo in patients with resected primary renal cell carcinoma at high or intermediate risk of relapse (Dr Sanjeev Gill)
- ◆ A randomised, double-blinded, multicentre Phase 3 study comparing everolimus (RAD001) plus best supportive care (BSC) versus placebo plus BSC in patients with advanced gastric cancer after progression on prior systemic chemotherapy (Dr Prasad Cooray)

Publications

12 Journal Articles





Medicine

Head: Professor Napier Thomson AM, MBBS, MD, FRACP

The Monash University Department of Medicine is responsible for the provision of teaching and other academic programs at The Alfred for medical undergraduates and postgraduate research students. The department is the focus of many research activities undertaken by university personnel employed in the department and also by hospital clinical departments (refer to separate reports) integrated with the Department of Medicine.

In addition, many physicians and scientists employed in the hospital's clinical departments have honorary appointments within the Department of Medicine to facilitate the provision of the teaching program, research programs and supervision of postgraduate research students.

Respiratory Immunology Group

Research undertaken by physicians of the Department of Allergy, Immunology and Respiratory Medicine, and scientists in the Monash University Departments of Medicine and Immunology, is largely centred on the immunobiology of asthma (particularly atopic asthma), immunological and molecular characterisation of peanut allergens, chronic lung disease, cystic fibrosis and lung transplantation. A program of study of lung regeneration using stem cell technology has been established in association with Monash Immunology and Stem Cell Laboratories.

Renal Disease

Clinical research projects in Renal Medicine are predominantly in the area of glomerulonephritis, vasculitis, progression of renal disease, diabetic renal disease, chronic allograft rejection, evaluation of renal disease in patients with end stage heart and lung pathology facing heart or lung replacement, and renal disease following successful heart and lung transplantation. The broad theme of the laboratory research program is the mechanisms of progression of primary renal disease. Both human and experimental models of renal disease are studied, with particular focus on the role of the fibrogenic growth factors and apoptosis in progression of injury.

Neurosciences

The Van Cleef Roet Centre for Nervous Diseases, established at The Alfred in 1996, conducts research programs in stroke, Alzheimer's disease and other dementias, inherited and sporadic ataxias, movement disorders and cognition in cerebellar stroke and hepatitis C. Traumatic brain injury is the focus of research of another neuroscience group within the department, using experimental models of injury. This group works in close collaboration with the National Trauma Research Institute.

Clinical Pharmacology

Pharmacological research is focused on drugs that may affect the cardiovascular system. Basic research programs investigate the role of:

urotensin II in cardiac disease; p38 MAP kinase system in heart failure disease progression; Rho kinase in cardiac fibrosis; novel agents in cardiac fibrosis and inflammation.

Infectious Diseases

Research programs are conducted in the fields of HIV, viral hepatitis, neurovirology, infections in the immunosuppressed (such as those with malignancy, in intensive care and post-splenectomy) and infection control and hospital epidemiology.

Women's Health

The Women's Health Program undertakes research pertaining to the main conditions that affect the health of women at midlife and beyond. Major current research projects include a large study of the physical, psychological and social well-being of breast cancer survivors, a community based study of urinary incontinence in women, a study to increase the understanding of joint pain in women being treated for breast cancer, and studies to delineate the role of sex steroids in the preservation of cognitive function in women after menopause.

Endocrinology and Diabetes

Clinical and laboratory research is conducted, especially in the area of diabetes. Specific research programs include mechanisms in the development of diabetic complications, insulin-like growth factor dysregulation in diabetes and heart failure, and clinical trials in diabetes care and osteoporosis.

Experimental Anatomical Pathology

The laboratory of Experimental Anatomical Pathology has a strong focus on pathologic study of human tissue and through collaborative studies conducts research into the role of the endothelium in cardiac transplantation, new prognostic markers in breast and prostate cancer, imaging of dementia, pathologic diagnosis of early muscular dystrophy and pulmonary veno-occlusive disease and pulmonary hypertension. The particular focus within the laboratory is latent viral infections of the brain.

Centre for Ethics in Medicine and Society

The specific objectives of the centre are: (1) to stimulate a culture of reflection, debate, dialogue and awareness of ethical issues in the medical community and the faculty; (2) to deliver high quality teaching products; (3) to conduct research; and (4) to contribute to the development and enrichment of practice.

Postgraduate Students

4 Masters Students
2 MD Students
65 PhD Students

Publications

100 Journal Articles
9 Book Chapters
1 Book



Melbourne Sexual Health Centre was the winner of the Minister's Award for Outstanding Achievement by a Team, 2009 Victorian Public Healthcare Awards. From left: Suzanne Wallis, Professor Christopher Fairley, Ria Fortue, Hon Daniel Andrews MP (Minister for Health), Dr Tina Schmidt and Joanna Eccles.



TheAlfred

Melbourne Sexual Health Centre

Director: Professor Christopher Fairley MBBS, PhD, FRACP, FAFPHM, FACSHP, FACHSHM

The Melbourne Sexual Health Centre (MSHC) is a specialised unit for the diagnosis and treatment of sexually transmissible infections (STIs) and is a principal training centre for health professionals in Victoria. The centre conducts epidemiological, public health and clinical research, primarily aimed at improving the services offered at MSHC.

Chlamydia trachomatis

A retrospective review of Chlamydia positivity among women attending MSHC during 2003–2007 for the first time showed that the true prevalence of Chlamydia is rising an average of 12% per year after adjusting for demographic, clinical and sexual behaviour risk factors (*K Rourke, CK Fairley, A Samaranyake, P Collignon, J Hocking*).

The importance of distinguishing lymphogranuloma venereum (LGV) from more common non-LGV Chlamydial infection is that it can be clinically more severe and requires prolonged antibiotic treatment. In Melbourne, between May 2005 and June 2008, 11 cases among men who have sex with men (MSM) were found to be *Chlamydia trachomatis* genotype L2, the predominant genotype that has been associated with recent international outbreaks of LGV among MSM. A study in 2002 of positive anal Chlamydia isolates (n=39) that were genotyped, none were found to be LGV associated genotypes. These data suggest that LGV has become more established within Melbourne recently (*DM Lee, CK Fairley, L Owen, L Horvath, MY Chen*).

Human immunodeficiency virus (HIV) research

Rapid testing for HIV is not currently approved for use in Australia. The views of MSM were sought on the acceptability and potential uptake of rapid oral testing for HIV in clinic and home based settings. MSM attending two gay community events in Melbourne in 2009 were invited to take part in a study where they received rapid testing for syphilis. When asked about which HIV test they would prefer in a clinic setting, 64% indicated a preference for rapid oral HIV testing, with 18% preferring conventional blood testing (*MY Chen, DM Lee, R Cummings, M Bush, CK Fairley*).

MSHC has patients in a number of ongoing multicentre HIV studies, including:

- ◆ SPARTAC: a study of early versus deferred antiretroviral treatment of seroconverters
- ◆ ALTAIR: a randomised comparison of three initial treatment combinations
- ◆ CORAL: a comparison of bovine colostrum, raltegravir, or both, to boost CD4 counts in patients with poor immune recovery despite good suppression of viral replication

Observational studies include hepatitis B/HIV coinfection and the Australian HIV Observational Database.

Bacterial vaginosis (BV)

The Bacterial Vaginosis Antibiotic and Probiotic Study (BVAPS), an NHMRC-funded, blinded, placebo-controlled, randomised, controlled trial evaluating combination therapy with oral metronidazole/vaginal clindamycin against oral metronidazole/vaginal placebo and oral metronidazole/vaginal probiotic for the treatment of

BV. This study has recruited 85% of total participants (n=450) and will finish recruitment in June 2010 (*CS Bradshaw, M Pirotta, CK Fairley, S Garland*).

A meta analysis of the behavioural risk factors associated with BV was conducted and published in *Clinical Infectious Diseases*. It showed that BV was associated with new and multiple sexual partners and lack of condom use. The findings illustrate BV has the epidemiology of an STI (*K Fethers, CS Bradshaw, CK Fairley*).

The Female University Student Study, FUSS, examining the association between sexual practices and BV was published in the *Journal of Infectious Diseases*, with an accompanying editorial commentary. It provided support for the hypothesis that BV is an STI by showing that BV is absent in women without a history of sexual activity and is strongly associated with increased numbers of sexual partners (*K Fethers, CS Bradshaw, CK Fairley*).

WOW Health is a new study currently in development to examine the behavioural and microbial risk factors associated with incident BV in women with female partners.

Human papilloma virus (HPV)

A retrospective study took place to determine if the Australian HPV vaccination program introduced in April 2007 had a population impact on presentations of genital warts. The study compared the proportion of new clients with genital warts attending MSHC from January 2004 to December 2008. The proportion of women under 28 years with warts diagnosed decreased by 25% per quarter in 2008. The data suggest that a rapid and marked reduction in the incidence of genital warts among vaccinated women may be achievable through an HPV vaccination program targeting women, and supports some benefit being conferred to heterosexual men (*CK Fairley, JS Hocking, LC Gurrin, MY Chen, B Donovan, CS Bradshaw*).

Awards and Achievements

- ◆ Melbourne Sexual Health Centre was the winner of the Minister's Award for Outstanding Achievement by a Team, 2009 Victorian Public Healthcare Awards.
- ◆ Professor Christopher Fairley received the Melbourne School of Population Health 2009 Award for Excellence in Research Higher Degree Supervision for Outstanding Supervisor.
- ◆ Jenny Walker won the prize for the best epidemiology presentation on 'The methodology of the Chlamydia incidence and reinfection rates study' at the Australasian Epidemiology Association Victorian branch postgraduate student workshop.
- ◆ Tim Read was awarded an Australian Postgraduate Scholarship to undertake his PhD commencing in 2010 with a study of HPV oral infection in MSM and a randomised trial of the use of the rapid oral HIV testing in MSM attending MSHC.

Postgraduate Students

7 Masters Students
7 PhD Students

Publications

20 Journal Articles
1 Book Chapter



National Trauma Research Institute

Director: Professor Russell Gruen MBBS, PhD, FRACS

The National Trauma Research Institute (NTRI) has successfully brought together expert researchers from multiple disciplines to enable high quality practice and policy-changing research about the care of injured people. NTRI is seamlessly integrated with The Alfred Trauma Service, the largest and busiest trauma service in Australasia. It has world-class laboratories, clinician-researcher leaders, and strong local, statewide, interstate and overseas partnerships. NTRI is therefore ideally positioned to lead trauma and injury research, to make high-quality research possible, and to ensure that research is used to improve the care and lives of the severely injured.

Professor Russell Gruen commenced as Director of NTRI in July 2009. He has a strong clinical, policy and research background as a Melbourne-trained general surgeon, with specialist trauma and critical care training from the University of Washington in Seattle, a PhD in the delivery of surgical services to remote parts of Australia, and postdoctoral fellowships in health policy and medical ethics at Harvard University. He is also chair of the Trauma Quality Improvement Subcommittee of the Royal Australasian College of Surgeons. In the three years prior to joining NTRI, Professor Gruen established a knowledge translation and quality improvement research group at the University of Melbourne and Royal Melbourne Hospital that is now part of NTRI.

In 2009, NTRI continued to be very productive in its four main research areas: laboratory research (led by Associate Professor Cristina Morganti-Kossmann), clinical research (led by Professor Jamie Cooper), trauma systems and monitoring research (led by Professor Peter Cameron), and rehabilitation research (led by Professor Jenny Ponsford). The addition of Professor Russell Gruen's knowledge translation and quality improvement research group has created new opportunities for partnerships and collaborations with clinicians, patients, managers and policy-makers.

In light of developments within the institute, within AMREP, and in trauma research more generally, NTRI underwent a strategic review during the latter half of 2009. It asserted the previous goals of being a 'hub for trauma knowledge', and recommended changes to capitalise on NTRI's achievements and strengths, explore and make the most of new opportunities, and position the institute as a national and international leader.

In light of these conclusions, NTRI has undergone organisational restructuring to enhance its scientific and operational functions, create capacity to lead and strengthen national and international research partnerships, and increase its capacity to become a global knowledge resource. It is planned that in 2010 NTRI will develop new roles that include being the research office and the international liaison office for The Alfred Trauma Service, being a national provider of research-based information, and coordinating research involving multiple trauma centres. Through these roles, NTRI will provide research and knowledge translation leadership among the local, national and international trauma community.

Highlights

Trauma Melbourne Conference 2009

Trauma Melbourne has become a regular date in the Australian trauma community's calendar, and the 2009 conference brought together over 250 delegates from many disciplines. The conference included the second Trauma Research Methods Workshop and a Trauma ICU Workshop, both of which were very popular.

Prevent Alcohol and Risk-related Trauma in Youth (P.A.R.T.Y.) Program

P.A.R.T.Y. is a trauma prevention program designed for senior school students. Through the generous support of The Alfred Trauma Service, it introduces students to the real consequences of risk-taking behaviour and poor decisions, such as drink-driving. NTRI coordinates the Victorian program, which has been very popular with schools and students, and supports interstate program development.

Funding Partners

NTRI continues to enjoy the generous support of its sponsors, including AAMI, Mazda Foundation, Tattersalls and The Alfred Foundation, and its research activities are funded through grants from a range of competitive funding sources.



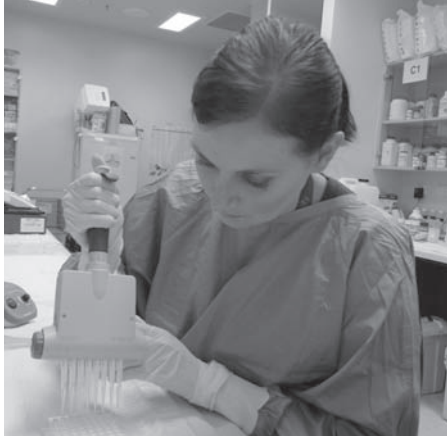
From left: Associate Professor Cristina Morganti-Kossmann, Dr Nicole Bye and Dr Edwin Yan.

Postgraduate Students

1 DPsych Student
3 PhD Students

Publications

34 Journal Articles
1 Book Chapter
1 Book
1 Cochrane Systematic Review



PhD student Perdita Cheshire measures protein levels in human brain tissue.

Neurosciences

Head: Professor Elsdon Storey MBBS, DPhil, FRACP

Stroke

The Stroke Unit, under the leadership of Dr Judith Frayne, participates in many national and international multicentre stroke trials, including both industry-sponsored and investigator-driven trials. Associate Professor Richard Gerraty addresses the difficult management issues raised by cervical arterial dissection, a common consequence of trauma in The Alfred's large trauma patient base.

Alzheimer's disease and other dementias

Optimally, treatment for Alzheimer's disease should be started as early in the disease as possible, when the only problem is of mild memory loss. In conjunction with Associate Professor Glynda Kinsella (La Trobe University) and supported by NHMRC, patients are studied to ascertain whether teaching memory strategies at an early stage may improve everyday memory function. Carmela Germano and Sarah Ong, La Trobe University Masters students in Psychology co-supervised by Professor Storey, completed their studies on memory mechanisms and motor skills in Alzheimer's disease. Dr Louise Kelly's studies on the functions of APP, the nerve cell protein that is broken down to form the toxic amyloid protein of Alzheimer's disease, continue.

Professor Storey is on the steering committee of the NIH-funded 19,000 participant ASPREE trial of aspirin in the healthy elderly, for which dementia is a primary endpoint. He is also a chief investigator on an Australian National University-led NHMRC-funded substudy, ENVISion, assessing the effects of aspirin on brain MRI, cognition and retinal vasculature.

Inherited and sporadic ataxias and other neurogenetic disorders

Spinocerebellar ataxias (SCAs) affect those parts of the brain concerned with coordination. Many cases have a genetic cause. The department's clinical work in the inherited ataxias involves finding and describing new types of ataxic illness. Dr Rhonda Ponnampalam successfully purified expressed ataxin 1 (the protein mutated in SCA1) in 2009, and has submitted the technique for publication.

In conjunction with Professor David Amor, Murdoch Childrens Research Institute, we are pursuing genetic localisation of oculopharyngeal myopathy in a large pedigree studied by us and Dr Michael Fahey (Monash Medical Centre), as well as two apparently previously undescribed distal myopathies – one dominant and one recessive.

Gluten sensitivity (which underlies coeliac disease) has been proposed as a common cause of sporadic (non-genetic) ataxias, although this is contentious. NHMRC funds the department to study this question, both in a mouse model and in subjects with newly-diagnosed coeliac disease, using clinical scales, our internally-developed electronic measures of coordination, and quantitative MRI scanning.

Dr Louise Kelly and Volga Tarlac have shown that purified human anti-gliadin antibodies cross-react with cerebellar antigens and have also produced coeliac

disease in HLA-transgenic mice. Work on identification of the cerebellar epitopes, and on cerebellar structure and function in the coeliac mice, continues in 2010.

Neurology advanced trainee, Dr David Szmulewicz, has drawn together 18 cases of a new sporadic cerebellar syndrome, CANVAS, from Victoria, NSW and New Zealand, and has submitted the clinical description for publication.

Neurophysiology scientist Kate Tuck has continued validation and standardisation work on a battery of upper limb coordination measures, in collaboration with Monash University Gippsland campus to produce a portable apparatus with which to conduct these various tests.

The department also undertakes the clinical and neurophysiological assessment of tremor and ataxia, and neuropsychological and neuroradiological assessment of female fragile X syndrome premutation carriers (funded by NHMRC in conjunction with Dr Danuta Loesch, La Trobe University).

Movement disorders

Associate Professor David Williams coordinates a research team through the Van Cleef Roet Centre, which includes two laboratory scientists who work on brain tissue archived at the Australian Brain Bank Network (ABBN). The team investigates the distribution and composition of insoluble protein deposits in Alzheimer's disease, progressive supranuclear palsy and Parkinson's disease. In collaboration with the team from the UCL Institute of Neurology, London, they are developing a quantitative measure of tau protein in the spinal fluid of patients with neurodegeneration, specifically identifying different tau isoforms. Associate Professor Williams co-supervises two University of Melbourne PhD students who perform longitudinal neuropsychological studies on patients with movement disorders.

Associate Professor Williams is chief investigator on an NHMRC-funded multicentre trial comparing two different targets for deep brain stimulation surgery, and also assessing predictors of outcome. The Movement Disorders Clinic (in The Alfred Private Consulting Suites) is now operating as a fully integrated, multidisciplinary clinic, treating over 1,000 patients per year. Diagnostic and electrophysiological measures of tremor are being tested in conjunction with The Alfred Movement Analysis Laboratory.

Cognition in heart failure, cerebellar stroke and hepatitis C

With Professor Henry Krum (Clinical Pharmacology/Heart Failure Clinic), Professor Storey and Tracy Henderson continued the study of cognition in heart failure. La Trobe Neuropsychology Masters student Chris O'Halloran completed his studies on localisation of cognition and affective function in the cerebellum, and is now writing up.

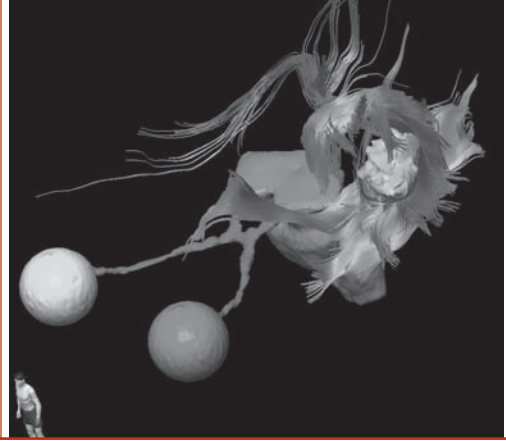
Postgraduate Students

2 DClinNeuropsych Students
1 PhD Student

Publications

19 Journal Articles
1 Book Chapter

The department is actively involved in research into advanced medical imaging and computer aided surgery. This helps to delineate and define delicate and vital neural structures for preoperative planning, intraoperative navigation, radiosurgery, and also in the development of novel and innovative surgical techniques.



Neurosurgery

Head: Professor Jeffrey Rosenfeld MBBS, MD, MS, FRACS, FRCSEd, FACS, FRCSEd, Hon, FACTM, MRACMA, RAAMC

2009 has been a productive year for the Neurosurgery Department, with the multidisciplinary research program continuing to build. Ongoing fruitful collaborations with the departments of Intensive Care, Trauma Surgery, Stroke, Radiology, Radiotherapy and Pathology continue, as do relationships with interstate and international research groups. The research partnership with the William Buckland Radiotherapy Centre is growing, with the commencement of trials of radiotherapy on low grade gliomas and metastatic melanoma in the brain. The neurosurgery trainees and residents are engaged in many research projects.

The POLAR study, a collaboration with the Intensive Care Unit, commences in 2010. This important project will investigate the ability of brain cooling to reduce secondary injury after traumatic brain injury.

The last year has seen the familial intracranial aneurysm study come to a close at The Alfred, after eight successful years of contribution by the Neurosurgery Department. 2009 also saw the completion of The Alfred's recruitment for the multinational drug trial CONSCIOUS-2, which is close to completion globally. The results of this trial are eagerly awaited, as a novel cerebral vasospasm prophylaxis agent may be brought to market.

The department continues to demonstrate its commitment to research dissemination by publication in the medical literature. In 2009, the unit published in the prestigious journals *Neurosurgery* and *Spine*, in addition to a wide variety of relevant, well-cited journals such as the *European Journal of Neurosurgery (Acta Neurochirurgica)* and the *Journal of the American College of Surgeons*.

Awards, Prizes and Major Grants

- ◆ Professor Jeffrey Rosenfeld received the Michael E. DeBakey International Military Surgeons' Award for Excellence for 2009 at the 29th United Services University Surgical Associates Day, USA.
- ◆ Professor Jeffrey Rosenfeld was a Distinguished Visitor in Military Surgery at the Royal Australasian College of Surgeons (RACS) 78th Annual Scientific Congress.
- ◆ Professor Jeffrey Rosenfeld was appointed to the Sir Weary Dunlop Medical Research Foundation Board.
- ◆ MD student Dr Alex Adamides won the RACS Trauma Committee Registrars' Papers Day Competition in 2008, providing him with the opportunity to present his research paper at the 2009 American College of Surgeons Committee on Trauma in Chicago, USA. Here he was awarded 1st place in the clinical research category of the Residents' Trauma Papers Competition, the first non-American ever to win.
- ◆ Consultant neurosurgeon Mr Greg Malham was appointed Executive Member of the Spine Society.

Current Projects

- ◆ DECRA: a multicentre randomised trial of early decompressive craniectomy in patients with severe traumatic brain injury (Professor Jeffrey Rosenfeld)
- ◆ FIA: Familial Intracranial Aneurysm Study (Professor Jeffrey Rosenfeld)
- ◆ CONSCIOUS-2: a prospective multicentre, double blind, randomised, placebo controlled, parallel group study to assess the efficacy and safety of clazosentan in reducing vasospasm-related morbidity and all-cause mortality in adult patients with aneurysmal subarachnoid haemorrhage treated by surgical clipping (Mr Peter Hwang)
- ◆ The correlation of clinical and radiographic findings with long term outcomes in road trauma patients with acute cervical discoligamentous injury (Professor Jeffrey Rosenfeld)
- ◆ Establishment of a neurotrauma tissue/fluid bank within the National Neural Tissue Resource Centre (Professor Catriona McLean, Professor Jeffrey Rosenfeld)
- ◆ Identification of risk factors for the development of postoperative bleeding after cranial neurosurgery (Mr Peter Hwang)
- ◆ An investigation into the cognitive outcome of patients undergoing stereotactic radiotherapy for the treatment of arteriovenous malformations (Mr Peter Hwang)
- ◆ Intentional forgetting in frontal lobe tumour patients (Dr Jacqueline Anderson, Professor Jeffrey Rosenfeld)
- ◆ The determination of the expression of calcitonin receptor (CTR) and the characterisation of CTR-positive cell types in human brain tumours (Mr Peter Hwang)
- ◆ Cerebral autoregulation monitoring in paediatric traumatic brain injury (Philip Lewis, Associate Professor Warwick Butt, Professor Jeffrey Rosenfeld)
- ◆ A study of the assessment and management of blunt cerebrovascular injury in patients presenting with trauma: a study of 90 patients treated between 2004 and 2006 (Professor Jeffrey Rosenfeld, Mr Peter Hwang)
- ◆ Trauma reception and resuscitation – time for a new approach (Associate Professor Mark Fitzgerald, Professor Jeffrey Rosenfeld)
- ◆ The development of a neurosurgical audit system (Philip Lewis)
- ◆ Novel applications of ultrasonic intracranial distance measurements (Philip Lewis)

Postgraduate Students

1 MD Student
3 PhD Students

Publications

21 Journal Articles
1 Book



Distribution of radiolabelled sugar in typical metabolically active brown fat areas in a young patient.

Nuclear Medicine

Head: Associate Professor Victor Kalff MBBS, BMedSc(Hons), FRACP, FACC

The Department of Nuclear Medicine was established in 1968 and is primarily committed to providing patient services that involve the use of unsealed sources of medical isotopes either for therapy or diagnosis. It is especially active in training medical specialists in this field and nuclear medicine technologists who are an integral part of the provision of these services to patients.

The department is involved in research activities that support its principal areas of clinical involvement and with the presence of a dedicated positron emission tomography (PET)/computed tomography (CT) scanner, it is increasingly focused on improving the assessment of cancer patients treated in the William Buckland Radiotherapy Centre and other Alfred Health centres. PET/CT is the focus of research projects to determine its impact on patient management in several oncologic and non-oncologic conditions. The department's long history of actively participating in a series of multidisciplinary research projects with many other Alfred departments and the Baker IDI Heart and Diabetes Institute continues.

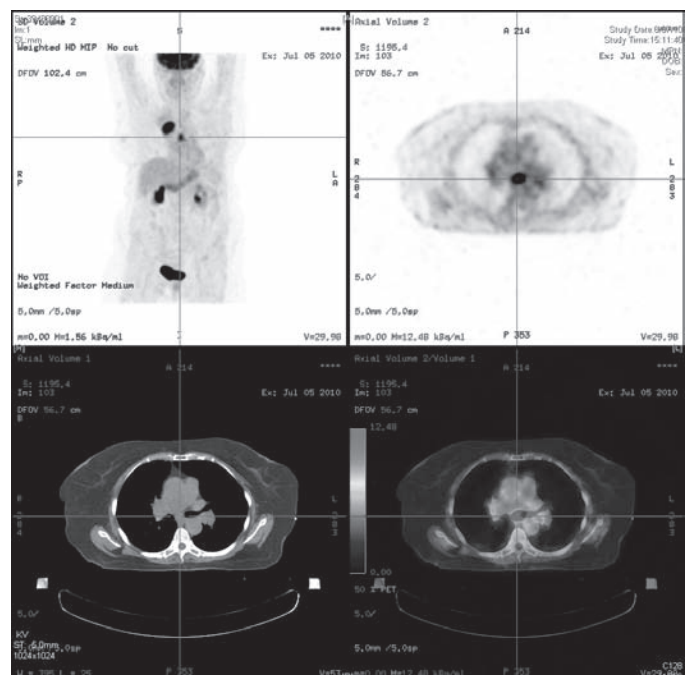
Several recently completed studies are now either published in peer reviewed journals or are in various stages of the publication process. These include a publication by Dr Martin Cherk and colleagues, including Professor Duncan Topliss, on the incidence of radiation thyroiditis and ablation success rates following 1110 MBq and 3700 MBq post surgical I-131 ablation therapy for patients with differentiated thyroid carcinoma.

Dr Cherk and others, in a combined project with the Peter MacCallum PET Centre, also published an evaluation of pulmonary nodules and lung cancer with a one inch crystal gamma coincidence PET/CT, showing it is only mildly less sensitive than a dedicated PET/CT. However, the one inch crystal gamma coincidence PET/CT takes three times longer to image individual patients and consumes significant gamma camera resources. It therefore now acts as a backup device if the new dedicated camera has a breakdown. Dr Thomas Barber, Nuclear Medicine Fellow, demonstrated that PET/CT impacts on the treatment strategy in approximately 45% of patients with pancreatic cancer.

Current Projects

- ◆ Mechanisms of the disorders of circulatory control which may cause syncope: chronic low blood pressure (Dr Kenneth Yap with the Department of Cardiovascular Medicine)
- ◆ Mechanisms of the disorders of circulatory control which may cause syncope: pure autonomic failure, multiple systems atrophy and Parkinson's disease with autonomic failure (Dr Kenneth Yap with the Department of Cardiovascular Medicine)
- ◆ Nuclear medicine studies of gastric and oesophageal emptying in lap-band patients (Dr Kenneth Yap with the Centre for Obesity Research and Education and the Monash Department of Surgery)

- ◆ Using I-123-MIBG to assess neuroendocrine function in patients with hypertension, postural orthostatic tachycardia syndrome and syncope (Associate Professor Victor Kalff with the Department of Cardiovascular Medicine)
- ◆ Role of PET/CT in management of hepatocellular carcinoma (Dr Kenneth Yap and Associate Professor Stuart Roberts, Gastroenterology Unit)
- ◆ A pilot study of the use of magnetic seizure therapy for treatment resistant depression (Dr Kenneth Yap and Professor Paul Fitzgerald, Department of Psychiatry)
- ◆ Pilot study using PET/CT to assess mechanisms of tumour cell death following controversial IRE therapy (Dr Martin Cherk and Professor Ken Thomson with the Radiology Department)



PET/CT of lung cancer with local spread.

Publications

3 Journal Articles



Nucleus Network Senior Clinical Unit Assistant, Natalie Smith, with a trial participant.



Nucleus Network

Chief Executive Officer: Dr Andrew Giddy BVetSc, GradDipBioeth, CCRA

Medical Director: Professor Peter Hodsman MB ChB, MD, FRACP, FRCP

Nucleus Network is a not-for-profit clinical research and education company and Australia's leading clinical research organisation specialising in the conduct of early phase clinical trials. Wholly owned by Baker IDI Heart and Diabetes Institute, Nucleus Network comprises the AMREP Centre for Clinical Studies (a 30-bed early phase clinical trial unit), the Austin Centre for Clinical Studies (a 16-bed early phase clinical trial unit located at the Austin Hospital), Clinical Trials Consulting and Nucleus Network Education.

The organisation is structured as an independent company limited by guarantee, with an independent board. The not-for-profit status facilitates unique collaborations with hospital-based principal investigators, individual researchers, medical schools and access to dedicated research precinct facilities and capabilities.

Early phase clinical trials are a vital step in the process of bringing new medicines to the community. Every medicine sold over the counter or by prescription has undergone stringent clinical testing to ensure it is safe and effective, and it is this process that is undertaken at Nucleus Network.

Clinical trials performed at Nucleus Network involve either healthy volunteers or patients with specific medical conditions. The organisation relies heavily on community involvement in this process, and is grateful for the time and effort offered by participants, without whom new medicines would not reach the people who need them most.

The types of medicines tested at Nucleus Network are varied but are generally in the early stages of clinical development (Phase 1). Healthy volunteers are often involved in the earliest research because their bodies are 'fully fit' to absorb and process new medicine. Patients with a specific diagnosis may also be involved in early studies; this is often the case when a medicine will only have an effect on specific symptoms.

As an industry leader, Nucleus Network follows strict adherence to the highest standards of clinical research, conducted in accordance with international regulatory requirements and expectations.

New drugs and compounds are administered in a strictly controlled environment, attended to 24 hours a day by Nucleus Network's specially trained medical support staff. Trial participants are closely monitored for reactions, and blood samples, blood pressure and other vital signs are taken and carefully recorded at regular intervals. This information protects the participants' health as well as providing vital information about the therapy under trial and informing the pharmaceutical company's understanding of the drug.

Nucleus Network provides collaboration opportunities for researchers on the AMREP and Austin sites to be involved with cutting edge technologies and new discoveries, ensuring that innovative treatments are available in hospitals. The trials benefit patients, create employment opportunities and support health infrastructure in Victoria.

As a leading contributor to Australia's clinical research industry, for the second year running, Nucleus Network received recognition at the Governor of Victoria Export Awards. Nucleus Network was awarded a Commendation in the Small to Medium Service category. This follows the organisation's success in 2008 winning both the Emerging Exporter Award and Award for Innovation Excellence.

Highlights

- ◆ \$16.8m in revenue, with significant amounts flowing to AMREP and Austin collaborators in the form of services, donations, education subsidies, contract work and scholarships
- ◆ Over \$12 million in export earnings to the Australian health and biotech economy
- ◆ More jobs created for Victorians, with growth to over 100 permanent and casual employees
- ◆ Four student placements
- ◆ More than 40 early phase clinical trials conducted
- ◆ Clients include five of the top ten international big pharma companies (2009) and other US and Australian based biotech companies



Nucleus Network Clinical Research Co-ordinator, Amitesh Sharma, with a clinical trial participant.



Danielle Bolster discusses medication management with a patient on Ward 3CTC.

Nursing

Director: Associate Professor Sharon Donovan BN, MidCert, MBA

The Alfred/Deakin Nursing Research Centre

The core research activities of the Alfred/Deakin Nursing Research Centre have focused on the evaluation of quality and safety of care delivery and the development and implementation of interventions to improve patient outcomes. PhD projects in progress involve investigations of symptom management in the oncology context, patient participation and preferences for participation in recovery after cardiac surgery, the quality of care of frail elderly in acute care to reduce functional decline, and the trajectory of pulmonary dysfunction following cardiac surgery.

A highlight was the multimodal, multicentre study investigating interprofessional communication in handover situations funded by the Australian Commission on Safety and Quality in Healthcare. The specific aims were to investigate current handover patterns and processes in the Post Anaesthetic Care Unit (PACU), evaluate the transferability of existing handover tools within the PACU environment and across sites and health care sectors, and measure staff perceptions of team performance and safety culture. The objectives of the study were to develop observational tools that can be used to evaluate components of safe handover and to develop and implement a handover improvement process to promote safe and comprehensive interprofessional handover.

The nurse-assisted screening and referral program for depression among survivors of cancer study commenced in 2008 was completed in 2009. This was a pilot study funded by beyondblue: the national depression initiative and the Victorian Cancer Agency designed to investigate the effectiveness of a proactive telephone support service and screening mechanism to facilitate referral to post-treatment services for those at high risk for significant levels of distress and/or depression.

Current Projects

- ◆ Evaluating quality of care in an oncology setting: symptom management and practices (Emma Cohen)
- ◆ Evaluating the quality of 24 hour acute care delivery: describing functional outcomes of older people using a model of best practice (Lenore Beddoes)
- ◆ Defining patient participation in treatment in acute care context (Lauren McTier)
- ◆ Interprofessional communication and team climate in complex clinical handover situations: issues for patient safety in the private sector (Professor Mari Botti)
- ◆ Implementing evidence-based practice for the nursing management of central venous catheters (Gabrielle Burdeu)
- ◆ Living with an artificial heart: experiences of patients and carers (Dr Judy Currey)
- ◆ Managing patients with a ventricular assist device: an exploration of international models for community-based care (Dr Judy Currey)

- ◆ Enhancing medication safety in hospitals: development of a core dataset and an exploration of factors influencing nurses' decisions (Dr Judy Currey)
- ◆ Correlation between ETCO₂ and PaCO₂ in spontaneously breathing emergency department patients (Elaine Killeen)
- ◆ Responding to medical emergencies: system characteristics under examination (RESCUE) (Professor Tracey Bucknall)
- ◆ Implementing a core dataset for the systematic reporting of medication incidents by cardiac nurses (Dr Judy Currey)
- ◆ Predictors of hospital admission of patients with chronic obstructive pulmonary disease in the emergency department (Julie Considine)
- ◆ Presentation to emergency departments due to chemotherapy-induced complications: opportunities for improving service delivery (Dr Trish Livingston)
- ◆ A nurse-assisted screening and referral program for depression among survivors of cancer: a pilot study (Dr Trish Livingston)

La Trobe/Alfred Clinical School

Research activity in the La Trobe/Alfred Clinical School in 2009 was centred on assisting nurses within Alfred Health to undertake a range of clinical projects including the completion of higher degrees. In 2010 the research program will be refined to central themes including time critical interventions and preservation of the integument.

Projects undertaken included:

- ◆ A survey of patient satisfaction in a metropolitan emergency department: comparing nurse practitioners and emergency physicians (Natasha Jennings, Geraldine Lee, Kylie Chou, Simon Keating)
- ◆ An examination of the quality of life two years after coronary artery bypass graft surgery (Sonia Azzopardi, Geraldine Lee)
- ◆ Emergency department audit of a chest pain protocol for short stay unit patients: a twelve month follow up (Samantha Dix, Geraldine Lee)
- ◆ A retrospective examination of cardiac life style risk factors present in patients post cardiac transplant (Yvonne Cristiano, Geraldine Lee)
- ◆ An examination of families' perspective of the intensive care experience (Pauline Wong, Dr Susan Koch)
- ◆ An examination of clinicians' perception of colour exhibited by erythema and wet necrotic tissue (Associate Professor Bill McGuinness, Associate Professor Tim Neild)

Postgraduate Students

11 Masters Students
1 DN Student
6 PhD Students

Publications

19 Journal Articles
1 Book Chapter
1 Book



Nutrition

Head: Associate Professor Ibolya Nyulasi BSc Nut & Diet, MSc, GradDipBusMgt

Main Areas of Research

In 2009, the Nutrition Department maintained a research focus in the area of nutritional assessment and dietary intervention of chronic conditions, such as human immunodeficiency virus (HIV) and heart failure.

Dr Suzannah Jackson completed recruitment for a dietary intervention study in patients with chronic heart failure investigating the effect of two different dietary approaches (a conventional low fat, high carbohydrate diet and a Mediterranean style diet) on weight control, insulin sensitivity, inflammatory mediators and lipid status.

Julia Price was the successful recipient of an Alfred Research Trusts Allied Health Small Project Grant entitled 'Are individuals with HIV and darker skin pigmentation at risk of lowered bone mineral density, and further HIV disease progression due to high risk of Vitamin D deficiency?' Recruitment commenced in 2009 and it is anticipated that the study will be completed in 2010.

Emma Ridley, in conjunction with Ian Woolley from the Infectious Diseases Unit, was awarded a research grant from Gilead Pharmaceuticals to investigate the prevalence of metabolic syndrome, lipodystrophy and cardiovascular disease risk in an ambulant ageing HIV-infected male cohort. Julia Price was appointed as the research dietitian to undertake study recruitment and management in 2009. It is anticipated that the study will be completed in 2010.

Major Findings

Suzannah Jackson's study in heart failure patients found that the Mediterranean style diet produced favourable changes in lipid parameters, with no associated gain in body weight. These important clinical findings have altered the dietary recommendations provided to patients with chronic heart failure at The Alfred and results of the study have also been presented to clinical dietitians at a national level.

Achievements

Suzannah Jackson received the Lucy Battistel Prize for Allied Health Research at the 2009 Alfred Week research poster display for her poster entitled 'Treatment of chronic heart failure: a low energy density Mediterranean-style diet'.

Colleen Jackson presented at the 5th Congress of the International Paediatric Transplantation Association held in Turkey. Colleen's presentation was entitled 'Body composition and bone mineral density changes post paediatric lung transplantation'.

Emma Ridley continued her role in 2009 as the AuSPEN (Australasian Society of Parenteral and Enteral Nutrition) and ANZICS-RC (Australian and New Zealand Intensive Care Society Research Centre) Nutrition Research Fellow in the School of Public Health and Preventive Medicine, Monash University. Her projects include a study of pancreatitis, the International Nutrition Survey and nutritional requirements in traumatic brain injury.

Ibolya Nyulasi, Manager of Nutrition, was appointed in 2009 as adjunct Associate Professor within the Central Clinical School, Monash University. The appointment was in recognition of Ibolya's contribution to student training and clinical research primarily in the area of nutrition support management of critically ill patients.

Current Projects

- ◆ Are individuals with HIV and darker skin pigmentation at risk of lowered bone mineral density, and further HIV disease progression due to high risk of Vitamin D deficiency? (Julia Price)
- ◆ Prevalence of metabolic syndrome, lipodystrophy and cardiovascular disease risk in an ambulant ageing HIV-infected male cohort (Julia Price, Emma Ridley)
- ◆ A randomised, controlled study of a pre-operative intervention in patients with diabetes undergoing cardiac surgery (co-investigator: Rachel Stoney; principal investigator: Sue Wyatt, Department of Endocrinology and Diabetes)



Postgraduate Students

4 Masters Students
1 PhD Student

Publications

1 Journal Article



Occupational Therapist Alison Hardman fabricates splints to assist with wrist pain following falls.

Occupational Therapy

Managers: **Lisa Somerville BSc(OT), MPH**
Allison Cox BAppSc(OT), MCPP

The Occupational Therapy Service at The Alfred provides clinical services across the speciality areas of medicine, surgery and psychiatry. The service strives to enhance people's quality of life by enabling them to participate in their chosen life roles and personal occupations. Occupations include all of the activities that occupy people's time across the course of a normal day, such as self-care tasks, household duties, community involvement, work or study, and leisure pursuits.

Occupational Therapy at The Alfred is committed to excellence in practice, teaching, and research. Research in occupational therapy examines the relationship of disease or injury to the occupational performance of the individual; and the effectiveness of occupational therapy interventions in maximising individuals' abilities to overcome task limitations and participate in daily activities post-injury or illness. Research output for 2009 has included publications in peer-reviewed journals and free papers at national and international conferences.

Allison Cox is joint senior researcher on a project investigating seclusion reduction in acute psychiatry, which has received a grant from The Alfred Foundation. This research aims to evaluate the introduction of sensory modulation techniques as a novel intervention within Alfred Psychiatry as a means to improve client and staff satisfaction as well as reduce rates of seclusion and aggressive incidents within the inpatient unit.

Allison is also undertaking a Clinical Doctorate (Occupational Therapy) researching the use of a school-based social skills program for primary school children experiencing significant and longstanding social difficulties in the schoolyard. Taking place within school environments and addressing social participation, this intervention aims to directly influence the social and emotional wellbeing of primary school aged children.

Lisa O'Brien continues her research into the comparative effectiveness of different splinting techniques in the management of mallet finger injury. This research is supported by Alfred Research Trusts funding. Preliminary results from this study have been reported both nationally and internationally. Lisa is also undertaking research into efficacy and patient experience of distraction splinting for complex intra-articular finger fractures. This includes a qualitative study of Alfred patients who had distraction treatment and a cohort study comparing outcomes with patients from Southern Health who received different treatment for the same injury.

Michelle Farquhar completed her Masters research examining the sensitivity and specificity of two different approaches to cognitive assessment in mild traumatic brain injury.

Alison Hardman, Lisa O'Brien and Scott Presnell received an Alfred Research Trusts Small Project Grant for their study of conservative management techniques for pain associated with ulnocarpal abutment. Dr Presnell also received a publication support grant through La Trobe University for his work on human immunodeficiency virus-associated peripheral neuropathy, as well as joint funding with physiotherapist Associate Professor Anne Holland to

examine preferred knowledge acquisition strategies and use of evidence by practising allied health clinicians.

Two undergraduate Occupational Therapy students from La Trobe University completed their Honours research. Amanda Cauchi examined the experiences of people living with cystic fibrosis. Jennifer Grigg studied the experiences of women admitted to an acute psychiatric facility.

Dr Rob Stirling, Jenny-Maree Marshall, Fiona Hore-Lacy and Scott Presnell continued their research into adult accomplishment in individuals with cystic fibrosis. This research is being jointly conducted by Occupational Therapy and the Department of Allergy, Immunology and Respiratory Medicine, and will generate important insights into how people with chronic illness maximise their life opportunities whilst managing the demands of their illness.

Current Projects

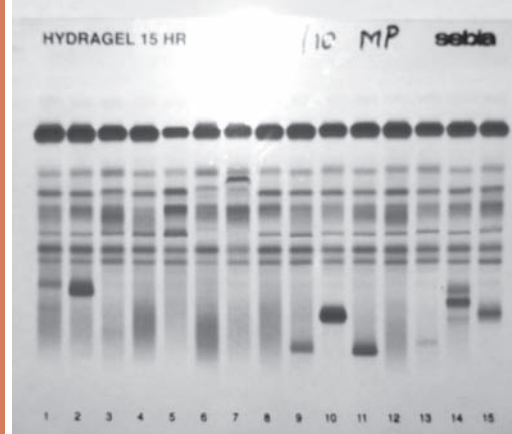
- ◆ Alfred CAMHS (Child and Adolescent Mental Health Service) schoolyard participation project: implementation and evaluation of a targeted school-based intervention program to develop young children's social competency (Allison Cox)
- ◆ Randomised controlled trial of splinting interventions in the treatment of mallet finger injuries (Lisa O'Brien)
- ◆ Conservative management of wrist pain caused by ulnocarpal abutment (Alison Hardman, Lisa O'Brien, Scott Presnell)
- ◆ Efficacy and patient experience of distraction splinting for complex intra-articular finger fractures (Lisa O'Brien, Dr Andy Simm; Dr Ian Loh, Lim Griffiths, Southern Health)
- ◆ Determining the sensitivity and specificity of the Perceive, Recall, Plan, Perform (PRPP) system of task analysis in identifying cognitive impairment following mild traumatic brain injury (Michelle Farquhar, Scott Presnell; Janet Fricke, La Trobe University)
- ◆ A qualitative analysis of living with cystic fibrosis (Amanda Cauchi, La Trobe University; Scott Presnell)
- ◆ Women's experiences of admission to an acute psychiatric ward (Jennifer Grigg, Tracy Fortune, La Trobe University; Scott Presnell)
- ◆ Adult accomplishment in cystic fibrosis (Rob Stirling, Fiona Hore-Lacy, Jenny-Maree Marshall, Scott Presnell)
- ◆ The effective assessment of high level cognition based communication disorders in traumatic brain injury (Tanya Blyth, Annabelle Bond, Amanda Scott, Michelle Farquhar)

Postgraduate Students

3 Masters Students
1 Doctor of Occupational
Therapy Student
1 PhD Student

Publications

2 Journal Articles



Pathology

Director: Associate Professor Hans Schneider MD, FRACP, FRCPA, FACB

Clinical Biochemistry

Head: Associate Professor Hans Schneider

The randomised controlled trial of B-type natriuretic peptide (BNP) was published in 2009. Analysis showed that in a patient population presenting with shortness of breath to the Emergency Department of The Alfred and Northern Hospital, the use of BNP did not overall increase accuracy of diagnosis. Further analysis of subgroups is ongoing.

In collaboration with the Intensive Care Unit, a feasibility study was performed, where urine neutrophil gelatinase-associated lipocalin (NGAL) was measured as a predictor of impending renal failure and poor outcome. In 2009, a pilot study was planned and samples were collected. Further analysis will occur in 2010 with the aim of designing a randomised controlled trial linking NGAL measurement to a therapeutic intervention.

In collaboration with the Clinical Pharmacology Unit (Professor Henry Krum), Pathology is collecting plasma and urine samples to determine the usefulness of markers of acute kidney injury to predict future hospitalisation and cardiac events.

In collaboration with Associate Professor Cristina Morganti-Kossmann (NTRI), Dr Nilika Wijeratne measured heart type fatty acid binding protein in serum and cerebrospinal fluid of patients with traumatic brain injury and in controls. Data showed heart fatty acid binding protein is elevated early in patients with traumatic brain injury compared to controls.

Nicole Jenkins measured bone turnover markers in a cohort of an Australian population. These data have been used to develop reference ranges and to help further define the normal ranges that can be expected.

Haematology

Acting Head: Dr Susan Whitehead

The focus of the Laboratory Haematology Unit continues to be the provision of a diagnostic, developmental and educational service. During 2009, the laboratory led the way in Australia by implementing middleware to assist in running the main analysers in general haematology. This has greatly improved the turnaround time to users and freed scientists from administrative tasks.

Blood Bank

- ◆ The Time to Transfusion Study was completed and has shown that linkage of clinical registries with laboratory information data can provide robust information regarding individual patient transfusion.
- ◆ A study was initiated by the CRE in Patient Safety which examines the factors that may contribute to 'wrong blood in tube' events.
- ◆ A study by the transfusion nurses to examine the impact of informed consent on patient awareness of transfusion risks is under way.

General Haematology Laboratory

- ◆ Flow cytometry staff continued to support predominantly Phase 1 drug studies from Nucleus Network. Two studies undertaken during 2009 were 'Quantitation of the phagocytic and oxidative burst activity of granulocytes by flow cytometry' and 'Quantitation of the effect of *ex vivo* stimulation with a chemokine, MIP-1 α on CD11b expression on monocytes by flow cytometry'.

- ◆ The study on thrombin generation and vitamin K-dependent procoagulant factors is complete and has shown that under certain circumstances, prothrombin complex concentrate (Prothrombinex-VF) alone may be safely used to reverse the anticoagulant effect of warfarin.
- ◆ Correlation of laboratory methods with clinical features in the diagnosis of heparin induced thrombocytopenia has provided an evidence based approach to these patients.
- ◆ In collaboration with the Australian Centre for Blood Diseases, the laboratory assisted in the collection of preliminary data on the potential role of glycoprotein 6 in heparin induced thrombocytopenia.
- ◆ Investigation of the presence of CD56 on the surface of plasma cells in multiple myeloma both at diagnosis and during treatment.
- ◆ A study to investigate mean red cell volume as a way to identify 'wrong blood in tube' samples in the laboratory.

Microbiology

Head: Associate Professor Denis Spelman

Microbiology continues to place emphasis in four areas: hospital-wide diagnostic service, a consultative service, organism and antimicrobial resistance surveillance, and teaching. It has been able to respond to new and emerging needs of the hospital and the community, such as testing for H1N1 (swine) influenza onsite.

Specific Patient Groups

- ◆ Patients with cystic fibrosis: the value of antimicrobial susceptibility testing for the common *Pseudomonas aeruginosa* isolates
- ◆ The microbiology and clinical outcomes of patients with necrotising soft tissue infections
- ◆ Infections and outcomes in patients with ventricular assist devices
- ◆ Optimisation of immunisation protocols in hyposplenic and asplenic patients
- ◆ Participation in the International Collaboration on Endocarditis

Antibiotic Resistance Patterns

- ◆ Annual surveys of consecutive isolates with antibiotic resistance patterns and contributions to the Australian Group for Antimicrobial Resistance
- ◆ Australian New Zealand Cooperative on Outcomes in Staphylococcal Sepsis
- ◆ Participation in study of antibiotic resistance in the Asia-Pacific region (SENTRY study)

Infection Control Studies

- ◆ Determination of risk factors for vancomycin resistant enterococci (VRE) and vancomycin susceptible enterococci
- ◆ Study of the usefulness of multilocus sequence typing in the determination of the epidemiology of VRE
- ◆ Multisite analysis of cost of VRE infection

Postgraduate Students

1 Masters Student

Publications

8 Journal Articles



Leah du Plooy (left) and Sue De Bono investigate the psychosocial impact of patient admissions to hospital.

Patient and Family Services

**Managers: Bridget Wall MSW, GradDipEval
John Ashfield BSW**

Trauma Team

The Trauma Team, in conjunction with Dr Lou Harms from the University of Melbourne, has completed a research project 'Family adaptation following trauma: the impact of intensive care unit (ICU) hospital admissions'. The research explored family members' perceptions of psychosocial trauma and adaptation as a result of an ICU admission. Using the Impact of Event Scale and the Posttraumatic Growth Inventory (PTGI), subjective reports of posttraumatic stress and posttraumatic growth were examined. Perceptions of family need were also examined. Findings indicated a high level of trauma symptoms within this sample, relative to the mean scores in other studies of trauma. Similarly, the use of the PTGI showed that participants reported some positive changes occurring mostly in relation to personal resources.

The Trauma Team also worked collaboratively with Dr Harms on a paper entitled 'Black Saturday and its aftermath: the Social Work response at The Alfred hospital'. In February 2009, Victoria faced the largest humanitarian disaster in Australian history – the Black Saturday Bushfires – which resulted in significant loss of life and property. The Alfred Burns Unit had the twenty most seriously injured patients admitted within a 24-hour period, the highest number of burns casualties to be received in one incident. Social workers played a significant role in the provision of crisis management and psychological support for these patients and their families. This paper examines The Alfred Social Work response to this disaster, offering the social workers critical reflections of the patients' and families' experiences, the community and government responses and the longer term recovery.

Chronic Illness Team

Cystic fibrosis (CF) Social Worker Mary Fantidis presented a paper to the International CF Conference in Brest, France, on the impact of chronic illness and family on individual functioning. She described the case analysis of a 29-year-old male patient with end stage CF requiring a lung transplant to survive. He avoided making a decision to accept a lung transplant, preferring to travel overseas and pursue a relationship formed on the internet. Applying Rolland's Family Therapy Model, the relationship between chronic illness phases and the way complex health behaviours around coping are adopted in families was shown. The findings were that in dealing with chronic illness we are often presented with complex cases, and that the power of relationships should be noted in understanding how family interactions impact on health behaviours.

Senior bone marrow transplant and radiation oncology Social Worker Sue De Bono performed a research study with Lynda Katona (Psychology) and Dr Stuart Lee (Monash Alfred Psychiatry Research Centre) on the 'Routine screening for psychological distress in an Australian inpatient oncology service: impact on psychosocial service utilisation'. The Southern Melbourne Integrated Cancer

Service supported this study. Distress levels in this population were found to be higher than experienced in the general population. As a result of this research, routine screening is now implemented on the ward by the nursing staff using the Distress Thermometer. In 2009, file reviews found that screening continues to identify high levels of distress in this population. It was found that routine screening improves the timeliness of referrals to psychosocial oncology services for appropriate intervention and support.

Pastoral Care

The Reverend Marilyn Hope continued with the project 'The spiritual dimension of the experience of illness', performing interviews of patients and a few staff members from pastoral care.

The Volunteer Service

The volunteer coordinator was asked to be a member of a newly formed Department of Health Advisory Committee into Volunteers in the Emergency Department. This advisory committee has been responsible for the development of a training manual to be used in all metropolitan and rural hospitals.

Interpreter and Multicultural Services

The Interpreter Service continued to develop strategies with the Redesigning Care Team to explore ways to cope with the increase in demand for interpreters across the organisation. The goal of the interpreter prioritisation guideline has been to more effectively utilise Alfred Health's available interpreter resources, through decreasing the amount of time they spend waiting in outpatients, and reducing the requirement for external interpreter services.

Aboriginal Health and Access

The role of the Aboriginal Worker during 2009 was to further establish links with local community, provide secondary consultation to staff and assist with staff training.

Staff Achievements

Mary Fantidis was chairperson at the 8th Australasian CF Conference in Brisbane for a psychosocial session looking at the impact of CF on personal and family functioning.

Leah du Plooy and Belinda Martin presented at the Critical Incident Stress Management Foundation Australia Conference in Melbourne.

Postgraduate Students

2 Masters Students



Pharmacy

Director: Professor Michael Dooley BPharm, GradDipHospPharm, FSHPA

Research Activities

The Centre for Medication Use and Safety (CMUS) has established itself as one of the key research units within the Faculty of Pharmacy and Pharmaceutical Sciences of Monash University. CMUS has two nodes: the one based within the Pharmacy Department of The Alfred provides a research focus on acute health and medication use.

Research activities of The Alfred node of CMUS fall under the broad banner of evaluating the quality use of medicines, and may be classified under the following themes:

- ◆ Medication safety
- ◆ Therapeutics
- ◆ Practice research
- ◆ Outcomes research

Current Projects

The Australian Research Council-funded 'COst-effectiveness analyses of improved adherence to Management PLans among AUstrALIANS' (COMPLIANS) project is a collaboration between the Pharmacy Department, Monash University Department of Epidemiology and Preventive Medicine, The Alfred Department of Allergy, Immunology and Respiratory Medicine, and Roche Pharmaceuticals. The results will enable an investigation of the economic impact of improved adherence to treatment plans in chronic disease.

The NHMRC-funded case control study investigating factors contributing to the risk of bleeding in patients receiving warfarin therapy was completed with excellent results, in collaboration with the Centre of Research Excellence in Patient Safety. Many conference presentations and publications have arisen.

An investigator-initiated study on the integration of complementary medicines in community pharmacy practice was completed. The study examined the attitudes, needs and opinions of customers, pharmacists, pharmacy assistants and naturopaths. This collaboration between the Pharmacy Department, Monash University Faculty of Pharmacy and Pharmaceutical Sciences, Griffith University and Charles Sturt University was awarded a grant from the Commonwealth Department of Health and Ageing via the Pharmacy Guild Fourth Community Pharmacy Agreement Research and Development Program.

A research collaboration with Rehabilitation, Aged and Community Care at Caulfield Hospital investigates patients' ability to self-administer medications when they are discharged home. The Collier Charitable Fund awarded \$49,000 for this research. Analysis will be completed in 2010 and will provide a unique opportunity to identify the resources required to implement this important initiative.

A collaboration with The Alfred Gastroenterology Department investigates the role of thiopurine methyl transferase (TPMT) genotype and thiopurine metabolite monitoring for optimising thiopurine drug therapy in inflammatory bowel disease patients.

A new collaboration between CMUS and the National Prescribing Service provides an evaluation of the alert systems contained within the electronic prescribing modules of the soon-to-be-implemented Health Smart system by the Victorian Department of Human Services (DHS). DHS has provided funding for the evaluation of allergy alerts, drug interaction alerts and therapeutic duplication alerts.

Other Current Projects

- ◆ Pharmacokinetics of oral and sublingual tacrolimus in patients receiving lung transplantation (Ghazal Ansari, Steven Ivulich, Bianca Levkovich)
- ◆ Prescribing and safety issues of molecular therapies and oral chemotherapy: a survey of medical oncologists (Maria Larizza)
- ◆ Assessing the incidence of nephropathy in HIV-positive patients: comparison of the Cockcroft and Gault and MDRD formulas (Kate Mackie)
- ◆ The impact of a vancomycin loading dose on time to achieve therapeutic levels (Jackson Truong, Bianca Levkovich, Alex Padiglione)
- ◆ Quantification of the use of error-prone abbreviations in prescribing in the acute hospital setting (Galahad Gu, Meredith Wiseman, Michael Dooley)
- ◆ A pilot study of the incidence of administration rate and labelling errors of intravenous infusions (Jason Hong, Meredith Wiseman, Michael Dooley)
- ◆ Investigating the decision making processes in antibiotic prescribing in cystic fibrosis (Steven Ivulich, Jennifer Kirschner, Lovisa Baath, Chris Tsiavos, Selina Leung, John Wilson)
- ◆ Improving safety and communication processes for managing medications across transition points: perspectives of consumers, carers and health professionals (Elizabeth Manias, Marie Gerdtz, Allison Williams, University of Melbourne; Michael Dooley)
- ◆ Putting patient safety first: sharing the lessons learned from dispensing errors and near misses in community (Roger Nation, Michael Dooley, David Kong)
- ◆ Optimising cefepime dosing in intensive care: the pharmacokinetics of extended (prolonged) infusions (Bianca Levkovich, Alex Padiglione, Michael Dooley, Roger Nation, Andrew Davies, Susan Poole)
- ◆ Investigating the incidence of patients at risk of steroid induced diabetes in the inpatient setting (Meredith Wiseman, Michael Dooley, Susan Poole, Sue Wyatt, Duncan Topliss)

Postgraduate Students

3 Masters Students
6 PhD Students

Publications

30 Journal Articles
2 Book Chapters



Physiotherapists Lara Kimmel and Jonathon Prescott investigate new methods for measuring ankle swelling using water volumetry.

Physiotherapy

Manager: Jim Sayer BAppSc(Physiotherapy), GradDip Exercise & Sports Sc, MHlthSc, MBA

Research Activities

The Alfred Physiotherapy Department's research focus is on physical activity and mobilisation in hospitalised and chronically ill populations. It has active research programs investigating physiotherapy interventions for respiratory disorders, early mobilisation following surgery, physical activity in chronic disease and physiotherapy in intensive care.

In 2009, Annemarie Lee completed her PhD investigating gastro-oesophageal reflux and its implications for physiotherapy in chronic obstructive pulmonary disease (COPD) and bronchiectasis. Annemarie conducted the first studies investigating the impact of commonly used physiotherapy techniques in these patients with debilitating lung disease. Annemarie received an award for her research at the Australian Physiotherapy Association Conference. Carol Hodgson, who is undertaking a PhD investigating recruitment manoeuvres to improve outcomes for critically ill patients in intensive care, also received an award for her research at the conference.

Associate Professor Anne Holland leads a research program aimed at developing telerehabilitation technologies which can deliver pulmonary rehabilitation over the internet. In 2009, Anne was awarded a Jack Brockhoff Foundation Churchill Fellowship to visit world leaders in the provision of remote pulmonary rehabilitation in Norway, Spain, Scotland, Canada and the US. Anne's research aims to address the shortage of pulmonary rehabilitation programs in regional and rural areas of Australia and to improve access to this essential service using new technologies.

Paula Harding, senior physiotherapist in orthopaedics, was awarded a Felice Rosemary Lloyd Scholarship in 2009 to investigate the Physiotherapy Arthroplasty Practitioner role in the United Kingdom and Canada. Paula's project aims to inform the development and evaluation of Physiotherapy Arthroplasty Practitioner roles in Australian public hospitals.

Alfred physiotherapists have been active participants in the Cochrane collaboration in 2009, with eight staff members who are authors on Cochrane reviews and protocols for Review Groups as diverse as Bone, Joint and Muscle Trauma; Anaesthesia; and Airways. Anne Holland is currently an Editor for the Cochrane Airways Group.

Current Projects

- ◆ Gastro-oesophageal reflux in COPD and bronchiectasis (Annemarie Lee)
- ◆ Prevalence and significance of gastro-oesophageal reflux in adults with cystic fibrosis (CF) before and after lung transplantation, together with the effects of physiotherapy techniques on gastro-oesophageal function (Brenda Button)
- ◆ Development of normal values for the modified shuttle walk test in adults (Anne Holland)
- ◆ Prevalence of musculoskeletal pain in people with CF (Anne Holland)
- ◆ Does the 3-minute step test predict clinical outcome in adults with CF? (Brenda Button)

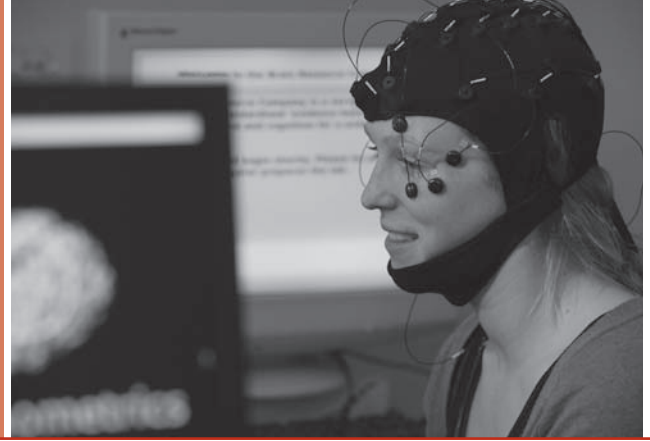
- ◆ Exercise training following bone marrow transplant (Catherine Walsh)
- ◆ A pilot study of exercise training for pulmonary arterial hypertension (Prue Munro)
- ◆ The effect of inhaled hypertonic saline (6%) in people with bronchiectasis (Caroline Nicolson)
- ◆ Physical activity in people living with HIV/AIDS (Soula Fillipas)
- ◆ Staircase recruitment manoeuvres in ventilated patients with acute lung collapse (Carol Hodgson)
- ◆ Quality of life in H1N1 survivors (Carol Hodgson)
- ◆ Reliability of water volumetry to measure foot volume (Lara Kimmel)
- ◆ Use of water volumetry to measure the change in swelling of calcaneum fractures preoperatively (Lara Kimmel)
- ◆ Rest easy – is bed rest really necessary after surgical repair of an ankle fracture? (Lara Kimmel)
- ◆ Why don't people with COPD attend Pulmonary Rehabilitation? (Anne Holland)
- ◆ Randomised controlled trial of exercise training for bronchiectasis (Annemarie Lee)
- ◆ Shorter versus longer rehabilitation following lung transplantation (Louise Fuller)
- ◆ Cardiorespiratory responses to 6-minute walk test in interstitial lung disease (Anne Holland)
- ◆ Telerehabilitation for chronic obstructive pulmonary disease (Anne Holland)
- ◆ Airway clearance techniques for COPD – a survey of current physiotherapy practice (Christian Osadnik)
- ◆ Splinting for axillary burns – a randomised controlled trial (Alison Kolmus)
- ◆ The use of ventilator hyperinflation in the intensive care unit by physiotherapists: a survey of practice in Australia and New Zealand (Kate Hayes)
- ◆ Can exercise training improve cardiovascular fitness and quality of life in patients with a left ventricular assist device? (Kate Hayes)
- ◆ Advance care planning and pulmonary rehabilitation: participation and patient perspectives (Anne Holland)
- ◆ Prevalence and impact of incontinence in adult men with chronic obstructive pulmonary disease (Angela Burge)
- ◆ Prevalence and impact of incontinence in adult men with CF (Brenda Button)
- ◆ Cochrane review – early mobilisation for elbow fracture in adults (Paula Harding)
- ◆ Cochrane review – airway clearance techniques for COPD (Christian Osadnik)
- ◆ Cochrane review – airway clearance techniques for bronchiectasis (Annemarie Lee)
- ◆ Cochrane review – breathing exercises for COPD (Anne Holland)

Postgraduate Students

3 Masters Students
3 PhD Students

Publications

10 Journal Articles
1 Book Chapter
2 Cochrane Systematic Reviews



Psychiatry

Director: Professor Jayashri Kulkarni MBBS, MPM, PhD, FRANZCP

MAPrc is the Monash Alfred Psychiatry Research Centre. MAPrc has 107 staff and postgraduate students. MAPrc's slogan is 'We mend minds' and our mission is to carry out world-class psychiatry research with respect, equality and understanding.

MAPrc researchers have developed and continue to discover new treatments, new understanding and new services for people with mental illnesses. Over many years MAPrc has worked hard on the clinical translation of neuroscience into innovative treatments for people with severe mental illness. Examples of new and effective approaches to therapy for people with long-standing and severe illness include estrogen as a treatment for schizophrenia and transcranial magnetic stimulation (TMS) for depression.

MAPrc comprises 13 research programs with a total of 89 projects. The research programs span an extraordinary breadth of diverse areas, from cutting-edge neuroimaging techniques that are recognised around the world for the breakthrough insights they provide into brain structure and function in health and illness, to innovative uses of adjunctive treatments to boost the effectiveness of conventional medications for major mental illnesses, to grassroots initiatives looking at ways of increasing the efficiency of community mental health service delivery or addressing the mental health aspects of problem gambling. This reflects MAPrc's belief in bench to bedside research, whose results translate directly into everyday benefits for people with mental illnesses, carers and healthcare professionals.

Research Outputs for 2009

- ◆ 43 High citation publications in peer reviewed journals and three book chapters
- ◆ 10 International conference presentations
- ◆ 32 National conference presentations
- ◆ 31 Invited presentations (five international, 26 national)
- ◆ \$2.75 Million in research grants

Research Areas

For a full list of MAPrc research projects and outcomes, go to www.maprc.org.au

Brain Stimulation and Neuroscience Program

Head: Professor Paul Fitzgerald

With 18 projects, this research program involves the use of TMS, transcranial direct current stimulation and deep brain stimulation as methods of developing biomarkers for mental illnesses and using these for innovative treatments for depression, schizophrenia and bipolar affective

disorder. 2009 saw the translation of brain stimulation technology in the implementation of magnetic seizure therapy as a new treatment for depression in Alfred Psychiatry.

Women's Mental Health Program

Head: Professor Jayashri Kulkarni

With nine projects, the women's mental health program involves the development of novel treatments with estrogen, progesterone and selective estrogens for women with schizophrenia, perimenopausal depression and bipolar affective disorder. The National Register for Antipsychotic Medications in Pregnancy (NRAMP) is an important large project in this area. 2009 saw a significant number of new recruitments for this study. The program can therefore advise state government committees, obstetric hospitals nationally and other related health care facilities about the most appropriate antipsychotic medication to use in pregnancy.

Cognitive Neuropsychology Program

Head: Associate Professor Susan Rossell

With eight projects, research involves the development and use of highly specific cognitive testing in conjunction with neuroimaging to understand the role of cognitive impairment in schizophrenia and depression. Novel psychological treatments for persistent auditory hallucinations have been developed by this team.

2009 saw the successful development of the Voices Clinic, which is a clinical translation of cognitive techniques to treat intractable auditory hallucinations. The Voices Clinic is unique in Australia and is a direct translation from cognitive neuroscience research conducted by Associate Professor Susan Rossell and Dr Neil Thomas. There is a clear need for this type of service, given the limited availability of psychological treatments for patients with severe mental illness. The Voices Clinic is a tertiary service which provides evidence-based psychological treatment to patients, in addition to their regular treatment from public mental health services or private psychiatrists.

Psychopharmacology Program

Head: Dr Phyllis Chua

With 13 projects, this program involves the development and conduct of clinical trials of new medications in schizophrenia, depression, bipolar disorder and anxiety disorder. 2009 saw several new medications for schizophrenia and depression being successfully trialled by this team. New medications with fewer side effects are desperately needed for people suffering from mental illnesses and these trials assist in making new treatments possible.

Healthy Lifestyles and Outcomes Program

Head: Sacha Filia

With four projects, these healthy lifestyle and outcomes projects address the significant cardiovascular risks for many patients with schizophrenia. Packages of treatment for smoking cessation and weight loss for people with schizophrenia have been developed. 2009 saw significant breakthroughs in assisting people with schizophrenia to stop smoking cigarettes, thereby improving their overall general physical wellbeing. People with schizophrenia die up to 20 years earlier than the healthy population; resources are required to close the gap in lifespan.

Neurodiagnostics Program

Head: Dr Brian Lithgow

With three projects, vestibular neurobiological markers for the differentiation of severe mental illnesses are being developed. 2009 saw a great deal of media attention about the ear probe diagnostic tool dubbed 'the ECG of the mind'. The media exposure continued in 2010, with Dr Lithgow and Professor Kulkarni appearing on ABC television's *The New Inventors* program on 2 June. The EVestG ear probe is a significant innovation and has great clinical applicability in making psychiatric diagnoses. It drew praise from judges and viewers, winning both the people's choice and judges' awards for the episode.



Dr Brian Lithgow (left) and Professor Jayashri Kulkarni present the EVestG on ABC television's *The New Inventors*.

Service Related Research Program

Heads: Dr Steven Carbone and Dr Stuart Lee

With four projects, this stream of research is involved in improving the quality of treatment delivered by psychiatric services. For example, projects conducted by this group look at the optimal use of sedation and seclusion in psychiatry wards. 2009 saw a significant project highlighting new collaborative partnerships between hospital psychiatric services, the psychiatric disability rehabilitation and support services sector, and accommodation workers in which a new approach to managing psychiatric illness in the homeless population was launched.

General Highlights

- ◆ The Governor-General of the Commonwealth of Australia, Her Excellency Ms Quentin Bryce AC, became Patron of MAPrc
- ◆ A new MAPrc logo and website (www.maprc.org.au) were launched as part of an overall re-branding process
- ◆ MAPrc underwent review as a Centre by Monash University and received a highly positive evaluation from the review committee
- ◆ An independent review of The Alfred for the Australian Council on Healthcare Standards made special mention of MAPrc, describing it as 'the jewel in the crown' of Alfred Psychiatry

Media Highlights

MAPrc had over 50 media stories in 2009. The following areas received considerable attention from print and audiovisual media.

Dr Brian Lithgow and Professor Jayashri Kulkarni

- ◆ Ear probe may solve mental illness mystery – ABC News, Sky News, Channels 7, 9, 10 (14 October 2009)
- ◆ Diagnosis to rock the world of mental health – *The Age*, *The Australian*, *Sydney Morning Herald* (15 October 2009)
- ◆ Radio presentations – 42 different national programs

Dr Peter Enticott

- ◆ Changing lives: report on TMS clinical trial for autism – Channel 7 News in Melbourne, Adelaide and Perth (1 May 2009), Sky News Australia (2 May 2009)
- ◆ Autism research hopes to break down social interaction barrier: groundbreaking study into Asperger's syndrome – *The 7.30 Report* on ABC1 (11 March 2009)
- ◆ Examining the brain basis of social cognitive impairment in autism spectrum disorders: TV, Innovations program on ABC Radio National (20 April 2009)
- ◆ New hope for Autism – *Alfred Matters* 2009

Fundraising Initiatives

The annual de Castella Fun Run continues to be a significant fundraising event for MAPrc. In 2010, the event will be held on 29 August and participants are encouraged to raise funds for the mental health research carried out at MAPrc (www.decastellarun.com.au). A successful art exhibition fundraiser was also held in 2009 with more than 100 artists contributing artworks and over \$8,000 raised. Plans are under way for another art show in 2010, as well as the continued boosting of the de Castella Run as a major running event on the Melbourne calendar.



The 2009 de Castella Fun Run for MAPrc.

Postgraduate Students

3 Masters Students
24 PhD Students
12 Other Doctoral Students

Publications

43 Journal Articles
3 Book Chapters



TheAlfred

Dr Neil Thomas is a senior clinical psychologist at the Monash Alfred Psychiatry Research Centre.



Psychology

Manager: Lynda Katona BA(Hons), MA(Clin Psych), MAPS

The Psychology Department provides clinical psychology and clinical neuropsychology services to patients of The Alfred. The department is committed to providing best practice evidence-based psychological services to improve the quality of life of patients and their carers. Alfred Psychology is actively involved in providing research and evaluation as well as education and consultation to staff and community organisations. The department is strongly committed to the teaching and training of postgraduate students (provisional psychologists), offering clinical placements to both clinical psychology and clinical neuropsychology masters and doctoral students.

As part of Alfred Psychiatry, clinical psychology assessment and treatment services are provided to children, adolescents and adults. Within the acute hospital, clinical psychologists are involved in the assessment and treatment of patients who present with psychological problems such as depression, anxiety and adjustment issues. Clinical psychologists are attached to the Cystic Fibrosis, Oncology and HIV Services and in the Hospital Admission Risk Program.

The department also runs The Alfred Psychology Clinic, an outpatient service that accepts referrals from all units at The Alfred. Neuropsychology assessment and treatment services are provided to patients of all psychiatry programs and all medical and surgical units of the hospital.

Current Projects

The department is involved in a number of research projects. The following areas exemplify the applied research taking place.

Cystic Fibrosis Service

Senior Clinical Psychologist Dr Maxine Braithwaite investigates adherence to treatment in cystic fibrosis (CF) patients, with the support of an ARC Linkage Grant and Roche Australia Pty Ltd. The study aimed to explore personality, psychosocial and socioeconomic factors and their association with adherence behaviour in CF patients. Demographic and socioeconomic data, health related measures, and questionnaires investigating personality, psychosocial and adherence behaviour were obtained at the commencement of electronically monitored treatment with azithromycin. To date 67 participants have been recruited.

Monash Alfred Psychiatry Research Centre

Senior Clinical Psychologist Dr Neil Thomas, in partnership with Prahran Mission, examines the impact of peer-support groups for people who experience persisting auditory hallucinations (hearing voices) on distress, disability and recovery from psychosis. Dr Thomas also investigates acceptance and commitment therapy for medication-resistant psychotic symptoms. The Alfred is a key site in a clinical trial of this psychological treatment approach for medication-resistant hallucinations and delusions in schizophrenia and related disorders.

Victorian HIV Service

Senior Clinical Psychologist Dr Michelle Earle is investigating sexual compulsivity, sexual sensation seeking and global mental health in men who have sex with men (MSM) presenting to the Psychology Clinic within the Victorian HIV Service. Almost all participants were found to be engaging in sexual risk behaviour. Though only 20% of the sample experienced problem levels of sexual sensation seeking, 57% experienced problem sexual compulsivity (2–3 times greater than previous studies). Between 31 and 63% of the sample reported mental health difficulties in the mild to moderate range in the areas of depressive symptoms, anxiety symptoms, impulsivity/recklessness, alcohol and substance use and suicidality. Nearly 90% of the sample showed treatment readiness.

Dr Earle also investigates the benefits of a 10-week group intervention for sexual risk reduction for MSM at risk of HIV, based on dialectical behaviour therapy and psychodynamic group process theory. Preliminary analysis suggests that sexual risk behaviour was reduced for most participants at the conclusion of the intervention, and that this was associated with reduced sexual compulsivity, sexual sensation seeking, and improvements in some mental health variables. Participants overwhelmingly described finding the experience helpful in promoting their understanding of and skills in managing their sexual risks.

Other Current Projects

Dr Maxine Braithwaite

- ◆ Illness effects in patients – determining relationships between health, adherence and response to psychological variables when well versus unwell
- ◆ Psychological and dosing factors impacting upon CF medication adherence
- ◆ Motivational interviewing to increase treatment adherence

Michael McGartland

- ◆ Exploring the relationship between primary health care and specialist mental health services

Dr Rubina Alpitis

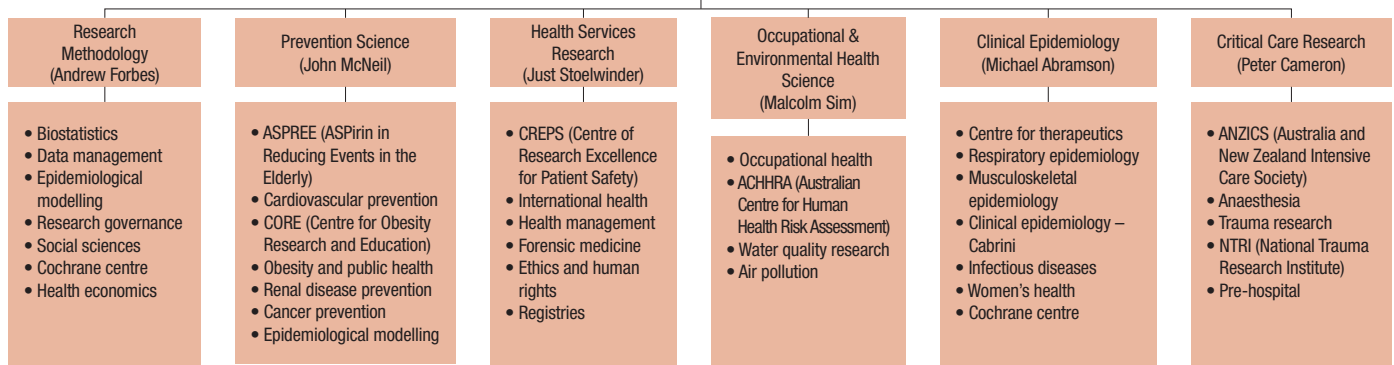
- ◆ Cognitive outcomes in hepatitis C patients – investigation of the effects on cerebral function, specifically cognition and P300 of hepatitis C virus
- ◆ Cognitive outcomes in deep brain stimulation surgery for patients with Parkinson's Disease (NHMRC)

Dr Jacqueline Anderson

- ◆ Cognitive investigation of subtypes of progressive supranuclear palsy
- ◆ Examination of intentional forgetting in individuals with frontal lobe tumours: implications for memory rehabilitation
- ◆ Cognitive outcome after fractionated radiosurgery for individuals with giant arteriovenous malformations
- ◆ Causes for cognitive complaint after a single stroke
- ◆ Treatment effectiveness of transcranial magnetic stimulation for individuals who have a traumatic brain injury and suffer depression: cognitive sequelae

Publications 7 Journal Articles

School of Public Health and Preventive Medicine



Public Health and Preventive Medicine



Head: Professor John McNeil AM, MBBS, MSc, PhD, FRACP, FAFPHM

www.med.monash.edu.au/sphpm

Research Activities

The School of Public Health and Preventive Medicine is the second largest school within the Faculty of Medicine, Nursing and Health Sciences, Monash University. Its focus is the prevention of disease and disability.

The school is built around strong methodological skills in epidemiology, biostatistics, data management, social science research and clinical medicine. There are over 100 individuals with doctoral qualifications on staff. The school's research program involves both clinical and public health research which takes place in settings ranging from remote communities and workplaces to ambulances and hospital wards in Australia and internationally.

The school possesses skills in handling large clinical data sets, leading to extensive involvement in large-scale clinical trials, disease and procedure registries, drug and device surveillance and longitudinal studies of occupational cohorts. Many of these studies have a high profile and require the highest levels of data integrity and quality control.

The research activity of the school takes place in 30 separate research units grouped into six separate research divisions (as depicted in the figure).

The research agenda of the school includes chronic disease prevention, healthy ageing, quality of medical care, environmental health, workplace health, water quality, international health, women's health, obesity, drug/device safety and health services research. During 2009, the school gained \$4.1 million in research funding, including \$2.4 million from the National Health and Medical Research Council (NHMRC).

The school has a very active postgraduate coursework degree program, with the Master of Public Health as the flagship course. Research and public health updates are offered both internally and externally to participants from Australia and overseas through a growing short course program. Over 80 doctoral candidates are presently enrolled.

Research Highlights

◆ Funding of the ASPREE (ASpirin in Reducing Events in the Elderly) trial of low-dose aspirin versus placebo in people aged 70 years and over: Principal funding for ASPREE has come from the US National Institutes of Health (US\$50 million) and NHMRC (\$3.5 million). The study is being undertaken in collaboration with US investigators at the Berman Center for Outcomes and Clinical Research (Minneapolis) in collaboration with universities in Illinois, Texas, Pennsylvania and North Carolina. The trial will recruit 12,500 participants from Australia and a further 6,500 from the US, with

no prior history of cardiovascular disease and without significant cognitive impairment. It will weigh the risks of aspirin (i.e. bleeding) versus the benefits (i.e. to cardiovascular function and possible prevention of cognitive decline and colon cancer) and thus study effectiveness of aspirin. This research has also attracted two major sub-studies. The ASPREE Healthy Ageing Biobank, funded principally by CSIRO (\$3.5 million), will store blood samples from 10,000 of the ASPREE participants and will be used to identify predictors or early diagnostic markers of disease in the elderly.

- ◆ The school played a major role in developing the successful application by Monash University for funding to establish the Institute for Safety, Compensation and Recovery Research (ISCRR). This entity has been established with funding from WorkSafe Victoria, the Transport Accident Commission and Monash University, with an expected budget of \$24 million over five years. Researchers within the school will play a major role in the research agenda of ISCRR.
- ◆ The Australian and New Zealand Intensive Care Research Centre initiated two new NHMRC-funded trials focusing on the treatment of traumatic brain injury. One study will examine the value of whole-body cooling, and the other will look at the use of erythropoietin. Both studies involve collaboration with intensive care units throughout Australasia. The centre was also responsible for two landmark studies examining the epidemiology and management of the swine flu epidemic published in the *New England Journal of Medicine* and the *Journal of the American Medical Association (JAMA)* in November 2009.
- ◆ The Infectious Disease/Water Quality Research Unit completed two studies of major significance to the water industry. One was conducted in a suburb of Sydney and showed that the use of dual reticulation systems in houses (one providing recycled water) produced no discernable ill effects on residents' health. The other study was conducted in Adelaide and confirmed the low risk of drinking water from rainwater tanks.
- ◆ The Centre for Obesity Research and Education published in *JAMA* the results of a landmark study of LAP-BAND surgery, indicating its value in obese adolescents.
- ◆ The Clinical Epidemiology Unit (Cabrini Hospital) published in the *New England Journal of Medicine* a widely publicised trial of vertebroplasty in acute osteoporotic spinal fractures.

Postgraduate Students

334 Masters Students
2 Doctor of Public Health Students
74 PhD Students

Publications

267 Journal Articles
10 Book Chapters
1 Book



Radiation Oncology

Director: Associate Professor Jeremy Millar BMedSc, MB, ChB, FRANZCR, FACHPM, CertHlthEc, CertBiostat

While surgical resections of localised disease remain the mainstay of treatment for patients with cancer, radiation treatments have for fifty years been the next most effective curative modality available for patients with cancers, and research maintains and improves this effectiveness. William Buckland Radiation Oncology (WBRO) has an active and expanding research program in cancer, radiation treatments, and the clinical application of radiation treatments.

Radiation Oncology Medical Physicist Jeff Crosbie completed his PhD on a project using synchrotron radiation and looking at its unusual and incompletely-explained effects on tumours at the cellular level. The Australian Synchrotron provides enormous opportunities for high-quality radiation oncology science; in 2009, Associate Professor Jeremy Millar was invited to join the Clinical Advisory Panel in order to help drive this scientific effort.

A key target of the Victorian Cancer Action Plan, announced in early 2009, was to increase accrual of cancer patients to clinical trials. The employment of WBRO Clinical Trials Radiation Therapist Rachel Rayner has resulted in an increased number of patients accrued into trials from almost none in 2007–8 to 34 in 2009.

The physics section and the prostate/brachytherapy program continued to account for the majority of publications by staff in 2009. Developments include the installation of a new Novalis linear accelerator for stereotactic treatments, a successful application for funding for gating technology to allow adaptive radiation treatments, and the recruitment of Dr Ben Hindson as the prostate/brachytherapy fellow. In addition, Associate Professor Millar and Ryan Smith obtained a grant to develop a realtime dose verification system for prostate brachytherapy treatments.

Dr Daniel Zwahlen continued as the WBRO Clinical Fellow with the support of the Peter Grant Hay Fund and the Melbourne Prostate Institute.

WBRO staff were investigators in a total of \$4.9 million of new research grants from sources including Cancer Australia, NHMRC, Prostate Cancer Foundation of Australia and Victorian Cancer Agency.

Current Projects

Basic Radiation Physics Research

- ◆ Enhancement of radiation effects by gold nanoparticles for superficial radiotherapy (T Ackerly)
- ◆ Scatter measurements with intensity modulated radiotherapy treatments (J Ruben)
- ◆ Factors to be used with IAEA TRS398 for low kilovoltage X-rays (T Ackerly)
- ◆ Characterisation and improvement of radiation beams used for radiotherapy of small lesions (T Ackerly)
- ◆ Synchrotron microbeam radiation therapy (J Crosbie)

CNS Tumours

- ◆ Quality of life outcomes among acoustic neuroma patients (M Dally)
- ◆ Neuropsychology study of patients having fractionated stereotactic radiotherapy for large arteriovenous malformations (M Dally)
- ◆ Glioblastoma multiforme patient treatments and outcomes (A Shorthouse)
- ◆ Primary chemotherapy with temozolomide vs radiotherapy in patients with low grade gliomas after stratification for genetic 1p loss: a Phase 3 study (J Ruben)

- ◆ Whole brain radiotherapy following local treatment of intracranial metastases of melanoma – a randomised Phase 3 trial (J Ruben)

Breast Cancer

- ◆ PRIME Phase 2 – Scottish Breast Cancer Trials Group: post-operative radiotherapy in minimum-risk elderly (K Taylor)
- ◆ A randomised Phase 3 study of radiation doses and fractionation schedules in non-low risk ductal carcinoma *in situ* of the breast (K Taylor)

Head and Neck Cancers

- ◆ POST – post-operative concurrent chemo-radiotherapy versus post-operative radiotherapy in high-risk cutaneous squamous cell carcinoma of the head and neck (S Davis)

Prostate Cancer

- ◆ TOAD – a collaborative, randomised, Phase 3 trial: the timing of intervention with androgen deprivation in prostate cancer patients with a rising prostate specific antigen (PSA) (J Millar)
- ◆ Characterisation of ‘PSA bounces’ after seed brachytherapy for prostate cancer (D Zwahlen)
- ◆ Long term disease control of prostate cancer after high dose rate brachytherapy and external beam radiation (D Zwahlen)
- ◆ Improving treatment with permanent ¹²⁵Iodine seed implants for prostate cancer using dosimetry with either fused CT/MR images or fused CT/US images (R Smith)
- ◆ Relationship of radiation dose to vascular and nerve structures during prostate seed brachytherapy, and subsequent erectile function (J Millar)
- ◆ Relationship of rectal volume at planning for radiation treatment for prostate cancer and subsequent disease control (J Millar)
- ◆ Development of a population-based prostate cancer clinical registry (J Millar)
- ◆ RAVES – a Phase 3 multicentre, randomised trial comparing adjuvant radiotherapy with early salvage radiotherapy in patients with positive margins or extraprostatic disease following radical prostatectomy (B Matheson)

Other Research

- ◆ A Phase 3 international randomised trial of single versus multiple fractions for re-irradiation of painful bone metastases (B Matheson)
- ◆ Initial evaluation of the AlignRT surface imaging system at William Buckland Radiation Oncology (K Fox)
- ◆ PETACC-6 – preoperative chemoradiotherapy and postoperative chemotherapy with capecitabine and oxaliplatin vs capecitabine alone in locally advanced rectal cancer (J Shapiro, I Porter, in collaboration with the Medical Oncology Unit)
- ◆ Development of a registry of clinical cancer trials in southern Melbourne (J Millar, in collaboration with the Monash Department of Epidemiology and Preventive Medicine)

Postgraduate Students

6 Masters Students
2 PhD Students

Publications

11 Journal Articles



A pilot study funded by the Victorian Department of Health explores the relationship between hand function and the ability to open medication containers in individuals aged 65–85 years.

Rehabilitation, Aged and Community Care

Chair, Research Committee: Associate Professor Peter Hunter MBBS, FRACP, MBL

During 2009, the Caulfield Hospital Research Committee continued to support the implementation of the Caulfield Hospital Research Strategy 2007–2011. The Caulfield Hospital Research Grants Program was offered for the second year to support staff to pursue research activities important to the work of the hospital and its programs (see the Awards section at the back of this report).

Monthly Research Interest Group meetings continued, with ten meetings held in 2009. The meetings aim to enable staff to present their research ideas and proposals and through mutual support, mentoring and fostering, assist good ideas to be translated into research projects. In addition, there have been presentations on topics of interest for both new and experienced researchers to support enhanced research knowledge and partnerships. This group is becoming the focal point for supporting the development of research activity across Caulfield Hospital. An evaluation of the meetings was completed and 253 staff responded. The results have been reported and suggestions from staff will be taken up.

Regular Research Newsletters are now produced (eleven during 2009) and the Research Strategy intranet site has been established and has grown as a resource to support staff in their endeavours. At the end of 2009, Dr Nicole Austin was appointed as Research Coordinator, Caulfield Hospital to commence in 2010.

Research activity is gaining momentum at Caulfield Hospital with:

- ◆ Twelve externally funded research projects attracting \$4,314,707 and two clinical trials funded to \$36,000
- ◆ The Victorian Department of Human Services awarded scholarships for improving care of older people and people with complex needs; Caulfield Hospital receiving \$30,488 funding for two research projects and further funding to support a study tour and two overseas conference attendances
- ◆ The Caulfield Hospital Research Grants Program awarded \$50,000 to staff initiated research projects

One significant project undertaken during 2009 was the evaluation of the Graduated Discharge Program (GDP). The GDP involves substituting the latter part of a subacute inpatient stay with ambulatory care, giving patients the ability to continue their care and therapy in the community, allowing for more person-centred care, and potential for a shortened length of hospital stay, thus allowing improved access to limited subacute hospital beds. The study showed that the GDP results in a slight reduction in inpatient rehabilitation length of stay, good functional outcomes for patients who continued their rehabilitation in the community, with no evidence of these patients having higher complication or readmission rates post discharge.

The results of a pilot study, 'Reducing functional decline due to under nutrition in older patients' (Kathryn Marshall, Peter Hunter, Lisa Gill, Anne Gordon), completed at Caulfield Hospital in 2008, were used in 2009 to implement a number of interdisciplinary clinical practice changes. Routine nutrition risk screening using a validated nutrition risk screening tool was introduced for all patients admitted for subacute care. This will be expanded in 2010 to include residential care and aged psychiatry at Caulfield Hospital. Protected mealtimes, also piloted as part of this study, will be implemented across the campus in 2010. The results of this work also significantly influenced the work completed by Caulfield Hospital in 2008/09, as the lead agency for nutrition in the Council of Australian Government-funded Long Stay Older Patient Initiative. This work will be incorporated into the Victorian Department of Health Best Care for Older People Everywhere toolkit, which will be launched in 2010.

Significant Grants

- ◆ Chapman I, Visvanathan R, Naganathan V, Hunter P, Karnon J, Horowitz M, Lange K, Cameron I. Testosterone and nutritional supplement treatment for undernourished older people. NHMRC Project Grant, 2010–2012: \$1,018,438
- ◆ Corben K. Trial application of a star rating system for pedestrian walking routes. Transport Accident Commission Community Road Safety Grant, 2009–2010: \$22,000
- ◆ Gibson SJ, Barber B, Gouke R, Abbey J, Scherer S, Kristjanson L, Toye C. Implementation of sustainable evidence-based practice for the assessment and management of pain in residential aged care facilities. Department of Health and Ageing Project Grant, 2007–2009: \$1,162,480
- ◆ Greenwood K, Xue C, Zheng Z, Gibson SJ. The effect of combined therapies of electroacupuncture and cognitive behavioural therapy on chronic tension-type headache: a randomised, controlled clinical trial. NHMRC Project Grant, 2009–2011: \$292,025
- ◆ Kinsella G, Ames D, Storey, E, Ong B, Saling M. Early intervention for mild cognitive impairment: a randomised controlled trial. NHMRC Dementia Strategic Grant, 2007–2009: \$551,452
- ◆ McLachlan A, Naganathan V, Le Couteur D, Hilmer S, Gibson SJ. Optimising pain management in frail older people. NHMRC Project Grant, 2009–2011: \$417,250
- ◆ Miller S. Investigating a novel therapeutic intervention for chronic pain following traumatic head injury. Victorian Neurotrauma Initiative Early Career Practitioner Fellowship, 2008–2010: \$120,600
- ◆ Nay R, Edvardsson D, Gibson SJ. Person-centred care and pain in people with Alzheimer's disease related dementias. JO & JR Wicking Trust Project Grant, 2009–2010: \$48,812

- ◆ New P. A study of spinal cord injury demographic characteristics and rehabilitation outcomes using a national database. Victorian Neurotrauma Initiative Project Grant, 2007-2009: \$29,000
- ◆ Ngo T. The effectiveness of caloric vestibular simulation as a therapeutic intervention in neuropathic pain and mood disorders. NHMRC Clinical Training Fellowship, 2009-2012: \$274,000
- ◆ Thompson J. GP continence promotion project. Caulfield Hospital Staff Performance Awards Grant, 2008-2009: \$5,000
- ◆ Xue C, Zheng Z, Gibson SJ, Helme RD. Electroacupuncture on opioid consumption by patients with chronic musculoskeletal pain: a randomised controlled study. NHMRC Project Grant, 2009-2011: \$353,650

Commercially sponsored clinical trials approved by The Alfred Ethics Committee

- ◆ Macfarlane S. Effect of passive immunisation on the progression of Alzheimer's disease: LY2062430 versus placebo, (Protocol H8A-MC-LZAN): \$30,000
- ◆ Macfarlane S. Exploratory study of S 38093 versus placebo in patients with mild to moderate Alzheimer's disease: an international, multicentre, randomised, double blind, placebo-controlled Phase 2a study: \$6,000

Research projects funded by Department of Human Services improving care for older people and people with complex needs

- ◆ Georgeson L, Roberts K. A pilot study exploring the relationship between hand function and the ability to open medication containers in individuals aged 65–85 years: \$10,988
- ◆ Ben-Shabat E. Botulinum toxin A injections for treatment of lower limb dystonia: an internal practice based research project: \$19,500

Awards

- ◆ Dr Carolyn Arnold. Distinguished Member Award. Long and distinguished service to pain and its management. Australian Pain Society Scientific Meeting
- ◆ F Harding, L Dircks, S Tan, R Leong, B Anthonisz, T Kirwan, J Baker, N Best, M D'Aloia, A Holland. Does written feedback improve client recall of risks and falls prevention strategies? Best non-student poster. Australian Physiotherapy Association Conference Gerontology Stream
- ◆ E Gersh, SJ Gibson, C Arnold. The pain stages of change questionnaire and clinical outcomes from a multidisciplinary pain management program. Best poster, Australian Pain Society Scientific Meeting
- ◆ Nina George. USA study tour exploring client peer mentoring in acquired brain injury rehabilitation – enhancing program set up, training and outcome evaluation. Department of Health scholarship for improving care for older people and people with complex needs
- ◆ Kelly Joyce. Attended the 2009 Rehabilitation Conference in New Zealand. Department of Health scholarship for improving care for older people and people with complex needs
- ◆ Professor Glynda Kinsella. Vice-Chancellor's Award for Excellence in Teaching, Professional Psychology Postgraduate Programs Team, La Trobe University
- ◆ Dr Steve Miller. Rising Research Star Award, School of Psychology and Psychiatry, Monash University
- ◆ Elizabeth Rand. Attended the 2009 International Conference on Alzheimer's Disease in Vienna. Department of Health scholarship for improving care for older people and people with complex needs
- ◆ Dr Kerry Thompson. Paper awarded first prize, Australian and New Zealand College of Anaesthetists Victorian Registrars Meeting

Publications

16 Journal Articles
2 Book Chapters

Rheumatology continued from page 65

Investigating the rates of hip and knee joint replacement in Australia

Urquhart D, Berry P, Dixon T, Bhatia K, Wang Y, Graves S, Cicuttini F

Although the rates of hip and knee replacement are documented in Australia each year, our understanding of the variation in incidence of joint replacement across the population is limited. The aim of this study is to examine the rates of primary total hip and knee joint replacements in Australia across different groups based on socioeconomic status, geographic locality, place of birth and Indigenous status.

Investigating the relationship between body composition and low back pain and disability

Urquhart D, Berry P, Wluka A, Strauss B, Proietto J, Jones G, Dixon J, Cicuttini F

The relationship between low back pain and obesity is unclear. No study has examined the role of body composition in low back pain. The aims of this study are to determine whether body composition, including fat and lean tissue mass, is associated with low back pain intensity and/or disability.

Examining the relationship between occupational activities and low back pain in obese individuals

Urquhart D, Wluka A, Berry P, Sim M, Jones G, Davies M, Cicuttini F

While specific occupational tasks have been reported to be risk factors for low back pain, a differential effect of occupational activities in obese and non-obese individuals in relation to development of back pain and disability has not previously been examined. We aim to examine relationships between specific occupational activities and low back pain and disability, and to investigate whether these differ in individuals who are obese compared to those who are not obese.

The role of the lumbar fascia in fracture of the spine

Barker P, Freeman A, Urquhart D, Anderson C, Briggs C

Transversus abdominis and its aponeurotic attachment to the spinal lumbar transverse processes via the middle layer of lumbar fascia are of proposed clinical and biomechanical importance. Moderate traction on these structures is reported to influence segmental motion, but its tensile capacity is unknown and the effects of sudden, maximal traction on the fascia and the transverse processes are uncertain.

International study of musculoskeletal symptoms and associated disability

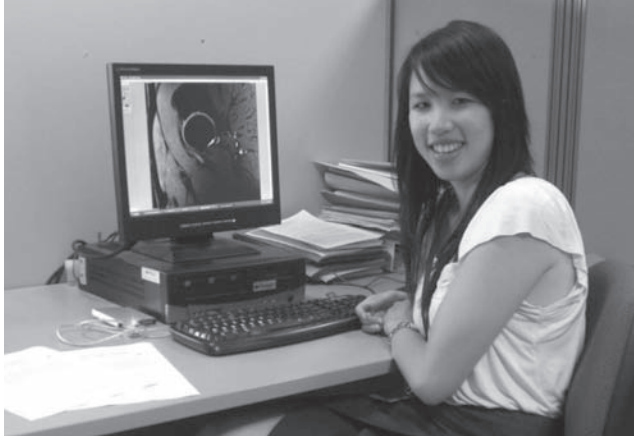
Kelsall H, Hoe V, Urquhart D, Coggon D, Sim M

Musculoskeletal disorders are a major cause of morbidity and disability in the workforce with substantial personal, social and economic impact in Australia. However, the causes of the pain are often unclear. This study will investigate musculoskeletal symptoms and associated disability in nurses and two different occupational groups in different countries and will also explore risk factors for the persistence of symptoms and disability in these varying cultural environments.

Are bunions inherited?

Wluka A, Wark J, Menz H

Hallux valgus (bunions) have been assumed to be inherited. Whether this is the case has not been formally studied, neither have risk factors for this condition, although they are likely to be similar to those for osteoarthritis elsewhere. Thus, the number of people with hallux valgus is likely to increase as our ageing community becomes increasingly obese. Hallux valgus are associated with pain, lower quality of life and increased risk of falls. Many people resort to surgery to correct the deformity. In a formal twin study, we will attempt to identify why people develop these, in order to develop preventive strategies to reduce the risk and progression of hallux valgus.



PhD student Stephanie Tanamas examines knee joint cartilage as part of her project.



TheAlfred



MONASH
University

Rheumatology

Head: Professor Flavia Cicuttini MBBS(Hons), MSc, PhD, DLSHTM, FRACP, FAFPHMCP

Current Projects

Does childhood physical activity, fitness and fatness impact on knee structural change 20 years later?

Ding C, Jones G, Venn A, Cicuttini F, Dwyer T

Interventions to increase participation of physical activity (PA) and to reduce obesity in childhood are advocated to reduce the risks of cardiovascular and other diseases in adulthood, but the associations of childhood PA and obesity with knee osteoarthritic changes in adulthood are unknown. This study, with follow-up of a large cohort of Australian children over 20 years, will be the first to determine these associations using the powerful technique of magnetic resonance imaging.

The effect of sociodemographic and lifestyle factors on the risk of primary and revision joint replacement

Wang Y, Simpson J, Wluka A, English D, Giles G, Graves S, Cicuttini F

Knee and hip osteoarthritis (OA) are a major cause of disability. End stage OA frequently needs treatment with joint replacement, which results in a significant economic burden on the community, and is likely to increase as the population ages. Understanding the impact of sociodemographic and lifestyle factors such as obesity and diet on the risk and outcome of joint replacement will help identify potential socioeconomic inequalities and potential strategies for improving outcomes of joint replacement.

The role of lifestyle factors on knee cartilage volume and rate of cartilage loss in a normal community-based population: a longitudinal study

Wang Y, Wluka A, English D, Giles G, Cicuttini F

This study aims to identify lifestyle factors that affect knee cartilage volume in healthy subjects, thereby identifying potential targets for prevention of OA. This is being done by utilising an existing cohort, the Melbourne Collaborative Cohort Study, and recently developed methodology for measuring articular cartilage volume pioneered by our group.

The relationship between body composition and hip cartilage

Wluka A, Berry P, Hanna F, English D, Giles G, Cicuttini F

Factors increasing the risk of hip OA, including obesity, are poorly understood. The group has developed a method of measuring structural change in the hip using MRI. A cohort of healthy middle aged adults is being studied to determine how body composition relates to hip OA.

Factors affecting knee structure in healthy women

Wluka A, Pasco J, Kotowicz M, Henry M

OA has the largest impact of any chronic disease on burden of disease borne in later life, affecting women more frequently than men. The aim of this study is to examine how modifiable factors such as obesity affect change in knee structure in an established healthy cohort of community based women.

Identification of blood (serum) and urinary biomarkers associated with OA disease progression in a well established cohort of subjects with knee OA

Cicuttini F, Berry P, Wluka A, Maciewicz R, Downey-Jones M, Mills E, Oakley C

There has been increasing interest in different biomarkers that may be useful in identifying subjects most likely to lose joint cartilage. In 1997, the group began a longitudinal study of subjects with knee OA. A novel method was used that enabled measurement of knee cartilage volume and presence of cartilage defects using MRI. In collaboration with AstraZeneca, biomarkers of cartilage and bone metabolism and a panel of known mediators in the serum and urine of subjects were tested. The plan is to examine how this relates to the rate of cartilage loss, defect progression and risk of joint replacement.

The effect of body composition on knee structure in an HIV population

Davies M, Fillipas S, Cherry C, Wluka A, Cicuttini F

It is well recognised that lipodystrophy syndrome, a condition suffered by many HIV-positive individuals, is characterised by a range of symptoms, including abdominal fat deposition. Fat may have an adverse effect on knee structures. This project will examine the relationship between body composition and knee cartilage and bone in an HIV-positive population.

Investigating the mechanism of action of obesity on knee structure

Cicuttini F, Wluka A, Davies M, Dixon J, Bennell K, Jones G, Strauss B, Forbes A

Obesity is the strongest modifiable risk factor for OA and there is some evidence to suggest that obesity may lead to the increased risk of OA via biomechanical mechanisms. This study involves examining the relationship between obesity, body composition and knee alignment and changes in knee structure indicative of OA development.

Antidepressants in the management of non-specific low back pain

Urquhart D, Hoving J, Assendelft W, Roland M, van Tulder M

Antidepressants are commonly used in the management of low back pain. However, their use is controversial. The aim of this review is to determine whether antidepressants are more effective than placebo for the treatment of non-specific low back pain.

Continued on page 64

Postgraduate Students

1 Masters Student
7 PhD Students

Publications

28 Journal Articles
3 Book Chapters



Speech Pathology

Manager: Janine Mahoney BAppSc(Speech Pathology)

The effective assessment of high level cognition based communication disorders in traumatic brain injury (TBI)

Tanya Blyth and Amanda Scott (Speech Pathology) and Annabelle Bond and Michelle Farquhar (Occupational Therapy)

This study, which was funded by the RACV Sir Edmund Herring Memorial Scholarship, was completed in 2009. TBI is a leading cause of death and disability in adolescents and young adults. Individuals who sustain mild to moderate TBI frequently encounter cognition based communication disorders. Deficits are often subtle and therefore difficult to detect; however, these can seriously influence an individual's ability to achieve occupational, personal, and interpersonal goals. Feedback from rehabilitation facilities indicates that high level cognition based communication disorders are not being identified in the acute setting.

The objectives of the study were:

1. To improve the identification of high level cognition-based communication deficits in patients who have a TBI in the acute setting
2. To relate the findings of the cognition based communication deficits to the patient's brain injury and recovery patterns
3. To influence evidence based practice in the acute setting in the assessment of TBI, facilitating timely and appropriate referrals for further therapy and management, maximising function of patients post TBI

101 adults aged 16–81 years (74% males, mean age 36.8) were recruited from the Trauma and Neurosurgery Units at The Alfred. Eligibility criteria included disruption of brain function as manifested by at least one of the following: initial Glasgow Coma Scale score below 15, any period of loss of consciousness, any retrograde or anterograde amnesia. Patients were excluded with co-morbidities of percutaneous transluminal angioplasty, previous head injuries, psychosis or neurological deficit, history of chronic alcohol or drug abuse, and intravenous opiate pain relief.

Two tests to assess for cognitive dysfunction were administered post TBI: Cognistat by an Occupational Therapist (as per current practice) and the CLQT (Cognitive Linguistic Quick Test) by a Speech Pathologist. The two tests were completed within 48 hours of one another. The results in the domains of language, memory, executive functions, attention and visuospatial skills were compared using a MacNemar Chi2 statistical analysis. A Wilcoxon's analysis was used to determine the significance of predictive variables.

There was a high correlation between the results of two tests in the domains of executive functions and attention. The CLQT was the more effective assessment at identifying language ($p = 0.0002$) and memory ($p = 0.07$) impairments. No clinical variables relating to the patient's mechanism of injury, brain injury including CT findings, presence of LOC, neurosurgical intervention and recovery pattern including PTA and GCS, showed a significant correlation in predicting language impairment.

The results of this research provided evidence supporting the need for changes in the way patients with TBI are assessed. In view of the absence of predictive factors for the identification of high level cognitive based communication impairments, all patients admitted with TBI should be screened for language impairments by a Speech Pathologist. This would improve the detection of high level communication based cognitive deficits in the acute setting.

Other Activities

Gulsen Ellul undertook a benchmarking project with other facilities in Australia and New Zealand on the management of orofacial contractures in Burns Units. The results of this review will be presented at the Speech Pathology Australia Conference 2010. This review will provide directions for further areas of research.

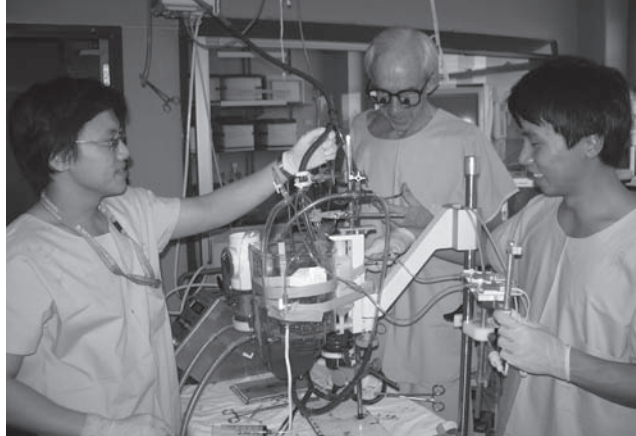
The results of an audit of radiotherapy patients focusing on the timing and severity of swallowing problems will also be presented at the Speech Pathology Australia Conference 2010 by Leonie Baker.

Surgery continued from page 67

Highlights

◆ MD student Dr Alex Adamides won the Royal Australasian College of Surgeons Trauma Committee Registrars' Papers Day Competition in 2008, providing him with the opportunity to present his research paper at the 2009 American College of Surgeons Committee on Trauma in Chicago, USA. Here he won the clinical research category of the Residents' Trauma Papers Competition, the first non-American to do so.

- ◆ Dr Paul Davis and Dr Edwina Moore were equal winners of the DS Rosengarten Surgical Trainee Research Prize 2009.
- ◆ Michael Leung was appointed Adjunct Clinical Associate Professor and Don Esmore was appointed Adjunct Professor.



From left: Yi Lim, Professor Franklin Rosenfeldt and Jonathan Chung, adjust the 'working heart' apparatus.

Surgery

Head: Professor Jeffrey Rosenfeldt MBBS, MD, MS, FRACS, FRCSEd, FACS, FRCSGlasg ad eudem, FACTM, MRACMA, RAAMC

The Monash Department of Surgery at The Alfred is a department of the Monash University Central Clinical School and incorporates the Department of Surgery at Cabrini Health, which is headed by Associate Professor Paul McMurrick. Associate Professor McMurrick has an academic interest in colonic cancer research and medical education and succeeds Professor Adrian Polglase who was appointed Emeritus Professor after many years of distinguished service and contribution to colorectal cancer research. Professor McMurrick is developing a Monash-wide colorectal surgery database with Monash colorectal surgeons.

Professor Jonathan Serpell, Head of General Surgery at The Alfred, has developed a Monash-wide endocrine surgery database and continues to promote and conduct a wide range of surgical research at The Alfred. Professor Russell Gruen was appointed Professor of Surgery and Public Health at Monash University and Director of the National Trauma Research Institute (NTRI), and head of Trauma Quality Assurance at The Alfred. He leads the Global Mapping Initiative at the NTRI and continues to develop and lead trauma research at The Alfred and Monash University. Associate Professor Wendy Brown continues her research in the Centre for Obesity Research and Education and has become the Deputy Director.

The Department of Surgery has many dedicated adjunct staff members who contribute to its research programs and are actively engaged in the teaching of Monash University medical students. The Department of Surgery encourages medical students at Monash University who are interested in surgical careers and promotes the Bachelor of Medical Science program. A hands-on skills workshop was held in 2009, which attracted over 50 medical students interested in medical careers.

Current Projects

Cardiothoracic Surgical Research

- ◆ Metabolic, physical and mental preparation for major surgery
- ◆ Antioxidant therapy for the treatment of iron overload cardiomyopathy
- ◆ The evaluation of hearts obtained after cardiac arrest for use as heart transplant donors
- ◆ Mechanical and biological properties of absorbable polylactide plates for use in operative fixation of fractured ribs
- ◆ Cardiac mitochondrial metabolism in health and disease states
- ◆ Oxidative stress in cardiac disease and surgery
- ◆ Thoracic/pulmonary surgery related projects

General Surgery Research – Breast, Endocrine, Colorectal and Upper Gastrointestinal

- ◆ Endocrine surgery
- ◆ Soft tissue tumour surgery
- ◆ Colorectal cancer
- ◆ Management of faecal incontinence
- ◆ Transanal endoscopic microsurgery

- ◆ Laparoscopic colorectal surgery
- ◆ Endorectal ultrasound
- ◆ Pancreatic surgery
- ◆ Oesophagectomy
- ◆ Gastrectomy and bariatric practices

Neurosurgical Research

- ◆ DECRA – a multicentre, randomised trial of early decompressive craniectomy in patients with severe traumatic brain injury (TBI)
- ◆ Intensive monitoring of severe TBI, including brain oxygen and microdialysis
- ◆ Traumatic spine and spinal cord injury
- ◆ Familial intracranial aneurysm study
- ◆ Arteriovenous malformations
- ◆ Skull base fractures
- ◆ Outcome of subdural haematoma in the elderly
- ◆ Blunt vertebral and carotid artery injuries
- ◆ BIS monitoring in severe TBI
- ◆ Neurosurgical ethics including organ donation issues
- ◆ Epidural abscess

Orthopaedic Research

- ◆ International collaborative multicentre randomised trials
- ◆ Femoral fracture fixation in multi-trauma patients
- ◆ Posterior pelvic fixation
- ◆ Vacuum assisted closure device
- ◆ Use of retrievable inferior vena cava filters
- ◆ Non-operative treatment of type II dens fractures
- ◆ Use of Gamma nail for the fixation of proximal femur fractures in the elderly

Trauma Research

- ◆ Global Evidence Mapping
- ◆ Traumatic brain injury models in rodents
- ◆ Inflammation post-trauma
- ◆ Neural precursor cells
- ◆ Cytokine response
- ◆ Effect of hypoxia

Burns Laboratory

- ◆ Cell culture
- ◆ Skin replacement

Continued on page 66

Postgraduate Students

2 Masters Students
1 MD Student
4 PhD Students

Publications

85 Journal Articles
1 Book



Women's Health

Director: Professor Susan Davis MBBS, PhD, FRACP

Research Activities

The Women's Health Program undertakes research to advance knowledge pertaining to the main conditions that affect the health of women at midlife and beyond. The research undertaken within the program spans basic, clinical/translational and population health research to progress our understanding of: changes in body composition, fat metabolism and development of diabetes; cognitive function and mood; new approaches to breast cancer prevention; health and wellbeing of women after breast cancer; sexual function; bone and cartilage health.

Ongoing research projects are multidisciplinary, collaborative studies addressing the major conditions contributing to the age-associated burden of disease in women: midlife weight gain, insulin resistance and diabetes, cognitive decline, breast cancer and disorders of mood.

The team works in close collaboration with colleagues in the Department of Epidemiology and Preventive Medicine; School of Psychology, Psychiatry and Psychological Medicine; and Prince Henry's Institute of Medical Research; and most recently has established a new collaboration with researchers in the School of Nursing at the Peninsula Campus of Monash University. There are also ongoing research collaborations with Dr Woroluk Somboonporn of Khon Kaen University, Thailand, and Dr Run Chen, University of Hong Kong.

Key Projects

The Women's Health Program has a number of research projects under way, with the following being examples of current studies.

The impact of systemic sex steroid deprivation and replacement on cognitive performance in postmenopausal women

This research employs a combination of functional magnetic resonance imaging technology with innovative computerised cognitive testing to explore the effects of testosterone and estrogen on cognitive performance in postmenopausal women. A pilot study of the effects of testosterone on cognitive performance in postmenopausal women conducted by Dr Sonia Davison and a randomised controlled trial of hormone replacement therapy versus placebo therapy on cognitive performance conducted by Dr Fiona Jane and Professor Susan Davis were completed in 2009. These studies are being conducted in collaboration with Professor Gary Egan, Neuroimaging Group, Howard Florey Institute.

The MBF Health and Wellbeing after Breast Cancer Study

In 2009, 1,496 women participants completed their second follow up questionnaire, on average two and a half years post diagnosis. In data analysed by Associate Professor Robin Bell from the first follow up questionnaire, it was observed that study participants across all ages had

lower psychological and general wellbeing than community-based norms. Whilst older women had better wellbeing, wellbeing was lower for women living alone and women with a higher level of education, indicating social support is particularly important for women with breast cancer who are known to live alone (published in *Supportive Care Cancer*).

Researchers also looked at the patterns of consultation with alternative practitioners and use of complementary and alternative medicine (CAM) in the first two years after diagnosis. It was found that 16.4% of women had consulted a CAM practitioner and 10.6% reported using at least one CAM usually to alleviate menopausal symptoms. Women more likely to use CAM therapy were younger, more educated and had more severe menopausal symptoms. The third of five follow up questionnaires for this study will be completed in March 2010.

The prevalence, incidence and consequences of urinary incontinence in women

There are few studies documenting the impact of urinary incontinence (UI) on wellbeing in women. As part of her PhD studies, Dr Roslin Botlero reported on the impact of UI on wellbeing in 542 community-dwelling Victorian women, aged 24 to 80 years, participating in a longitudinal study. She reported that not only is UI associated with a significant reduction in wellbeing in community-dwelling women, but also, the relationship between different types of UI and wellbeing seems to differ (published in *Menopause*).

Translation of Research Findings

The translation of research findings to improve public health through postgraduate physician education, practice guidelines and dissemination of information via a variety of mechanisms to the community is a priority. In 2009, Professor Davis was a member of the 3rd International Consensus on Sexual Dysfunction held in Paris which produced guidelines for researchers and physicians in sexual medicine, and co-authored the Scientific Statement on Postmenopausal Hormone Therapy of the American Endocrine Society.

Awards

- ◆ Professor Susan Davis received the Distinguished Alumni Award of Monash University, the AMREP Research Prize and the Australasian Menopause Society Award.
- ◆ Associate Professor Robin Bell received the Barbara Gross Award for best free communication at the Australasian Menopause Society conference.
- ◆ Dr Roslin Botlero received a Travel Award from the Australasian Menopause Society.

Postgraduate Students

2 PhD Students

Publications

17 Journal Articles



INTERNAL GRANTS AND AWARDS

Alfred Research Trusts Strategic Grants

Professor Leon Bach, *Department of Endocrinology and Diabetes*
(Medical Research Trust)

Professor Peter Cameron, *Emergency Medicine*
(Medical Research Trust)

Professor Jamie Cooper, *Intensive Care Unit*
(Marian & Edwin Harold Flack Trust)

Professor Anthony Dart, *Department of Cardiology*
(Marian & Edwin Harold Flack Trust)

Professor Michael Dooley, *Department of Pharmacy*
(Sol Green Trust)

Professor Don Esmore, *Cardiothoracic Surgery Department*
(Sol Green Trust)

Associate Professor Mark Fitzgerald, *Trauma Services*
(Medical Research Trust)

Professor Paul Fitzgerald, *Monash Alfred Psychiatry Research Centre*
(Edward Wilson Trust)

Professor Russell Gruen, *National Trauma Research Institute*
(Sir William Phillip Trust)

Professor Jayashri Kulkarni, *Monash Alfred Psychiatry Research Centre*
(Edward Wilson Trust)

Professor Sharon Lewin, *Infectious Diseases Unit*
(Medical Research Trust)

Professor Fabienne Mackay, *Department of Immunology, Monash University*
(Marian & Edwin Harold Flack Trust)

Professor Catriona McLean, *Anatomical Pathology*
(Paula Josephine Jung Trust)

Professor John McNeil, *Department of Epidemiology and Preventive Medicine, Monash University*
(Sir William Phillip Trust)

Associate Professor Jeremy Millar, *William Buckland Radiation Oncology*
(Peter Grant Hay Trust)

Professor Paul Myles, *Anaesthesia and Perioperative Medicine*
(Sol Green Trust)

Professor Robyn O'Hehir, *Allergy, Immunology and Respiratory Medicine*
(Marian & Edwin Harold Flack Trust)

Professor Jeffrey Rosenfeld, *Department of Surgery, Monash University*
(Paula Josephine Jung Trust)

Professor Hatem Salem, *Australian Centre for Blood Diseases*
(Peter Grant Hay Trust)

Associate Professor Max Schwarz, *Medical Oncology Unit*
(Peter Grant Hay Trust)

Professor Jonathan Serpell, *General Surgery*
(Paula Josephine Jung Trust)

Associate Professor Andrew Spencer, *Clinical Haematology and Bone Marrow Transplant Unit*
(Patricia Leonora Anderson Trust)

Professor Elsdon Storey, *Department of Neurosciences*
(Richard Carus Choice Trust)

Professor Ken Thomson, *Department of Radiology*
(Peter Grant Hay Trust)

Professor Napier Thomson, *Department of Medicine, Monash University*
(Sir William Phillip Trust)

Nursing Research Grant

To support the research programs of the Alfred/Deakin Nursing Research Centre and the La Trobe/Alfred Clinical School of Nursing
(Donald Raymond Stuart Research Trust)

Allied Health Research Grant

Carol Hodgson, *Physiotherapy: 'Lung recruitment manoeuvres for lung collapse in ICU'*
(Marian & Edwin Harold Flack Trust)

Alfred Research Trusts Small Project Grants

Matthew Ellis, *Department of Allergy, Immunology and Respiratory Medicine*: 'The effect of direct versus indirect challenges on the distribution of ventilation'

Alison Hardman, *Occupational Therapy*: 'Trial of conservative management of wrist pain caused by ulnocarpal abutment'

Kathryn Hayes, *Physiotherapy Department*: 'Can exercise training improve cardiovascular fitness and quality of life in patients with a left ventricular assist device (LVAD)?'

Bianca Levkovich, *Pharmacy Department*: 'Optimising cefepime dosing in critical care: the pharmacokinetics of extended (prolonged) infusions'

Dr Edwina Moore, *Burns Service*: 'APACHE III: A tool for outcome prediction amongst patients with burns in Australasia'

Ryan Smith, *William Buckland Radiation Oncology*: 'Improving treatment with permanent ¹²⁵Iodine seed implants for prostate cancer using dosimetry with either fused CT/MR images or fused CT/US images'

Dr Ida-Fong Ukor, *Intensive Care Unit*: 'Variations in oesophageal pressures and haemodynamics with changing levels of positive end-expiratory pressure in the mechanically ventilated patient'

Dr Nilika Wijeratne, *Department of Pathology*: 'Heart type fatty acid binding protein as a prognostic marker for traumatic brain injury'

Alfred Research Trusts Allied Health Small Grants

Alison Kolmus, *Physiotherapy Department*: 'Does the use of splints in adults with axillary burns result in a better range of shoulder movement?'

Julia Price, *Nutrition Services*: 'Are individuals with human immunodeficiency virus (HIV) and darker skin pigmentation at risk of lowered bone mineral density, and further HIV disease progression due to high risk of vitamin D deficiency?'

Caulfield Hospital Research Grants

Firth J, Arnold C: 'Which physical and functional measures are valid and sensitive to change in a population of clients attending a multidisciplinary pain management program?'

Nailon C, Benjamin L, Garden C, Cray E: 'Does the Caulfield Dementia Mealtime Plan improve nutritional status in patients with dementia?'

New P, Roberts K, Sturt R: 'A randomised controlled trial of a specialised multidisciplinary 'in reach' team to address the unmet needs of hospitalised patients with acute spinal cord injury'

Nicholes A, Lewis M: 'Does offering an advance care planning service to people recently diagnosed with dementia or mild cognitive impairment by the CDAMS service lead to completion of advance care planning documentation?'

Wilson N, Curtis C: 'Physical function of lower limb amputees post initial rehabilitation – a longitudinal study of outcomes'

AMREP Research Prize 2009

For article describing original research published in the journal with the highest impact factor in 2008

Professor Susan Davis (Women's Health Program, Department of Medicine, Monash University)

Davis SR, Moreau M, Kroll R, Bouchard C, Panay N, Gass M, Braunstein GD, Hirschberg AL, Rodenberg C, Pack S, Koch H, Moufarege A, Studd J; APHRODITE Study Team. Testosterone for low libido in postmenopausal women not taking estrogen. *New England Journal of Medicine*. 2008; 359(19):2005-17. [Impact factor: 50.017]

GlaxoSmithKline Prize for Advanced Trainee Physicians

Dr David Szmulewicz (Department of Neurosciences, The Alfred)
'Neuropathy is an integral component of the cerebellar ataxia with bilateral vestibulopathy syndrome'

DS Rosengarten Surgical Trainee Research Prize

Dr Paul Davis (Urology Unit, The Alfred)

'Assessing the utility of delayed imaging in the routine follow-up of renal trauma'

Dr Edwina Moore (Burns Unit, The Alfred)

'A simple tool for mortality prediction in burns patients: APACHE III score and FTSA'

The Kathleen AB Smith Memorial Award in Nursing

The purpose of this award is to support and acknowledge a high standard of nursing publication that has potential for significant impact on patient care.

Danielle Bolster (The Alfred)

Bolster D, Manias E. Person-centred interactions between nurses and patients during medication activities in an acute hospital setting: qualitative observation and interview study. *International Journal of Nursing Studies*. 2010;47(2):154-65.

Alfred Week Research Poster Prizes

Monash Alfred Psychiatry Research Centre Prize

Peter Enticott (Monash Alfred Psychiatry Research Centre)

TRANSCRANIAL MAGNETIC STIMULATION (TMS) IN AUTISM SPECTRUM DISORDERS

Enticott PG, Rhook H, Rinehart NJ, Tonge BJ, Bradshaw JL, Fitzgerald PB

Henrietta Law Memorial Prize for Allied Health Research

Tanya Blyth (Speech Pathology Department, The Alfred)

THE EFFECTIVE ASSESSMENT OF HIGH LEVEL COGNITION BASED COMMUNICATION DISORDERS IN TRAUMATIC BRAIN INJURY

Blyth TC, Bond AG, Scott AG, Farquhar MH

Noel and Imelda Foster Prize for Cardiovascular Research

Peter Kistler (Baker IDI / Cardiology Department, The Alfred)

ACUTE ATRIAL FIBRILLATION FOLLOWING LUNG TRANSPLANTATION: DOUBLE BUT NOT SINGLE LUNG TRANSPLANT PREVENTS THE LONG TERM DEVELOPMENT OF ATRIAL FIBRILLATION

Lee G, Wu H, Snell G, Williams T, Kalman J, Kistler P

Lucy Battistel Prize for Allied Health Research

Suzannah Jackson (Nutrition Department, The Alfred)
TREATMENT OF CHRONIC HEART FAILURE: A LOW ENERGY DENSITY MEDITERRANEAN-STYLE DIET
Adams F, Jackson S, Walker KZ, Stoney RM, Farrington C, Kaye D

Michael J Hall Memorial Prize for Research in the Field of Respiratory Disease/Physiology

Bronwyn Levvey (Department of Allergy, Immunology and Respiratory Medicine, The Alfred)
LONG TERM ISSUES AFTER HEART AND LUNG TRANSPLANTATION AT THE ALFRED: RESULTS FROM AN AUSTRALIAN COLLABORATIVE STUDY
Levvey B, Mitchell L, Tamblyn S, Griffiths A

Professor Daniel Czarny Prize for Allergy and Asthma Research

Sara Prickett (Department of Immunology, Monash University)
TOWARDS IMMUNOTHERAPY FOR PEANUT ALLERGY: IDENTIFICATION OF DOMINANT T CELL EPITOPES OF THE MAJOR PEANUT ALLERGEN ARA H 2
Prickett SR, Voskamp AL, Dacumos A, Rolland JM, O'Hehir RE

The Janet A Secatore Nursing Research Award (sponsored by Nurses First Credit Union)

Lauren McTier (Alfred/Deakin Nursing Research Centre)
PATIENT PARTICIPATION AS A QUALITY AND SAFETY FACTOR IN POST-OPERATIVE CARDIOTHORACIC CARE
McTier L, Botti M, Duke M

The Nursing Research and Access Committee Award (sponsored by Nurses First Credit Union)

Mari Botti (Alfred/Deakin Nursing Research Centre)
A PROCESS SUPPORT TOOL FOR QUALITY IMPROVEMENT OF INTERPROFESSIONAL HANDOVER IN POST ANAESTHETIC CARE UNITS (PACU)
Botti M, Redley BH, Johnstone MJ, Bucknall T, Cameron P, Evans S, Jeffcott S, Currey J, De Rome S

Baker IDI Heart and Diabetes Institute Prize for Cardiovascular Research

Yang Liu (Baker IDI Heart and Diabetes Institute)
ROLE OF PLATELETS IN POST-INFARCT MYOCARDIAL INFLAMMATION AND WALL RUPTURE; DIRECT CARDIAC EFFICACY OF ANTI-PLATELET THERAPY
Liu Y, Gao XM, Fang L, Wang XF, Su Y, Sturgeon S, Jackson SP, Dart AM, Du XJ

Baker IDI Heart and Diabetes Institute Prize for Diabetes Research

Anna Watson (Baker IDI Heart and Diabetes Institute)
ACE INHIBITION ABOLISHES PLAQUE FORMATION IN RAGE DEFICIENT DIABETIC APOE- KNOCKOUT MICE
Watson AM, Soro-Paavonen A, Li J, Bierhaus A, Cooper ME, Jandeleit-Dahm KA

Burnet Prize for Infectious Diseases Research and International Health (First Prize)

Jane Goller (Burnet Institute)
RISK FACTORS FOR HIV AND STI INFECTION IN MSM IN VICTORIA: SENTINEL SURVEILLANCE RESULTS
Goller JL, Guy R, Lim M, Gold J, Bergeri I, El Hayek C, Gouillou M, Stooze M, Leslie D, Tee BK, Roth N, Fairley CK, Higgins N, Hellard ME

Burnet Prize for Infectious Diseases Research and International Health (Second Prize)

Jacqueline Flynn (Burnet Institute)
RECIPROCAL RELATIONSHIP BETWEEN IFN-GAMMA AND IL-10 PRODUCTION IN ACUTE HEPATITIS C VIRUS INFECTION
Flynn JK, Dore GJ, Hellard M, Yeung B, White PA, Lloyd AR, French RA on behalf of the ATAC Study Group

Burnet Prize for Infectious Diseases Research and International Health (Third Prize)

Kerstin Leykauf (Burnet Institute)
PHOSPHORYLATION OF *PLASMODIUM FALCIPARUM* AMA1 BY PROTEIN KINASE A: AN ESSENTIAL STEP IN MEROZOITE INVASION OF RED BLOOD CELLS
Leykauf K, Treeck M, Gilson PR, Gilberger TW, Crabb BS

Whole Time Medical Specialists Private Practice Scheme Prizes for Clinical Research

Lachlan Miles (Intensive Care Unit, The Alfred)
IS P_aO_2/F_iO_2 RATIO PREDICTIVE OF DEATH IN THE IMMUNOSUPPRESSED ICU PATIENT?
Miles L, Bailey M, Pilcher D

Louisa Lam and Amaali Lokuge

(Emergency Department, The Alfred)
B-TYPE NATRIURETIC PEPTIDE TESTING AND THE ACCURACY OF HEART FAILURE DIAGNOSIS IN THE EMERGENCY DEPARTMENT
Lam LL, Lokuge A, Cameron P, Krum H, Smit DV, Bystrycki A, Naughton MT, Federman J, Flannery G, Eccleston D, Schneider HG

Rosanne Freak-Poli (Department of Epidemiology and Preventive Medicine, Monash University)

EVALUATION OF A FOUR-MONTH LOW-IMPACT PHYSICAL ACTIVITY WORKPLACE INTERVENTION
Freak-Poli R, Peeters A

Senior Medical Staff Prize for Clinical Research

John Coutsouvelis (Pharmacy Department, The Alfred)
IMPLEMENTATION OF A PHARMACIST INITIATED PHARMACEUTICAL HANDOVER (PIPH) FOR ONCOLOGY AND HAEMATOLOGY PATIENTS BEING TRANSFERRED TO CRITICAL CARE UNITS
Coutsouvelis J, Corallo CE, Dooley MJ, Foo J, Whitfield A

Senior Medical Staff Prize for Basic Science/Laboratory-based Research

Ping Fu (Department of Medicine, Monash University)
IDENTIFICATION AND CHARACTERISATION OF PROHIBITIN-1 AS AN IGF1P-6 BINDING PROTEIN FROM RHABDOMYOSARCOMA CELL MEMBRANES
Fu P, Liang GJ, Bach LA



MAJOR GRANTS

Listed are the major national competitive, peer-reviewed research grants held by AMREP staff in 2009; inclusion is based on the Australian Competitive Grants Register (ACGR). Major international grants are also listed.

Australian Grants Cooperative Research Centres (CRC) Program

CRC for Asthma and Airways. O'Hehir RE, Thompson P, Mackay C, Berend N, Foster P, Gibson P, Jenkins C, Weinstein P. 2005-2012. CRC Program funding: \$26,440,000. Total funding: \$54,000,000.

CRC for Biomarker Translation. Hogarth PM, Hoogenraad N, Hart D, Zola H, Morris H, Venter D, Warner N, Polverino T. 2007-2014. CRC Program funding: \$30,590,000. Total funding: \$90,000,000.

National Health and Medical Research Council Program Grants

Adams J, Bouillet P, Colman P, Cory S, Gerondakis S, Huang D, Lindeman G, Strasser A, Vaux D, Visvader J. Roles of impaired apoptosis and differentiation in tumorigenesis and therapy. 2007-2011: \$21,228,860. Administering institution: Walter and Eliza Hall Institute.

Brew B, Crowe S, Lewin S, Slobodman B, Wesselingh S, Cunningham A. Pathogenesis of persistent human virus infections of global significance. 2005-2009: \$6,180,170. Administering institution: University of New South Wales.

Coppel R, Cooke B, Plebanski M, von Itzstein M. Malaria: from target identification to therapeutics. 2005-2009: \$4,962,360. Administering institution: Monash University.

Cowman A, Brown G, Crabb B, Handman E, McConville M, McFadden G, Scholfield L, Speed T. Host parasite interactions: disease, pathogenesis and control. 2006-2010: \$13,660,837. Administering institution: Walter and Eliza Hall Institute.

Jennings G, Dart A, Esler M, Kaye D, Kingwell B, Chin-Dusting J. A program of research addressing the transition from health to advanced cardiovascular disease. 2008-2012: \$12,281,756. Administering institution: Baker IDI.

Krum H, Gilbert R, Itescu S. Novel therapeutic strategies to reduce the burden of chronic heart failure. 2005-2009: \$4,634,965. Administering institution: Monash University.

Marwick T, Stewart S. Integration of risk evaluation in cardiovascular disease management programs. 2009-2013: \$4,568,853. Administering institution: University of Queensland.

O'Dea, Hoy W, Rowley K, Best J, Wang Z. Health outcomes monitoring and evaluation: learning about activity, nutrition, diet and social factors. 2005-2009: \$7,070,585. Administering institution: University of Melbourne.

O'Hehir RE, Anderson G, Hamilton J, Rolland J. The interface between innate and adaptive immunity in allergy and asthma. 2005-2009: \$4,308,220. Administering institution: Monash University.

Capacity Building Grant

Eades S. Making a difference: building research capacity for health interventions to improve Aboriginal health. 2007-2011: \$2,317,125. Administering institution: University of Sydney.

Centre of Clinical Research Excellence

Oldenburg B, Hoy W, Shannon C, Tonkin A, Lea T, Ring I, Elston J, Wenitong M, Hayman N. Centre for Clinical Research Excellence in Circulatory and Associated Conditions in Urban Indigenous Peoples. 2006-2010: \$2,000,000. Administering institution: Monash University.

Centre of Research Excellence in Patient Safety

McNeil J, Cameron P, Campbell D, Duckett S, Myles P, Sanderson P, Stoelwinder J. 2005-2009: \$2,000,000. Administering institution: Monash University.

Dementia Research Grant

Consortium including CGMC. Early intervention for amnesic mild cognitive impairment. 2008-2009: \$551,452. Administering institution: La Trobe University.

H1N1 Influenza Research Grants

Crowe S. Immune responses to 2009 H1N1 to assist public health response. 2009: \$184,712. Administering institution: Burnet Institute.

French R. A centralised facility for immunological monitoring of human H1N1 immunity post infection or vaccination. 2009: \$184,395. Administering institution: Burnet Institute.

Hellard M. The epidemiology, transmission and impact of new influenza A (H1N1) on the Victorian community in 2009. 2009: \$152,335. Administering institution: Burnet Institute.

Health Services Research Grants

Cameron P, Sprivilis P, Stoelwinder J, Forbes A, McNeil J, Campbell J. Using data to improve quality of health care. 2007-2011: \$2,629,000. Administering institution: Monash University.

Cass A, Brown A, Patel A, Eades S, Hayman N, Isbel N, Jan S, Ring I, Stewart G, Tonkin A, Weeramanthri T. Improving health outcomes for Aboriginal Australians with chronic disease through strategies to reduce systems barriers to necessary care. 2006-2011: \$2,800,000. Administering institution: University of Sydney.

McNeil J, Peeters A, Oldenburg B, Hollingsworth B, Nelson M, de Courten M. Better targeting of preventative services using epidemiological modelling. 2007-2011: \$1,823,750. Administering institution: Monash University.

Scott A, Joyce C. Understanding the dynamics of the medical workforce to improve population health and equity of access: the Australian Longitudinal Survey of Doctors. 2007-2011: \$2,133,430. Administering institution: University of Melbourne.

Stewart S, Scuffham P, Marwick T, Horowitz J, Krum H, Davidson P, MacDonald P. Which heart failure intervention is most cost-effective and consumer friendly in reducing hospital care: the WHICH Study. 2007-2011: \$878,702. Administering institution: Baker IDI.

Medical Bioinformatics, Genomics and Proteomics Strategic Grant

Shortman K, Heath WR, Villandangos J, Lahoud M, Simpson R, Wright M, Amigorena S. Genomic and proteomic profiling of dendritic cell heterogeneity. 2006-2010: \$1,971,250. Administering institution: Walter and Eliza Hall Institute.

Palliative Care Research Grant

Davidson P, Macdonald P, Curnow D, Newton P, Leung D, Tofler G, Krum H. Oxygen to relieve dyspnoea in non-hypoxaemic patients with end-stage heart failure. 2008-2010: \$300,000. Administering institution: University of Western Sydney.

Preventive Healthcare and Strengthening Australia's Social and Economic Fabric Research Grant

Kinner S, Alati R, Williams G, Lennox N, Boyle F, Jamrozik K, Vlack S, Haswell-Ekins M, Taylor D. Passports to advantage: health and capacity building as a basis for social integration. 2007-2011: \$1,564,095. Administering institution: Burnet Institute.

Loff B, Lawrence M, Peeters A, Ackland M, Swinburn B. A comprehensive regulatory strategy for obesity prevention in Australia. 2007-2011: \$761,184. Administering institution: Monash University.

Development Grants

Anderson D. Development and prototype manufacture of a high-throughput CD4 T-cell test for management of HIV/AIDS infections. 2009: \$163,150. Administering institution: Burnet Institute.

Head G, Alewood P. Development of oral natriuretic-like peptides for chronic treatment of congestive heart failure. 2007-2009: \$376,750. Administering institution: Baker IDI.

Kaye D, Power J. Development of non-surgical approach to treating tricuspid regurgitation. 2007-2009: \$200,000. Administering institution: Baker IDI.

Krum H. Development of novel anti-inflammatory agents. 2009: \$200,600. Administering institution: Monash University.

Kulkarni J. The diagnosis, biomarker identification and measurement of drug efficacy in mental illness and neurological conditions. 2009: \$116,500. Administering institution: Monash University.

Little P. Development of a protein tyrosine kinase inhibitor for modification of GAG chains and prevention of atherosclerosis. 2007-2009: \$378,900. Administering institution: Baker IDI.

Peter K. Novel single-chain antibody-targeted nanoparticles for diagnosis of vascular diseases in magnetic resonance imaging. 2007-2009: \$327,500. Administering institution: Baker IDI.

Pietersz G. Development of a novel mannan-based avian influenza vaccine. 2008-2009: \$195,567. Administering institution: Burnet Institute.

Pietersz G. Novel vaccine formulation for immunotherapy of adenocarcinomas. 2009: \$178,400. Administering institution: Burnet Institute.

Wang B, Scammellis P, Krum H. Development of novel anti-inflammatory compounds. 2008-2009: \$196,250. Administering institution: Monash University.

Enabling Grants

Bellomo R, Cooper DJ, Myburgh J, Finfer S. National Centre for Intensive Care Research. 2005-2009: \$1,290,000. Administering institution: Monash University.

Buchbinder R, March L, Lassere M, Reid C. Australian Rheumatology Association Database. 2006-2010: \$1,250,000. Administering institution: Monash University.

McLean CA, Harper C. National Network of Brain Tissue Banks. 2004-2009: \$2,000,000. Administering institution: Mental Health Research Institute.

Simes J, Ghersi D, Stockler M, Keech T, Green S, Henderson-Smart D, Krum H, Jennings G. Australian Clinical Trials Registry. 2005-2010: \$1,500,000. Administering institution: University of Sydney.

Project Grants

Abramson M, Benke GP, Croft RJ, Sim MR. Do mobile phones affect cognitive development in children? 2009-2011: \$531,000. Administering institution: Monash University.

Alderuccio F, Scott H, Hubert F-X. The role of Aire in immunological tolerance and immunity. 2008-2010: \$416,625. Administering institution: Monash University.

Anderson J, Hope T, Tachedjian G. Mechanisms underlying APOBEC3G restriction of HIV-1. 2008-2010: \$536,654. Administering institution: Burnet Institute.

Andrews R. Ligand interactions of platelet glycoprotein Ib-IX-V in thrombosis. 2007-2009: \$355,575. Administering institution: Monash University.

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- Toh B-H, Agrotis A, Tipping P. Atherosclerosis: molecular action and suppression of NKT cell subsets. 2007-2009: \$441,375. Administering institution: Monash University.
- Tonkin A, Dennekamp M, Erbas B, Sim MR, Glass DC. Cardiac effects of 2006/2007 bushfire air pollution in Melbourne. 2009: \$57,675. Administering institution: Monash University.
- Tonkin A, Thompson P, West M, Blankenberg S, Kirby A, Hague W. The LIPID Study: 16 year outcomes and predictors of risk and their interactions in CHD patients. 2008-2010: \$746,465. Administering institution: Monash University.
- Turrell G, Oldenburg B, Giler-Corti W, Burton N, Giskes K, Haynes M, Brown W. A longitudinal multilevel study of change in physical activity in mid-age and factors associated with change. 2008-2011: \$705,000. Administering institution: Queensland University of Technology.
- Villemagne V, Rowe C, McLean C, Mulligan R, Fodero-Tavoletti M. Abeta amyloid imaging in neurodegenerative disorders with a novel 18F radiotracer. 2008-2010: \$1,142,250. Administering institution: University of Melbourne.
- Walton S, Currie B. An immunodiagnostic assay for scabies. 2007-2009: \$364,500. Administering institution: Menzies School of Health Research.
- Weickert TW, Weickert CS, Schofield PR, Kulkarni J, Carr VJ. Cognitive enhancement in schizophrenia via selective oestrogen receptor modulator. 2009-2011: \$381,150. Administering institution: University of New South Wales.
- Werther G, Russo V, Bach L, Price J, Newgreen D. Functional analysis of IGF-binding protein-2 molecular interactions in early development and disease. 2007-2009: \$529,500. Administering institution: Murdoch Childrens Research Institute.
- Wesselingh S, Churchill M, Gorry P. Molecular studies of the astrocyte reservoir of HIV-1 in the central nervous system. 2007-2009: \$513,000. Administering institution: Burnet Institute.
- Wilkinson-Berka J, Fletcher E, Allen T, Nguyen G. Receptor-mediated actions of prorenin in diabetic retinopathy. 2008-2010: \$704,250. Administering institution: Monash University.
- Wilkinson-Berka JL, Miller AG. Aldosterone and diabetic retinopathy. 2009-2011: \$491,250. Administering institution: Monash University.
- Wluka A, Pasco J, Kotowicz M, Henry M. Factors that affect knee structure in healthy women. 2007-2009: \$190,950. Administering institution: Monash University.
- Wolfe R, Forbes A. Missing data and risk prediction. 2009-2011: \$435,125. Administering institution: Monash University.
- Woodcock E. Cardiac-specific therapy targeting hypertrophy and apoptosis. 2009-2011: \$526,500. Administering institution: Baker IDI.
- Woodcock E. Signalling pathways activated by atrial dilatation and their relationship to atrial fibrillation. 2007-2009: \$433,250. Administering institution: Baker IDI.
- Woodcock E, Iismaa S. A novel cardiac inotropic mechanism that provides functional benefit. 2009-2011: \$397,750. Administering institution: Baker IDI.
- Wright MD, Hickey MJ. How tetraspanin proteins control the movement of white blood cells. 2009-2011: \$402,750. Administering institution: Monash University.
- Xue CC, Thien F, Story DF. A clinical trial on acupuncture for hay fever. 2009-2011: \$169,725. Administering institution: RMIT University.

Australia Fellowship

Cooper M. 2009-2013. Administering institution: Baker IDI.

Research Fellowships

Allen T. 2008-2012. Administering institution: Baker IDI.
Anderson D. 2007-2011. Administering institution: Burnet Institute.
Andrews R. 2004-2009. Administering institution: Monash University.
Bobik A. 2006-2010. Administering institution: Baker IDI.
Chin-Dusting J. 2006-2010. Administering institution: Baker IDI.
Crowe S. 2008-2012. Administering institution: Burnet Institute.
Dart A. 2005-2009. Administering institution: Baker IDI.
Davis S. 2008-2012. Administering institution: Monash University.
Du X-J. 2005-2009. Administering institution: Baker IDI.
El-Osta A. 2009-2013. Administering institution: Baker IDI.
Esler M. 2005-2009. Administering institution: Baker IDI.
Febbraio MA. 2007-2011. Administering institution: Baker IDI.
Gerondakis S. 2006-2010. Administering institution: Burnet Institute.
Gowans E. 2009-2013. Administering institution: Burnet Institute.
Head G. 2006-2010. Administering institution: Baker IDI.
Hellard M. 2009-2013. Administering institution: Burnet Institute.
Hogarth M. 2007-2011. Administering institution: Burnet Institute.
Jackson D. 2009-2013. Administering institution: Burnet Institute.
Jandeleit-Dahm K. 2009-2013. Administering institution: Baker IDI.
Kaye D. 2008-2012. Administering institution: Baker IDI.
Kent S. 2008-2012. Administering institution: University of Melbourne.
Kingwell B. 2009-2013. Administering institution: Baker IDI.
Lambert G. 2007-2011. Administering institution: Baker IDI.
Little P. 2006-2010. Administering institution: Baker IDI.
Mackay F. 2007-2011. Administering institution: Monash University.
Medcalf RL. 2008-2012. Administering institution: Monash University.
Meikle P. 2008-2012. Administering institution: Baker IDI.
Plebanski M. 2008-2012. Administering institution: Monash University.
Reeder J. 2009-2013. Administering institution: Burnet Institute.
Reid C. 2008-2012. Administering institution: Monash University.
Rice GE. 2005-2009. Administering institution: Baker IDI.
Ritchie R. 2008-2012. Administering institution: Baker IDI.
Stewart S. 2008-2012. Administering institution: Baker IDI.
Sviridov D. 2005-2009. Administering institution: Baker IDI.
Tachedjian G. 2009-2013. Administering institution: Burnet Institute.
Thrift A. 2007-2011. Administering institution: Baker IDI.
Wilkinson-Berka J. 2006-2010. Administering institution: Monash University.
Woodcock E. 2005-2009. Administering institution: Baker IDI.

Practitioner Fellowships

Buchbinder R. 2005-2009. Administering institution: Monash University.
Cameron P. 2009-2013. Administering institution: Monash University.
Cooper DJ. 2007-2011. Administering institution: Monash University.
Fitzgerald P. 2005-2009. Administering institution: The Alfred.
Lewin SR. 2008-2012. Administering institution: The Alfred.
Myles P. 2007-2011. Administering institution: Monash University.

Industry Fellowship

French R. 2006-2009. Administering institution: Burnet Institute.

INSERM Exchange Fellowship

Pirola L. 2008-2009. Administering institution: Baker IDI.

Career Development Awards

Benke G. 2007-2011. Administering institution: Monash University.
Cherry C. 2009-2012. Administering institution: Burnet Institute.
de Courten B. 2006-2010. Administering institution: Baker IDI.
Dietze P. 2006-2010. Administering institution: Monash University.

Drummer H. 2007-2011. Administering institution: Burnet Institute.
Fitzgerald S. 2005-2009. Administering institution: Baker IDI.
Gabbe B. 2007-2011. Administering institution: Monash University.
Gicquel C. 2008-2011. Administering institution: Baker IDI.
Gorry P. 2009-2012. Administering institution: Burnet Institute.
Gruen R. 2008-2011. Administering institution: Monash University.
Hagemeyer C. 2008-2011. Administering institution: Baker IDI.
Hughan S. 2009-2012. Administering institution: Monash University.
Lambert EA. 2006-2010. Administering institution: Baker IDI.
Matthews V. 2009-2012. Administering institution: Baker IDI.
McMullen JR. NHMRC/NHF Biomedical. 2005-2009. Administering institution: Baker IDI.
Ramsland PA. 2006-2010. Administering institution: Burnet Institute.
Schlauch MP. 2006-2010. Administering institution: Baker IDI.
Thomas MC. NHMRC/DART Clinical. 2006-2010. Administering institution: Baker IDI.
Wluka A. 2009-2012. Administering institution: Monash University.

Training (Postdoctoral) Fellowships

Abbott A. 2008-2011. Administering institution: Baker IDI.
Ahimastos A. 2007-2010. Administering institution: Monash University.
Bradshaw C. 2007-2010. Administering institution: Monash University.
Bruce C. 2005-2009. Administering institution: Baker IDI.
Carrington M. 2008-2011. Administering institution: Baker IDI.
Cheng A. 2006-2010. Administering institution: Monash University.
Cox H. 2007-2010. Administering institution: Burnet Institute.
Drew B. 2009-2012. Administering institution: Baker IDI.
Driscoll A. 2009-2012. Administering institution: Monash University.
Elhassen D. 2007-2010. Administering institution: Burnet Institute.
Enticott P. 2009-2012. Administering institution: Monash University.
Evans SM. 2008-2011. Administering institution: Monash University.
Fletcher A. 2009-2012. Administering institution: Monash University.
Fredericks B. 2007-2010. Administering institution: Monash University.
Giles M. 2009-2012. Administering institution: The Alfred.
Gurvich C. 2009-2012. Administering institution: Monash University.
Hanna F. 2007-2011. Administering institution: Baker IDI.
Hoare H. 2009-2012. Administering institution: Burnet Institute.
Hoy K. 2009-2012. Administering institution: Monash University.
Inglis S. 2008-2011. Administering institution: Baker IDI.
Joyce C. 2006-2010. Administering institution: Monash University.
Keegel T. 2009-2012. Administering institution: Baker IDI.
Kelsall H. 2006-2009. Administering institution: Monash University.
Kent P. 2006-2009. Administering institution: Monash University.
Kinner S. 2006-2009. Administering institution: Burnet Institute.
Lim M. 2009-2012. Administering institution: Burnet Institute.
McKenzie D. 2009-2012. Administering institution: Monash University.
Medley TL. 2005-2010. Administering institution: Baker IDI.
Ngo T. 2008-2010. Administering institution: Monash University.
Skilton M. 2007-2010. Administering institution: Baker IDI.
Stratov I. 2007-2010. Administering institution: Burnet Institute.
Tonna S. 2009-2012. Administering institution: Baker IDI.
Wang Y. 2007-2010. Administering institution: Monash University.
Watson A. 2008-2011. Administering institution: Baker IDI.
White A. 2008-2011. Administering institution: Baker IDI.
Wong C. 2008-2011. Administering institution: Baker IDI.

Other Australian Grants

ANZ Trustees – Mason and Williams Memorial Foundation Research Grants

Davis S, Bell R. Does transdermal testosterone therapy significantly improve cognitive performance in postmenopausal women? A randomised placebo controlled trial over 26 weeks. 2009-2010: \$70,000. Administering institution: Monash University.

Williams DR. Mapping the distribution of pathological tau in Alzheimer's disease and progressive supranuclear palsy. 2009: \$40,500. Administering institution: Monash University.

AusAID – Bilateral Program Grants

Morgan C. China-Australia health facility. 2007-2012: \$31,800,000. Administering institution: Burnet Institute.

Morgan C. Tibet health sector support project. 2004-2009: \$1,252,600. Administering institution: Burnet Institute.

Toole M. Tingim Laip project, Papua New Guinea. 2007-2010: \$10,000,000. Administering institution: Burnet Institute.

AusAID – Development Research Awards

Power R. Investigating the role of drug and alcohol use in the spread of HIV infection in the Pacific, with specific reference to Fiji. 2007-2009: \$112,750. Administering institution: Burnet Institute.

Toole M. Modelling sexual and social networks of urban men who have sex with men and women in Vietnam and the Lao PDR. 2008-2010: \$379,730. Administering institution: Burnet Institute.

AusAID – NGO Project Grants

Drenkhan G, Asproloupos D. Cyclone Nargis relief – local resource centre for community based responses, Myanmar (Burma). 2008-2009: \$1,040,000. Administering institution: Burnet Institute.

Gray N. Women's and Children's Health Knowledge Hub. 2008-2011: \$2,400,000. Administering institution: Burnet Institute.

Power R. Asia Regional HIV/AIDS Project; Indonesian HIV/AIDS Prevention and Care Project; Indonesian-Australian Specialised Training Program; Xinjiang HIV/AIDS Prevention and Care Project; HAARP. 2007-2015: \$3,451,850. Administering institution: Burnet Institute.

Whitney R. Australian partnerships with African communities. 2005-2009: \$2,795,400. Administering institution: Burnet Institute.

Whitney R, Otto B, Toole M, Morgan D, Kwarteng T, Vaughan C, Holmes W. Community based HIV programs for youth and vulnerable populations. 2001-2009: \$1,970,750. Administering institution: Burnet Institute.

Australia and New Zealand Burns Association – Project Grant

Cameron P, Gabbe B, Cleland H, Edgar D. National burns registry upgrade. 2008-2010: \$132,050. Administering institution: Monash University.

Australian and New Zealand College of Anaesthetists – Research Grant

Burnett W, Smart J, Rosenfeld JV. IMASH Trial – does intravenous magnesium sulfate improve clinical outcome? 2006-2009: \$40,000. Administering institution: Chinese University of Hong Kong.

Australian and New Zealand Intensive Care Society – Project Grant

Cooper DJ, Pelligrino V, Davies A. ENTERIC: a multicentre randomised controlled trial comparing early jejunal feeding (using a frictional nasojejunal tube) and standard feeding in critical illness. 2006-2009: \$154,000. Administering institution: The Alfred.

Australian Centre for HIV and Hepatitis Virology – Project Grants

Crowe S. Markers of monocyte activation as correlates of cardiovascular disease in HIV patients. 2008-2009: \$143,350. Administering institution: Burnet Institute.

Cherry CL, Hooker D, Wesselingh S, McLean C. Establishing the use and interpretation of an LM-PCR-based phenotypic assay for antiretroviral toxicity. 2007-2009: \$172,500. Administering institution: Burnet Institute.

Suhrbier A, Lewin S. Novel use of chaperonin 10 to ameliorate endotoxin-induced immune activation and HIV replication. 2008-2009: \$150,000. Administering institution: Burnet Institute.

Australian Health Minister's Advisory Council (AHMAC) Priority Driven Research Program – Project Grant

Hellard M, Fairley C, Aitken C, Hocking JS. The impact of text and email messaging on the risk behaviour of young men and women: a randomised controlled trial. 2005-2009: \$209,000. Administering institution: Burnet Institute.

Australian Research Council – Discovery Grants

Febbraio M, Southgate R. Autophagic vacuole formation in mammalian skeletal muscle; role of FOXO proteins. 2007-2009: \$285,000. Administering institution: Monash University.

Forde GM, Plebanski M. Biodegradable immuno-therapeutic nanoparticles. 2009-2011: \$420,000. Administering institution: Monash University.

Jackson SP, Nestbitt WS, Fouras A. Development of model systems to investigate blood hydrodynamic parameters affecting blood cell function: an interdisciplinary approach. 2009-2011: \$300,000. Administering institution: Monash University.

Meeusen EN, O'Hehir R. Molecular determinants of an allergic response. 2009-2011: \$370,000. Administering institution: Monash University.

Zion D, Loff B, Briskman L. Caring for asylum seekers in Australia: bioethics and human rights. 2007-2009: \$170,000. Administering institution: Monash University.

Australian Research Council – Future Fellowships

Gavin AL. 2009-2013. Administering institution: Burnet Institute

McMullen J. 2009-2013. Administering institution: Baker IDI.

Peter K. 2009-2013. Administering institution: Baker IDI.

Australian Research Council – Linkage Grants

Liew D, Dooley MJ, Wilson J. Cost-effectiveness analyses of improved adherence to Management PLans among AUstrALIANS (COMPLIANS). 2008-2010: \$306,977. Administering institution: Monash University.

Liew D, Reid C, Owen A, Shaw J, Magliano D. Epidemiological modelling of cardiovascular disease and diabetes in Australia. 2007-2009: \$212,000. Administering institution: Monash University.

Lin V, Oldenburg BF, Hall WD, McDermott RA, Eagar K, Fleming M, Legge DG, O'Neill DL, Filby DR, Wilson A, Thompson I. Developing new methods for building health policy capacity in Australia. 2007-2010: \$209,816. Administering institution: La Trobe University.

Lithgow BJ, Kulkarni J, Senyard AL, Edwards RO. Quantitative measurement of schizophrenia using electrovestibulography. 2006-2009: \$147,900. Administering institution: Monash University.

Stewart S, Tonkin A, Wilkinson D, Clark R, Eckert K, Coffee N, Astles P, Milligan M. CARDIAC-ARIA: measuring the accessibility to cardiovascular services in rural and remote Australia via applied geographical spatial technology (GIS). 2007-2009: \$158,688. Administering institution: University of South Australia.

Bethlehem Griffiths Foundation – Research Grants

Li Q-X, McLean CA, Culvenor JG. Cu/Zn superoxide dismutase aggregation and neurodegeneration in sporadic motor neuron disease. 2006-2009: \$83,348. Administering institution: University of Melbourne.

beyondblue Victorian Centre of Excellence in Depression and Related Disorders – Research Grants

Fitzgerald P, Hoy K. A pilot study of the use of magnetic seizure therapy for treatment resistant depression. 2009: \$50,000. Administering institution: The Alfred.

Kiropoulos L, Meredith I, Tonkin A, Clarke D, Piterman L, Gilson K. Health mind, health heart: assessment of depression and related psychosocial factors in CALD people with CHD. 2009: \$91,075. Administering institution: Monash University.

Livingston T, Jefford M, White V, Horden A, Botti M, Lethborg C, Oldroyd J. A nurse-assisted screening and referral program for depression among survivors of cancer: a pilot study. 2008-2009: \$90,000. Administering institution: Deakin University.

O'Donnell M, Creamer M, Bryant R, Ellen S, Holmes A, Kossmann T, Judson R. Telephone-administered early psychological intervention for depression and anxiety following serious injury. 2009-2011: \$300,000. Administering institution: Australian Centre for Posttraumatic Mental Health.

Pier C, Piterman L, Burstein F, Fisher J, Tonkin A, Klein B, Murphy A. Evaluation of Heart Health Online: a program to assist GPs to manage depression and related illness in patients with coronary heart disease. 2008-2009: \$150,000. Administering institution: Monash University.

Brain Foundation – Research Grants

Medcalf R, Samson A, Au A. The role of platelet-released factors on brain injury during stroke. 2009: \$35,500. Administering institution: Monash University.

Williams DR. Investigating a genetic risk factor for developing abnormal involuntary movements in Parkinson's disease. 2009: \$20,000. Administering institution: Monash University.

Cancer Council New South Wales – Grant-in-Aid

Mackay F. The role of Y1 in regulatory T cell function – a new angle to treat autoimmunity and cancer. 2008-2009: \$200,000. Administering institution: Monash University.

Cancer Council Victoria – Grants-in-Aid

Bach L, Rice G. IGF-dependent and independent actions of IGFBP-6. 2007-2009: \$210,000. Administering institution: Monash University.

Liu JP. Investigating the control mechanisms of telomere maintenance in cancer: a new interaction between telomerase and GAPDH. 2009-2011: \$300,000. Administering institution: Monash University.

Pietersz G. Vaccine for breast cancer. 2008-2010: \$277,038. Administering institution: Burnet Institute.

Wright MD. The role of tetraspanin in cellular immunity. 2009-2011: \$294,800. Administering institution: Monash University.

Cardiac Society of Australia and New Zealand – World Congress of Cardiology/CSANZ Research Investigatorship

Kistler PM. Comparison of catheter ablation with medical therapy for atrial fibrillation in heart failure. 2007-2009. Administering institution: Baker IDI.

Department of Health (Queensland Government)

Hellard M, Stoové M, Bergeri I, Sacks-Davis R, Van Gemert C. Establishing a sentinel Hepatitis C surveillance network In Queensland. 2009: \$107,190. Administering institution: Burnet Institute.

Department of Health and Ageing (Federal Government)

Hellard M, Donovan B, Guy R, Kaldor J, Sullivan E, Dimech W. Australian Collaboration for Chlamydia Enhanced Sentinel Surveillance (ACCESS). 2007-2010: \$1,283,843. Administering institution: Burnet Institute.

Reid C. Testing and validating draft 'Operating Principles and Technical Standards for Australian Clinical Quality Registries'. 2008-2009: \$931,686. Administering institution: Monash University.

Department of Human Services (Victorian Government)

Fairley C, Bourke S, McNamee K, Gurrin L, Gunn J, Guy R, Hellard M, Sanci L, Hocking J. Chlamydia prevalence and testing. 2005-2009: \$341,493. Administering institution: Burnet Institute.

Hellard M, Guy R. Renewal of HIV surveillance in Victoria. 2006-2009: \$520,000. Administering institution: Burnet Institute.

Hellard M, Guy R, White B, Minge A. Evaluation of the Victorian Public Health Prisoner Initiative. 2006-2009: \$117,462. Administering institution: Burnet Institute.

Priestly B. Review of the environmental health risk assessment guidelines for assessing human health risks from environmental hazards. 2008-2009: \$265,000. Administering institution: Monash University.

Steele C, Connors T, Smolenaers F. The impact of rapid roaming user access on workforce efficiency and attitudes to online documentation in aged care. 2009: \$80,000. Administering institution: The Alfred.

Steele C, Smolenaers F. The wireless operating suite: a review of good practice. 2009: \$81,565. Administering institution: The Alfred.

Stoové M, Crofts N, Lintzeris N, Walsh N. Exploring the health and support service experiences of prisoners post-release: prisoners, family and service providers' perspectives. 2008-2009: \$186,559. Administering institution: Burnet Institute.

Stoové M, Hellard M, Pedrana A, Gold J, Nguyen P, Ata N. FaceSpace: using social networking to promote safer sex to higher risk groups. 2009-2010: \$161,700. Administering institution: Burnet Institute.

Department of Innovation, Industry, Science and Research (Victorian Government) – International Science Linkages Competitive Grant

Hagemeyer C, Peter K. Novel antibody-targeted nanoparticles for magnetic resonance imaging of atherosclerosis. 2009-2011: \$392,673. Administering institution: Baker IDI.

Diabetes Australia Research Trust – Type 1 Millennium Awards

El-Osta A, Haviv I, Tothill R, Balcerzyk A, Okabe J, Brasacchio D, Kowalczyk A, Cooper M, Zimmet P, Shaw J, Brownlee M. Mapping of human hyperglycemia induced memory in Type 1 diabetes. 2009-2010: \$150,000. Administering institution: Baker IDI.

Slattery R. The development of a mouse model to study how novel DNA sites in the human insulin promoter (HIP) control autoimmunity and tolerance. 2008-2009: \$150,000. Administering institution: Monash University.

Diabetes Australia Research Trust – Type 2 Millennium Award

Febbraio M, James D, Haviv I, Gregorevic P, LeBrasseur N, Kemp B. Identification of novel myokines as potential therapeutic targets for Type 2 diabetes. 2009-2010: \$150,000. Administering institution: Baker IDI.

Diabetes Australia Research Trust – Research Grants

Allen T, Jandeleit-Dahm K. Role of urotensin II in diabetic atherosclerosis: basic and clinical studies. 2009: \$59,390. Administering institution: Baker IDI.

El-Osta A, Okabe J, Balcerczyk A, Brasacchio D, Cooper M, Brownlee M. Persisting gene activating events can be attributed to changes in epigenetic information. 2009: \$60,000. Administering institution: Baker IDI.

Febbraio M, Kozłowski G, Nicholls H, Lancaster G. Does macrophage interleukin-10 expression protect against obesity induced insulin resistance? 2009: \$60,000. Administering institution: Baker IDI.

Kaye D, Ritchie R, Izridi R. Mechanism and treatment of cardiac fibrosis in diabetes. 2009: \$60,000. Administering institution: Baker IDI.

Lancaster G, Sadler A. The role of protein kinase R (PKR) in diet-induced inflammation and insulin resistance. 2009: \$60,000. Administering institution: Baker IDI.

Little P, Ballinger M, Dilley R.J. Anti-inflammatory actions of PPAR ligands mediated via inhibition of hyaluronan biosynthesis in vascular smooth muscle cells. 2008-2009: \$49,802. Administering institution: Baker IDI.

Miller AG, Wilkinson-Berka J. Glyoxalase I and diabetic retinopathy. 2009: \$55,000. Administering institution: Monash University.

Okabe J, El-Osta A, Balcerczyk A, Brasacchio D, Cooper M, Brownlee M. Epigenetic persistence and hyperglycemic memory of embryonic stem cells. 2009: \$60,000. Administering institution: Baker IDI.

Osman N, Little P. The impact of glucose on p38 MAP kinase mediated glycosaminoglycan synthesis in the development of early atherosclerosis. 2009: \$59,790. Administering institution: Baker IDI.

Reutens A, Dunstan D, Shaw J, Wilson A. The effects of aerobic and resistance exercise training on vascular endothelial function in people with Type 2 diabetes mellitus. 2009: \$60,000. Administering institution: Baker IDI.

Dairy Innovation Australia – Research Services Grant

Meikle P, Shaw J, Jowett J, Nestel P. Obesity and obesity-related diseases. 2008-2011: \$1,200,000. Administering institution: Baker IDI.

Ilhan Food Allergy Foundation – Research Grant

O’Hehir R, Rolland J. Induction of regulatory T cell responses to inhibit ‘anaphylactic’-type immune responses to nut allergens. 2007-2009: \$300,000. Administering institution: The Alfred.

Juvenile Diabetes Research Foundation (Australia) – Research Grant

Slattery R. The role of the human insulin promoter in regulating beta cell autoimmunity. 2007-2010: \$495,000. Administering institution: Monash University.

Kidney Health Australia – Bootle Grant

Thomas M. Novel diabetes research – to explore a link between insulin and the complications it causes. 2006-2010: \$1,000,000. Administering institution: Baker IDI.

Leukaemia Foundation – Grant-in-Aid

Wei A, Jackson S. Molecular targeting of the bone marrow microenvironment in acute leukaemia. 2009: \$100,000. Administering institution: Monash University.

L.E.W. Carty Charitable Fund – Research Grants

Cleland H. Use of extracellular matrices for skin regeneration. 2009: \$81,000. Administering institution: Monash University.

David S, Bell R. Health and wellbeing after breast cancer study. 2008-2009: \$100,000. Administering institution: Monash University.

MBF Foundation – Research Grant

Davis S, Bell R. Development of a rapid test for co-receptor use. 2008-2010: \$300,000. Administering institution: Monash University.

National Heart Foundation of Australia – Career Development Fellowship

Hamilton J. 2008-2012. Administering institution: Monash University.

National Heart Foundation of Australia – Grants-in-Aid

Brown A, McGrady M, Zeitz C, Stewart S. The prevalence of heart failure in Aboriginal communities in Central Australia: the Heart of the Heart Study (Stage I). 2008-2009: \$129,000. Administering institution: Baker IDI.

Chai ZL, Cooper M, Toh BH, Cao Z. Role of cell division autoantigen 1 (CDA1) in atherosclerosis. 2008-2009: \$125,787. Administering institution: Baker IDI.

Chin-Dusting J, Sviridov D, Remaley A. Designing novel apolipoprotein A-I mimetic peptides as therapeutic agents for the treatment of atherosclerosis. 2008-2009: \$127,524. Administering institution: Baker IDI.

Cooper M, El-Osta A. Role of epigenetic mechanisms in diabetic vascular complications: *in vivo* studies. 2008-2009: \$127,850. Administering institution: Baker IDI.

Jandeleit-Dahm K, Allen T. The AT2 receptor in diabetes related vascular disease: pharmacological interventions and genetic knockout studies. 2009-2010: \$115,470. Administering institution: Baker IDI.

Jowett J, Abraham L, Sviridov. Investigation of the mechanism of action of *Vanin-1*: a new gene related to HDL cholesterol and inflammation. 2009-2010: \$118,585. Administering institution: Baker IDI.

Kingwell B, Reid C. ACE inhibition; a potential new therapy for peripheral arterial disease. 2008-2009: \$126,898. Administering institution: Baker IDI.

Kistler P, Kalman J. The atrial electrical and structural effects of systemic hypertension in humans. 2008-2009: \$113,880. Administering institution: Baker IDI.

Krum H, Campbell DJ, Reid C, Stewart S. Randomised, placebo-controlled clinical trial of pharmacological intervention in high risk subjects with elevated BNP to prevent new heart failure. 2008-2009: \$126,671. Administering institution: Monash University.

Mackay F. Rare CXCR7 mutations and cardiac development. 2009-2010: \$164,218. Administering institution: Monash University.

McMullen, Du X-J. Sex dimorphism in cardiac pathophysiology: interaction of PI3K with estrogen receptors. 2009-2010: \$129,000. Administering institution: Baker IDI.

Medcalf R. To determine the means by which fibrinolytic enzymes compromise endothelial cell integrity. 2008-2009: \$129,000. Administering institution: Monash University.

Owen A, Reid C, McLennan P, Krum H. Is the Omega-3 index a useful marker for risk of heart disease in older Australians? 2009-2010: \$130,800. Administering institute: Monash University.

Peter K. Does the binding of distinct conformations of C-reactive protein regulate the pro-inflammatory property of low-density lipoproteins and thus define a novel anti-atherosclerotic target? 2008-2009: \$126,000. Administering institution: Baker IDI.

Reid C, Cameron J, Kingwell B, Dart A. Independent and combined effects of blood pressure lowering and lipid lowering on arterial stiffness - a sub-study of HOPE-3. 2008-2009: \$120,126. Administering institution: Monash University.

Sviridov D, Chimini G. A new strategy to elevate ABCA1 abundance for treatment of experimental atherosclerosis. 2008-2009: \$116,696. Administering institution: Baker IDI.

Taylor A, Power J, Wong C. Cardiac magnetic resonance imaging in the evaluation of myocardial fibrosis in advanced heart failure. 2008-2009: \$123,500. Administering institution: Baker IDI.

Thomas M, Cooper M, Tikellis C. Atherosclerosis and novel regulators of the renin angiotensin system in diabetic apolipoprotein E knockout mice. 2008-2009: \$122,828. Administering institution: Baker IDI.

Woodcock E, Marasco S, McMullen J, Kistler P. Atrial fibrillation, substrates, triggers and targets. 2009-2010: \$123,300. Administering institution: Baker IDI.

Woollard K, Chin-Dusting J, Dart A. The role of soluble P-selectin in mediating leukocyte-endothelial adhesion in peripheral arterial occlusive disease. 2008-2009: \$126,000. Administering institution: Baker IDI.

Venardos K, Kaye D. Modification of L-arginine transport to improve the ischemic heart. 2008-2009: \$113,488. Administering institution: Baker IDI.

National Heart Foundation of Australia – Overseas Research Fellowship

Calkin A. The role of the nuclear receptor NR4A receptors in inflammation, lipid metabolism and atherosclerosis. 2009-2012. Administering institution: Baker IDI.

National Heart Foundation of Australia – Postdoctoral Fellowships

Brown A. Outlining the burden and correlates of heart failure and vascular risk in Aboriginal people in central Australia: the Heart of the Heart Study. 2009-2011. Administering institution: Baker IDI.

Byrne M. Alternative therapies for atrial fibrillation: gene therapy and atrial unloading. 2008-2009. Administering institution: Baker IDI.

Dawood T. The brain and the heart: understanding the neurobiology of major depressive disorder and how this generates increased cardiac risk. 2008-2009. Administering institution: Baker IDI.

Liew D. Predicting future patterns of heart disease and diabetes in Australia. 2007-2009. Administering institution: Monash University.

Venardos K. Modification of L-arginine transport to improve the ischemic heart. 2008-2009. Administering institution: Baker IDI.

Pfizer – Cardiovascular Lipid Research Grants

Habersberger J. The role of cardiac magnetic resonance imaging and serum biomarkers in the identification and monitoring of myocardial involvement in patients with established non-cardiac sarcoidosis. 2009: \$50,000. Administering institution: Baker IDI.

McGrady M, Krum H. The prevalence of heart failure in Aboriginal communities in Central Australia. 2009: \$50,000. Administering institution: Monash University.

Pfizer – Senior Research Fellowship

Gregorevic P. Using gene transfer technology to study and treat muscle-related disease. 2008-2012. Administering institution: Baker IDI.

Pharmacy Guild of Australia – Investigator Initiated Grants

Dooley MJ, Poole SG, Braun L, Bailey M, Wilkinson J, Tiralongo E. The integration of complementary medicines in community pharmacy practice. 2008-2009: \$199,580. Administering institution: Monash University.

Jackson S, Peterson G, Bereznicki B, Gee P, Fitzmaurice K, Walters EH, George J, Stewart K, March M. Pharmacy dispensing records to identify and educate patients with suboptimal asthma management. 2008-2009: \$192,986. Administering institution: University of Tasmania.

McNamara K, Peterson G, George J, Howarth H, Dunbar J, Jackson S, Janus E, Duncan G, O'Reilly S, Oldenburg R, Bunker S, Emery J. Pharmacist assessment of adherence, risk and treatment in cardiovascular disease (PAART CVD). 2007-2009: \$198,601. Administering institution: Monash University.

Royal Australasian College of Physicians – Collaborative Research Initiative Grant

Ierino F, Isbel N, Krum H. A randomised controlled trial of the beta-blocker carvedilol versus placebo to reduce cardiovascular morbidity and mortality in patients receiving dialysis. 2008-2010: \$704,400. Administering institution: University of Melbourne.

Sylvia and Charles Viertel Charitable Foundation – Clinical Investigatorship

Westall G. Protecting pig lung xenografts from hyperacute rejection. 2009. Administering institution: The Alfred.

Transport Accident Commission – Grants

Bernard S. Pre-ambulance basic life support for patients with severe head injury in rural areas. 2008-2009: \$53,800. Administering institution: Monash University.

Butt W, Rosenfeld J, Maixner W, Adamides A. Cerebral autoregulation monitoring in paediatric traumatic brain injury. 2006-2009: \$24,000. Administering institution: Royal Children's Hospital.

Cameron P, Gabbe B, Edwards E, Richardson M, Williamson O, Graves S. Victorian Orthopaedic Trauma Outcomes Registry (VOTOR): evaluation and monitoring of treatment effectiveness across Victorian hospitals. 2007-2009: \$300,000. Administering institution: Monash University.

Cameron P, Gabbe B, McNeile J. The operation and utilisation of the Victorian State Trauma Registry. 2009-2011: \$2,315,384. Administering institution: Monash University.

Cameron P, Jeffcott S, Fitzgerald M, Farrow N. Optimising trauma team performance in the Emergency Department. 2007-2009: \$80,950. Administering institution: Monash University.

Cooper DJ, Rosenfeld J. Continuation of DECRA project. 2007-2011: \$566,373. Administering institution: The Alfred.

Edwards E, Graves S, Williamson O, Richardson M, Cicuttini F, Cameron P. Victorian Orthopaedic Trauma Outcomes Registry (VOTOR) Phase II. 2006-2010: \$846,688. Administering institution: Monash University.

Gabbe B, Cameron P, Sutherland A. Profile of TAC major trauma: outcomes, cost and management (Stage 3). 2009: \$79,266. Administering institution: Monash University.

Gabbe B, Cameron P, Sutherland A, Hannaford A. Outcomes following major trauma in Victoria: inclusion of a 12 month follow-up and quality of life measure (VSTORM). 2007-2009: \$92,400. Administering institution: Monash University.

Gabbe B, Cameron P, Williamson O. Improving the measurement of function and quality of life outcomes in paediatric trauma. 2007-2009: \$156,000. Administering institution: Monash University.

Marasco S, Cooper DJ. Phase II pilot randomised trial of operative fixation of fractured ribs in patients with flail chest. 2007-2009: \$318,254. Administering institution: The Alfred.

Millar I, Cameron P, Williamson O. Does hyperbaric oxygen therapy reduce complications and improve outcomes after open tibial fractures with severe soft tissue injury? An international multi-centre randomised controlled trial. 2006-2010: \$273,000. Administering institution: Monash University.

VicHealth – Discovery Grants

Aitken C, Dixon H, Lim M, Wakefield M, Ferrari G, Hope J, Hellard M. Using text messaging (SMS) to promote health issues to young people: a randomised controlled trial. 2008-2009: \$68,593. Administering institution: Burnet Institute.

Oldenburg B, Eagar C, Tonkin A, Meredith I, Fitzgerald P, Topliss D, Wolfe R. Citizens' views on chronic disease prevention and health promotion. 2008-2009: \$74,436. Administering institution: Monash University.

VicHealth – Fellowships

Dunstan D. 2006-2010. Administering institution: Baker IDI.

Loff B. 2006-2010. Administering institution: Monash University.

VicHealth – Project Grants

Aitken C. Using text messaging to promote health issues to young people. 2009: \$75,000. Administering institution: Burnet Institute.

Kiropoulos L, Tonkin A, Meredith I. Development and evaluation of an internet-based CHD and depression prevention and health promotion resource for CALD populations: phase 1. 2009: \$72,485. Administering institution: Monash University.

Victorian Neurotrauma Initiative – Neurotrauma Fellowships

Bye N. 2009-2011. Administering institution: The Alfred.

Maller J. 2008-2011. Administering institution: Monash University.

Miller S. 2008-2011. Administering institution: Monash University.

Morganti-Kossmann C. 2008-2011. Administering institution: The Alfred.

Nichol A. 2009-2011. Administering institution: Monash University.

Yan E. 2009-2011. Administering institution: The Alfred.

Victorian Neurotrauma Initiative – Program Grants

Cooper DJ, Cameron P, Bernard S, Rosenfeld J, Nichol A. Early interventions to improve outcomes after traumatic brain injury. 2009-2012: \$2,100,000. Administering institution: Monash University.

Gruen R, Green S. Improving evidence-based care and the outcomes of patients with traumatic brain injury through a program to facilitate knowledge transfer and exchange. 2009-2010: \$4,399,539. Administering institution: Monash University.

Victorian Neurotrauma Initiative – Project Grants

Cooper DJ, Rosenfeld J, Murry L. Multi-centre prospective randomised trial of early decompressive craniectomy in patients with severe traumatic brain injury (DECRA). 2008-2011: \$90,000. Administering institution: The Alfred.

Couchman G, Ponsford J. Headstart: Multi-family groups for traumatic injury. A clinical research program for the study of the impact of multi-family group intervention on the social and psychological functioning of people with traumatic brain injury and their care givers. 2007-2009: \$345,618. Administering institution: Monash University.

Finfer S, Myburgh J, Cooper DJ, Higgins A. Normoglycaemia in intensive care traumatic brain injury (NICE TBI) study. 2008-2011: \$98,797. Administering institution: The Alfred.

Fitzgerald PB. Transcranial Magnetic Stimulation (TMS) treatment in depression after traumatic brain injury (TBI). 2008-2010: \$502,950. Administering institution: Monash University.

Gabbe B, Cameron P, Butt W, Williamson OD. Improving the measurement of function and quality of life outcomes in paediatric trauma. 2008-2009: \$156,000. Administering institution: Monash University.

Gruen R. Global evidence mapping initiative in traumatic brain injury and spinal cord injury. 2008-2010: \$943,825. Administering institution: Monash University.

Kinsella G, Olver J, Ong B. Traumatic brain injury in older adults – does age matter? 2007-2009: \$303,188. Administering institution: La Trobe University.

McLean C, Morganti-Kossmann C, Rosenfeld J. Establishment of a neurotrauma tissue/fluid bank within the National Neural Tissue Resource Centre (NNTRC). 2007-2010: \$811,148. Administering institution: The Alfred.

Medcalf R, Morganti-Kossmann C, Schmidt H. To determine the role of tissue type plasminogen activator models of traumatic brain injury. 2007-2010: \$578,064. Administering institution: Monash University.

Morganti-Kossmann C, Cooper DJ, Rosenfeld J. Role of post-traumatic hypoxia in the exacerbation of cerebral inflammation elicited by brain injury. 2007-2009: \$232,794. Administering institution: The Alfred.

Olver J, Ponsford J. Longitudinal head injury outcomes study. 2007-2010: \$940,574. Administering institution: Monash University.

Ponsford J, Cameron P, Fitzgerald M. Assessment and intervention for patients with mild traumatic brain injury. 2007-2009: \$229,955. Administering institution: Monash University.

Saunders N, Morganti-Kossmann C, Howells D, Crack P, Tan S-S, McIntyre P, Dziegielewska K, Callaway J. Traumatic injury to brain and spinal cord: secondary injury, development and evaluation of new treatments. 2007-2009: \$4,186,012. Administering institution: University of Melbourne.

International Grants

American Foundation for AIDS Research (amFAR) – Fellowship

Xhilaga M. 2007-2009. Administering institution: Monash University.

Bill and Melinda Gates Foundation – Grand Challenges in Global Health

Gilson P. A novel virulence-associated malaria drug target. 2009-2010: US\$107,475. Administering institution: Burnet Institute.

Ford Foundation – Asset Building and Community Development Grant

Morgan A. Promoting men's involvement in ante natal care services, Indonesia. 2008-2009: US\$100,000. Administering institution: Burnet Institute.

Heart and Stroke Foundation (Canada) – Grant-in-Aid

Warkentin TE, Cook DJ, Cooper DJ. Evaluating the incidence and clinical importance of heparin induced thrombocytopenia in the critically ill. 2007-2009: \$164,218. Administering institution: The Alfred.

Juvenile Diabetes Research Foundation International – Career Development Award

Forbes JM. Designing more effective treatment strategies for diabetic nephropathy. 2005-2009. Administering institution: Baker IDI.

Juvenile Diabetes Research Foundation International – Clinical Investigations Research Grant

Cooper M. Role of alagebrium in diabetic nephropathy. 2006-2009: US\$1,635,840. Administering institution: Baker IDI.

Juvenile Diabetes Research Foundation International – Postdoctoral Fellowship

Miller AG. The contribution of the (pro)renin receptor to diabetic retinopathy. 2009-2011. Administering institution: Monash University.

Juvenile Diabetes Research Foundation International – Project Grants

Allen T, Jandeleit-Dahm K, Koh P, Miljavec S, Langmaid G. Vascular NADPH oxidases in diabetic atherosclerosis. 2007-2009: US\$476,200. Administering institution: Baker IDI.

Chai Z. Modulation of TGF-beta signalling by CDA1 in vasculature. 2009: US\$55,000. Administering institution: Baker IDI.

Cooper M. Set 7: a novel target for diabetic vascular complications. 2008-2013: US\$1,250,000. Administering institution: Baker IDI.

Cooper M, Thomas M, Tikellis C, Burrell L, Koitka A, Prestinenzi A. Novel regulators of the renin angiotensin system in the diabetic kidney. 2007-2009: US\$493,870. Administering institution: Baker IDI.

El-Osta A. Role of epigenetic persistence in diabetic vascular complications. 2008-2010: US\$453,750. Administering institution: Baker IDI.

El-Osta A. Suppression and reversal of diabetic complications mediated by hyperglycemia using epigenetic inhibitors. 2009-2010: US\$550,000. Administering institution: Baker IDI.

Juvenile Diabetes Research Foundation International – Sub Grant to Albert Einstein Center Australian Arm Core B

Allen T, Bobik A, Forbes J, Kantharides P, Tikellis C. Renal/Atherosclerosis Core. 2004-2009: US\$301,845. Administering institution: Baker IDI.

Juvenile Diabetes Research Foundation International – Albert Einstein Center Australian Arm Project 4

Forbes J, Thomas M, Cooper M, Bach L. Optimising preventative therapy for diabetic complications: identifying tissue specific mechanisms of reactive oxygen species. 2004-2009: US\$762,060. Administering institution: Baker IDI.

Juvenile Diabetes Research Foundation International – Training Grant

Tikellis C. The role of angiotensin converting enzyme in diabetic complications. 2006-2009. Administering institution: Baker IDI.

Leukaemia and Lymphoma Society (USA) – Specialised Centre of Research

Adams JM, Cory S, Colman P, Strasser A, Vaux DL, Bouillet P, Gerondakis S, Huang DSC. Apoptosis in hematopoiesis, leukemogenesis and therapy. 2007-2010: US\$800,000. Administering institution: Walter and Eliza Hall Institute.

Levi Strauss Foundation – Strategic Grant

Fischer A. Capacity building for local responses to HIV/AIDS amongst injecting drug users in Indonesia. 2005-2009: US\$143,000. Administering institution: Burnet Institute.

Muscular Dystrophy Association – Research Grant

Gregorevic P. Gene transfer based follistatin expression for treatment of muscular dystrophy. 2008-2010: US\$330,000. Administering institution: Baker IDI.

National Alliance for Research on Schizophrenia and Depression, USA – Young Investigator Award

Enticott P. 2008-2010. Administering institution: Monash University.

National Institutes of Health (USA)

Bukrinsky M, Sviridov D. Mechanisms of virus-induced impairment in reverse cholesterol transport. 2009-2014: US\$340,970. Administering institution: George Washington University.

Cooper M, Allen T, Burrell L, Forbes J, Groop P-H, Jandeleit-Dahm K, Jerums G, Parving H-H. AGEs and cardiovascular disease in Type 1 diabetes. 2006-2010: US\$1,338,000. Administering institution: Baker IDI.

McCarthy T, Wesselingh S. VivaGel microbicide development consortium. 2005-2010: \$26,000,000. Administering institution: Starpharma.

McCarthy T, Wesselingh S, Crowe S. Development of dendrimer and combination microbicides. 2004-2009: US\$5,646,466. Administering institution: Starpharma.

Tachedjian G. HIV microbicide design and development. 2008-2009: US\$105,750. Administering institution: Burnet Institute.

Thio C, Locarnini SA, Thomas D, Lewin SR, Saszdeusz J, Dore G, Cooper D, Seeger E, Goodman Z. The natural history and virology of HIV-HBV co-infection. 2004-2009: US\$2,500,000. Administering institution: Melbourne Health.

Society for Progressive Supranuclear Palsy – Research Grant

Williams DR. Mapping progressive neurodegeneration in PSP using transcranial magnetic stimulation and CSF-TAU. 2008-2009: US\$60,000. Administering institution: Monash University.

Stanley Medical Research Institute (USA)

Kulkarni J. A multi-site adjunctive estradiol treatment in women with schizophrenia. 2006-2009: US\$1,223,533. Administering institution: Monash University.

The International Society of Heart and Lung Transplantation – Career Development Award

Westall G. 2008-2009. Administering institution: The Alfred.

United Nations Development Program – Fund for HIV/AIDS in Myanmar Grant

Fischer A. Reducing burden of CD morbidity/mortality in Myanmar. 2007-2009: \$2,073,034. Administering institution: Burnet Institute.

NHMRC Grants Commencing in 2010 Program Grant

Krum H, Kelly D, Reid C. Prevention and treatment of chronic heart and kidney disease via epidemiological, pharmacological device and cell-based approaches. \$5,390,000. Administering institution: Monash University.

Project Grants

Allen T, Cooper M. The role of urotensin II in diabetes-associated atherosclerosis. \$391,125. Administering institution: Baker IDI.

Churchill M, Wesselingh S, Turville S, Gorry P. Molecular studies of the astrocyte reservoir of HIV-1 in the central nervous system. \$571,500. Administering institution: Burnet Institute.

Coughlan M. Restricting dietary advanced glycation end product intake as a potential therapeutic tool in diabetic nephropathy. \$466,125. Administering institution: Baker IDI.

Crabb B, Gilson P, Leykauf K. Signalling during red blood cell invasion by *Plasmodium falciparum*. \$344,750. Administering institution: Burnet Institute.

de Courten B, Forbes J, Walker K, de Courten M. Will a reduction in dietary AGEs improve insulin sensitivity and secretion in overweight individuals? \$234,700. Administering institution: Baker IDI.

Drummer H, Pombourios P, Coulibaly F. Structure and function of the HCV glycoproteins. \$577,500. Administering institution: Burnet Institute.

Eades S, Sanson-Fisher R, Paul C, Zimmet P, Carey M, Wenitong M. A cluster randomised trial to test a systems based collaborative for Type 2 diabetes among Indigenous Australians. \$1,311,000. Administering institution: Baker IDI.

Febbraio M, Lancaster G, Sadler A, Williams B. A novel lipid sensitive kinase and its role in obesity-induced inflammation and insulin resistance. \$540,075. Administering institution: Baker IDI.

Gregorevic P, Larsson L, Haviv I. Dissecting microRNA dysregulation as a mechanism underlying muscle wasting. \$496,125. Administering institution: Baker IDI.

Gugasyan R, Berzins S. NF B1 is a novel regulator of CD8+ T cell development and memory cell generation. \$422,400. Administering institution: Burnet Institute.

Jackson D, Wright M, Ashman L. Tetraspanins serve as molecular facilitators to regulate platelet thrombus formation. \$568,500. Administering institution: Burnet Institute.

Jackson S, Schoenwaelder S. Investigation of a new approach to regulate fibrin clot retraction and arterial thrombolysis. \$465,560. Administering institution: Monash University.

Jandeleit-Dahm K, Thomas M, Bierhaus A. Targeting the AGE/RAGE axis in diabetes associated atherosclerosis. \$523,500. Administering institution: Baker IDI.

Kingwell B, de Courten B. Novel metabolic actions of HDL with therapeutic potential for Type 2 diabetes. \$540,900. Administering institution: Baker IDI.

Lambert E, Head G, Schlaich M, Straznicki N. Role of sympathetic nervous system in the development of early organ damage in obesity: an emerging target for therapy. \$523,625. Administering institution: Baker IDI.

Mak J, Davenport M, Marquet R. Macrophages drives the diversity of HIV. \$631,188. Administering institution: Burnet Institute.

McMullen J, Lin RCY. Targeting PI3K regulated microRNAs to treat heart failure. \$514,125. Administering institution: Baker IDI.

Medcalf R. To understand the role of the plasminogen activating and matrix metalloproteinase systems in traumatic brain injury. \$481,500. Administering institution: Monash University.

Medcalf R, Bottomley S, Samson A. To investigate how the aggregation of proteins during neuronal injury promotes neurotoxic plasmin formation. \$565,500. Administering institution: Monash University.

Medcalf R, Lawrence D. To determine the means by which plasminogen activators modulate integrity of the blood brain barrier. \$504,500. Administering institution: Monash University.

Peter K. CD40L/Mac-1 as therapeutic target in inflammatory diseases in particular atherosclerosis. \$539,500. Administering institution: Baker IDI.

Ponsford J, O'Donnell M, Lee N. Motivational interviewing with cognitive behavioural therapy for anxiety and depression following traumatic brain injury. \$442,825. Administering institution: Monash University.

Power D. The role of fatty acid metabolism in renin secretion. \$561,500. Administering institution: Burnet Institute.

Schlaich M, Lambert G. Sympathetic nervous system inhibition for the treatment of diabetic nephropathy. \$439,125. Administering institution: Baker IDI.

Slattery R, Miller J. The role of MHC class I expression on pancreatic ductal lineage cells in the pathogenesis of Type 1 diabetes. \$467,200. Administering institution: Monash University.

Tachedjian G, Harrigan R, Sluis-Cremer N, Sonza S. Silent mutations in the HIV-1 reverse transcriptase selected during antiretroviral therapy. \$535,500. Administering institution: Burnet Institute.

Thrift A, Cadihac D, Nelson M, Srikanth V, Bladin C, Gerraty R. Shared Team Approach between Nurses and Doctors For Improved Risk factor Management (STAND FIRM). \$1,688,750. Administering institution: Baker IDI.

Williams D, Silburn P, Rowe C, Cook M, Kinsella G, Bittar R. Finding the optimum target and predictors of outcome in deep brain stimulation of older patients with Parkinson's disease. \$496,150. Administering institution: Monash University.

Development Grants

Gragrice E. HIV-1 trimeric envelope vaccine. \$139,250. Administering institution: Burnet Institute.

Kaye D. Drug development for pulmonary hypertension. \$470,100. Administering institution: Baker IDI.

Australia Fellowship

Jackson S. 2010-2014. Administering institution: Monash University.

Research Fellowships

Dart A. SPRF. 2010-2014. Administering institution: Baker IDI.

Dixon J. SRF-B. 2010-2014. Administering institution: Baker IDI.

Esler M. SPRF. 2010-2014. Administering institution: Baker IDI.

McMullen J. SRF-A. 2010-2014. Administering institution: Baker IDI.

Peter K. SRF-B. 2010-2014. Administering institution: Baker IDI.

Rice G. PRF. 2010-2014. Administering institution: Baker IDI.

Schlaich M. SRF-A. 2010-2014. Administering institution: Baker IDI.

Shaw J. SRF-B + SEO. 2010-2014. Administering institution: Baker IDI.

Sviridov D. SRF-B. 2010-2014. Administering institution: Baker IDI.

Thomas M. SRF-A. 2010-2014. Administering institution: Baker IDI.

Woodcock E. PRF. 2010-2014. Administering institution: Baker IDI.

Practitioner Fellowships

Buchbinder R. PF2. 2010-2014. Administering institution: Monash University.

Fitzgerald P. PF2. 2010-2014. Administering institution: Monash University.

Career Development Awards

Bruce C. Level 1. 2010-2013. Administering institution: Baker IDI.

Forbes J. Level 2. 2010-2013. Administering institution: Baker IDI.

Jowett J. Level 2. 2010-2013. Administering institution: Baker IDI.

Training Fellowships

Dowrick A. Overseas Clinical. 2010-2013. Administering institution: The Alfred.

Fu Y. Australia-China Exchange. 2010-2011. Administering institution: Baker IDI.

Lynch B. Overseas Public Health. 2010-2013. Administering institution: Baker IDI.

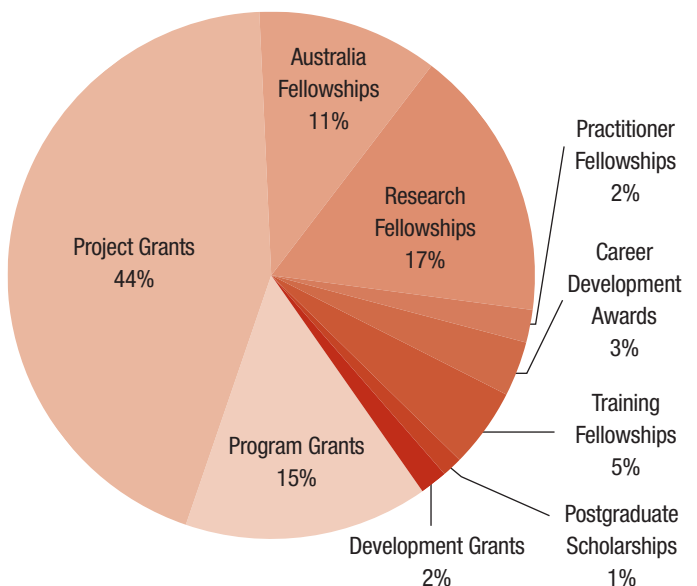
McNamara B. ATSI Health Research. 2010-2013. Administering institution: Baker IDI.

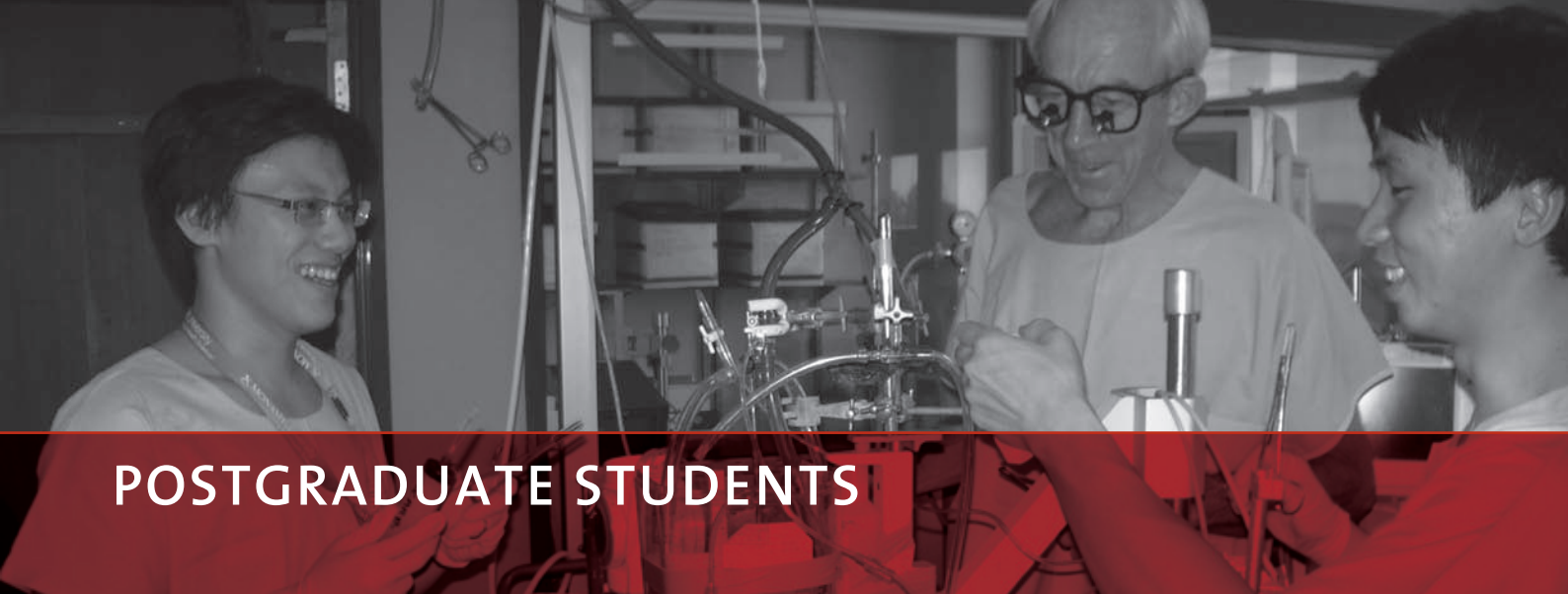
Peleg A. Australian Biomedical. 2010-2013. Administering institution: Monash University.

Westein E. Overseas Biomedical. 2010-2013. Administering institution: Monash University.

New NHMRC funding commencing in 2010

Total \$35,990,647





POSTGRADUATE STUDENTS

PhD

Abdullah A. Decentralised health planning and resources allocation (case study in Indonesia). Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*

Abrahamson S. Risk factors and evolutionary theories of autism. Monash University. Anticipated completion: 2014. *Monash Alfred Psychiatry Research Centre.*

Ackland H. Assessment of the correlation of clinical and radiographic findings in acute cervical discoligamentous injury with long term outcomes in road trauma patients. Monash University. Anticipated completion: 2014. *Department of Epidemiology and Preventive Medicine, Monash / Intensive Care Unit, Alfred.*

Ademi A. Efficacy and benefits of treatment in the Second National Australian Blood Pressure Study (ANBP2). Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*

Al-daher S. Investigation of the platelet prothrombotic status in diabetes. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*

Al-Tamimi M. Platelet receptor shedding – platelet specific collagen receptor glycoprotein VI. Monash University. Anticipated completion: 2012. *Department of Immunology, Monash / Australian Centre for Blood Diseases, Monash.*

Alexander B. Transient processing in visual perception: the role of lateral intraparietal cortex. La Trobe University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*

Allen-Graham J. Inhibition of APP and APLP2 to investigate protein function possible therapies for AD. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Department of Neurology, Alfred.*

Anders K. Individual and household risk factors for dengue and acute viral respiratory infections in Vietnamese infants. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*

Andrew N. Epidemiology and outcomes of serious sport and leisure injuries. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*

Anilovitch J. Cardiovascular responses to acute and chronic stress modulation by the renin-angiotensin-aldosterone system. Monash University. Anticipated completion: 2012. *Baker IDI.*

Au A. Investigation into the effects of platelet-released factors (PRFs) on the brain. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*

Bailey N. Neural changes related to depression and traumatic brain injury. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*

Ball O. A handbook of human rights analysis. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*

Barit D. Role of NADPH oxidase in diabetic nephropathy: interventional and gene knock out studies. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*

Barr E. The contribution of impaired glucose metabolism to cardiovascular disease and to mortality in Australians. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash / Baker IDI.*

Barton D. The neurobiology of affective illness: causes and consequences of altered brain monoaminergic function. Monash University. Completed: 2009. *Department of Medicine, Monash / Department of Cardiovascular Medicine, Alfred / Baker IDI.*

Barzel B. The role of neuromodulatory factors in the hypothalamus in the development of obesity related hypertension. Monash University. Anticipated completion: 2012. *Baker IDI.*

Batty R. An examination of the risk factors, phenomenology and aetiology of psychosis following traumatic brain injury with a focus on psychological treatment related factors. Monash University / RMIT. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*

Baxter D. Targeted therapeutics for meningioma. Monash University. *Department of Neurosurgery, Alfred / Department of Surgery, Monash.*

Bayles R. Examination of the noradrenaline transporter in major depressive disorder: delineating mechanisms of cardiac risk. Deakin University. Anticipated completion: 2010. *Department of Cardiovascular Medicine, Alfred / Baker IDI.*

Beauchamp A. Socioeconomic status as a determinant of cardiovascular disease in the Melbourne Collaborative Cohort study. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*

Beddoes L. Evaluating the quality of 24 hour acute care delivery: describing functional outcomes of older people using a model of best practice. Deakin University. Anticipated completion: 2011. *Nursing, Alfred.*

Bellamy-McIntyre A. Receptor activated conformation of the gp120-gp41 glycoprotein complex of HIV-1. Monash University. *Burnet.*

Bergin S. Community based management of diabetes related foot complications - current and future models of care. Monash University. Completed: 2009. *Caulfield Hospital.*

Berry P. The role of lifestyle factors on hip cartilage volume and rate of cartilage loss in a normal community-based population a longitudinal study. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Department of Rheumatology, Alfred.*

Bertovic D. Cardiovascular hemodynamics in health and disease. Monash University. Anticipated completion: 2011. *Department of Cardiovascular Medicine, Alfred / Baker IDI / Department of Medicine, Monash.*

Bilardi J. Screening and control of Chlamydia. University of Melbourne. Anticipated completion: 2010. *Melbourne Sexual Health Centre, Alfred.*

- Bingham G.** Identifying susceptible critically ill patients who desaturate following hyperbaric treatment: their characteristics and outcomes. La Trobe University. Anticipated completion: 2011. *Nursing, Alfred / Hyperbaric Service, Alfred.*
- Bohensky M.** Using routine hospital data to measure and improve the quality of patient care. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*
- Bonato L.** Outcomes after tibial plafond fractures: does the treatment approach matter? Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- Borg R.** Investigation into the interaction between tissue-type plasminogen activator and injured cells. Monash University. Anticipated completion: 2011. *Australian Centre for Blood Diseases, Monash.*
- Botlero R.** Investigating women's health issues: urinary incontinence and lower back pain. Monash University. Anticipated completion: 2010. *Women's Health Program, Monash / Department of Rheumatology, Alfred / Department of Medicine, Monash.*
- Brennan S.** How does bone metabolism affect knee cartilage in healthy women? Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Department of Rheumatology, Alfred.*
- Bruce E.** Comprehensive models of HIV/STI prevention among sex workers and their clients in Papua New Guinea. University of Melbourne. Anticipated completion: 2010. *Melbourne Sexual Health Centre, Alfred.*
- Bull T.** Clara cell secretory protein as a biomarker of inadequate repair in lung transplantation. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash.*
- Bullen H.** The characterisation of a novel family of invasion associated membrane proteins in apicomplexan parasites with particular focus on those found in *Plasmodium falciparum* and *Toxoplasma gondii*. University of Melbourne. *Burnet.*
- Burch ML.** A novel link between G protein coupled and serine/threonine kinase receptors regulating proteoglycan synthesis in vascular smooth muscle: relationship to lipid binding and atherosclerosis. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash / Baker IDI.*
- Burns W.** Interactions of advanced glycation end products, angiotensins and cytokines in mediating tubular-interstitial disease in diabetes. University of Melbourne. Completed: 2009. *Baker IDI.*
- Burton P.** Physiological studies of the oesophago-gastric junction relating to satiety. Monash University. Anticipated completion: 2010. *Centre for Obesity Research and Education, Monash / Department of Surgery, Alfred.*
- Butler M.** Novel imaging modalities for detection of organ fibrosis. Monash University. Anticipated completion: 2013. *Department of Cardiovascular Medicine, Alfred / Department of Medicine, Monash / Baker IDI.*
- Cameron A.** The metabolic syndrome in Australia. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash / Baker IDI.*
- Cassar L.** Cardiac stem cells: roles of telomerase. Monash University. Completed: 2009. *Department of Immunology, Monash.*
- Chan C.** Mechanisms of NK cell mediated tumour immunosurveillance. Monash University. *Department of Immunology, Monash.*
- Chan F.** The role of the insulin gene in Type 1 diabetes. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash.*
- Chan J-X.** Characterisation of a novel neural specific ATPase in cholesterol transport. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash.*
- Chan W.** Iron and oxidative stress in coronary artery disease. Monash University. Anticipated completion: 2010. *Department of Cardiovascular Medicine, Alfred / Department of Medicine, Monash / Baker IDI.*
- Chang C.** Immunopathogenesis and diagnosis of tuberculosis and tuberculosis-associated immune restoration disease in people with HIV. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash / Infectious Diseases Unit, Alfred / Burnet.*
- Chang L.** Gene activity patterns associated with the development of pathological cardiac hypertrophy are mediated by specific epigenetic changes. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Charnaud S.** The mechanism of protein export in the blood stage of *Plasmodium falciparum*. Monash University. *Burnet.*
- Chee J.** MR *in vitro* (ovarian cancer). University of Sydney. Anticipated completion: 2013. *Department of Radiology, Alfred.*
- Chen L.** Development and validation of appropriate methods for the prediction of risk of future cardiovascular events in the contemporary Australian population. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Chen LF.** Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infection: epidemiology, patient outcomes, risk factors, infection control methodology and prevention in community-based hospitals. Monash University. Anticipated completion: 2015. *Department of Medicine, Monash.*
- Chen YCB.** Targeting stem cell to the sites of endothelial damage and atherosclerotic lesions. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Chin G.** Transitions of care – Obstetric Clinical Handover. The study, observation and improvements in Obstetric Clinical Handover to improve the efficacy and patient safety in this practice. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Clissold B.** Analysis of ambulance factors in identification of stroke and accessibility to hospitals with acute stroke therapies. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*
- Coghlan J.** The efficacy and safety of different peri-operative modalities of pain control in subacromial decompression and/or rotator cuff repair surgery for rotator cuff disease. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash.*
- Cohen E.** Evaluating quality of care in an oncology setting: symptom management and practices. Deakin University. Anticipated completion: 2010. *Nursing, Alfred.*
- Cole L.** Pain sensitivity in patients with Alzheimer's disease. University of Melbourne. Completed: 2009. *Caulfield Hospital.*
- Connaughton V.** The psychological aspects of cardiac and circulatory disorders. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash.*
- Corcoran S.** Autonomic mechanisms of recurrent syncope. Monash University. Anticipated completion: 2015. *Department of Cardiovascular Medicine, Alfred / Baker IDI.*
- Cowie B.** Epidemiology of hepatitis B virus infection in Victoria. University of Melbourne. Completed: 2009. *Infectious Diseases Unit, Alfred / Burnet.*
- Cowley D.** Molecular studies of the astrocyte reservoir of HIV-1 in the central nervous system. Monash University. Completed: 2009. *Department of Medicine, Monash / Burnet.*
- Crammond B.** Factors relevant to the success of a rights-based health program. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- D'Arcy C.** The role of FHL proteins in the pathology of muscular dystrophies: identification of novel therapeutic targets. Monash University. Anticipated completion: 2012. *Department of Anatomical Pathology, Alfred.*
- David C.** Development of a rotavirus vaccine. University of Melbourne. *Department of Immunology, Monash.*
- Davies-Tuck M.** The effect of obesity and weight loss on osteoarthritis of the knee. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash / Department of Rheumatology, Alfred.*
- Dean J.** Thiol disulfide exchange in HCV glycoproteins E1 and E2. Monash University. *Burnet.*
- Deasy C.** Cardiac arrest – addressing the gaps in our scientific knowledge. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Infectious Diseases Unit, Alfred / Burnet.*

- Desmond C.** Interaction of hepatitis B virus and the adaptive immune system. Monash University. Anticipated completion: 2010. *Infectious Diseases Unit, Alfred / Department of Medicine, Monash / Burnet.*
- de Souza-Daw T.** Acousto-spectroscopy using ultrasound probes for transcranial doppler sonography. La Trobe University. Completed: 2009. *Monash Alfred Psychiatry Research Centre.*
- Diug B.** How do social risk factors effect warfarin therapy? What are the social responsibilities and strategies in place to deal with these risk factors? Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*
- D'Souza W.** Designing novel apolipoprotein A-1 mimetic peptides as therapeutic agents for the treatment of atherosclerosis. Monash University. Anticipated completion: 2011. *Baker IDI.*
- Doyle L.** The impact of weight loss on the metabolic syndrome. Monash University. Anticipated completion: 2012. *Centre for Obesity Research and Education / Department of Surgery, Monash.*
- Dwyer J.** The role(s) of molecular signalling in the regulation of telomerase. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash.*
- Egberts KJ.** The role of lifestyle factors in surgically induced weight loss. Monash University. Anticipated completion: 2011. *Centre for Obesity Research and Education, Monash / Department of Surgery, Alfred.*
- Elliott J.** University of New South Wales. Completed: 2009. *Infectious Diseases Unit, Alfred.*
- Elsik M.** Effect of biventricular pacing on fibrosis markers in heart failure. Monash University. Anticipated completion: 2010. *Clinical Pharmacology Unit, Alfred / Department of Cardiovascular Medicine, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Evans V.** Dendritic cells and their role in HIV-1 pathogenesis. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash / Infectious Diseases Unit, Alfred / Department of Medicine, Monash / Burnet.*
- Feil J.** Substance dependence: the inability to inhibit compulsive patterns of drug use. Monash University. Anticipated completion: 2014. *Monash Alfred Psychiatry Research Centre.*
- Fethers K.** The epidemiology of bacterial vaginosis in Australian women. University of Melbourne. Anticipated completion: 2011. *Melbourne Sexual Health Centre, Alfred.*
- Filia S.** Monitoring and improving the outcomes and quality of life of people with psychosis – a biopsychosocial approach. Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Fillipas S.** Physical activity in people living with HIV/AIDS. Monash University. Anticipated completion: 2011. *Physiotherapy Department, Alfred / Department of Epidemiology and Preventive Medicine, Monash / Department of Rheumatology, Alfred / Burnet.*
- Fitzgibbon B.** Synaesthesia for pain in phantom limb patients. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Flynn J.** Stimulation and maintenance of T cell responses in acute HCV infection. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash / Burnet.*
- Fooladi E.** Monash University. *Department of Medicine, Monash.*
- Freak-Poli R.** Global corporate challenge evaluation: the evaluation of a low-cost, low-impact physical-activity workplace intervention. Monash University. Anticipated completion: 2016. *Department of Epidemiology and Preventive Medicine, Monash.*
- Garrett A.** EvestG: responses in depressed patients. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Garrett C.** Virtual visits: investigating the acceptability of webcam consultations for young adults' sexual health. University of Melbourne. Anticipated completion: 2012. *Melbourne Sexual Health Centre, Alfred.*
- Ghasemzadeh M.** Examining the signalling mechanisms regulating platelet activation and in particular the role of PI3-kinases in this process. Monash University. Completed: 2009. *Australian Centre for Blood Diseases, Monash.*
- Gibbie T.** Psychological predictors of the effectiveness of motivational interviewing as an intervention for sexual high risk taking behaviours in men who have sex with men. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Goeman D.** Improving the quality and content of General Practice consultations for people with asthma. Monash University. Anticipated completion: 2012. *Department of Allergy, Immunology and Respiratory Medicine, Alfred / Department of Medicine, Monash.*
- Gold J.** The medium and the message: an investigation of how youth access, interpret and implement sexual health information. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash / Burnet.*
- Gorzin A.** The role of the NS2 protein in the hepatitis C virus life cycle. Monash University. *Burnet.*
- Gosling C.** Incidence, risk factors and outcomes of injuries in triathletes. Monash University. Anticipated completion: 2014. *Department of Epidemiology and Preventive Medicine, Monash.*
- Gouklani H.** Functional interactions of the structural and non-structural proteins of HCV. Monash University. *Burnet.*
- Gray L.** Viral determinants in HIV-1 neurotropism and neurovirulence. University of Melbourne. Completed: 2009. *Burnet.*
- Green A.** Investigating the effects of adjunct glycine therapy on cognitive function in schizophrenia. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Groot C.** Examining auditory processing and affective prosody in schizophrenia patients and their relatives: a behavioural and neuroimaging study. University of Melbourne. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Gust A.** Surveillance of in-hospital central line associated bacterial infection: using data linkage to assess the utility of routinely collected hospital data. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*
- Habersberger J.** Proinflammatory effects of monomeric C reactive protein in vascular endothelium. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Department of Cardiovascular Medicine, Alfred / Baker IDI.*
- Hackman K.** Risk factors for diabetes after lung transplantation: focus on CMV infection. Monash University. *Department of Medicine, Monash.*
- Haghoovie S.** EvestG: a diagnostic measure for schizophrenia. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Hamad A.** Clinical phenomenology of psychosis following traumatic brain injury. Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Hamlett A.** Immunotherapy using tumour-associated antigens for leukaemia. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash.*
- Harcourt B.** Interactions between receptors for advanced glycation end products and estrogen substrates in Type 2 diabetes and its complications. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash / Department of Medicine, Monash / Baker IDI.*
- Hawkes D.** Rearrangement of the virion plasma membrane in HIV-1. Monash University. *Burnet.*
- Hellewell S.** Pathophysiology and therapeutic strategies for the treatment of traumatic brain injury. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash.*
- Henry S.** Monash University. Anticipated completion: 2012. *Baker IDI.*
- Herbert D.** The social and ethical dimensions of genetic testing a longitudinal of the haemophilia community. Monash University. Anticipated completion: 2010. *Department of Medicine, Monash.*
- Higgins A.** An economic evaluation of resuscitation in sepsis. Monash University. Anticipated completion: 2013. *Intensive Care Unit, Alfred.*

- Hills D.** What makes GPs and specialists entering rural practice stay? Impact of personal characteristics, community connectedness and sense of place. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- Hodgson C.** Recruitment manoeuvres in adult ventilated patients. Monash University. Anticipated completion: 2010. *Physiotherapy Department, Alfred / Intensive Care Unit, Alfred.*
- Hoe V.** The CUPID study: risk factors for musculoskeletal and somatic symptoms and associated disability in workers. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*
- Hosseini E.** The role of genetic variants of HLA-E in NK cell function and stem cell transplant outcome. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash.*
- Huynh K.** The casual role of ROS induced damage in the development of LV dysfunction in the diabetic heart *in vitro*. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash / Baker IDI.*
- Iles L.** Myocardial fibrosis and heart failure. Monash University. Anticipated completion: 2012. *Department of Cardiovascular Medicine, Alfred / Department of Medicine, Monash / Baker IDI.*
- Inyang I.** Assessment of exposure to radiofrequency energy in an epidemiological cohort. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Iser D.** Interactions between HIV and hepatitis B virus. University of Melbourne. Anticipated completion: 2010. *Infectious Diseases Unit, Alfred / Burnet.*
- Ivory S.** Epidemiological risk prediction tools; methods and applications. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*
- Iyngkaran P.** The renovascular axis in cardiovascular diseases: clinicopathophysiological approach into diagnostics and therapeutics in reference to cardiac failure. Monash University. Anticipated completion: 2011. *Clinical Pharmacology Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Jackobson A.** The effect of transcranial direct current stimulation on dreaming. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Jackson K.** Hypertension in genetic high blood pressure mice is due to overactivity of specific hypothalamic pathways regulating sympathetic nervous system. Monash University. Anticipated completion: 2012. *Baker IDI.*
- Jeavons T.** Fungal exposure and asthma. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Jennings P.** Analgesia in the Victorian pre-hospital setting. Monash University. Anticipated completion: 2015. *Department of Epidemiology and Preventive Medicine, Monash.*
- Jiize LB.** CDA1 modulates TGF- β signalling in vascular diseases. Monash University. Anticipated completion: 2013. *Department of Immunology, Monash / Baker IDI.*
- Joglekar A.** Mechanisms of tolerance following genetic manipulation and transfer of bone marrow stem cells. Monash University. Anticipated completion: 2013. *Department of Immunology, Monash.*
- Joshua N.** Holistic processing and face perception in schizophrenia. University of Melbourne. Completed: 2009. *Monash Alfred Psychiatry Research Centre.*
- Kafanelis B.** Experiences of menopause among Greek speaking women and women with physical disabilities. Monash University. Completed: 2009. *Department of Medicine, Monash.*
- Keating C.** Neuroendocrine mechanisms in mental illness. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Keating S.** The role of epigenetic chromatin remodelling in the expression of genes relevant to diabetic nephropathy. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Kelly V.** The effects of heterogeneity and airway closure on airway distensibility measurements in asthma. Monash University. Anticipated completion: 2010. *Department of Allergy, Immunology and Respiratory Medicine, Alfred.*
- Kerr D.** The effectiveness and safety of intranasal naloxone for the treatment of heroin overdose with a view to peer distribution. Monash University. Completed: 2009. *Burnet.*
- Khasawneh A.** Studies on the fusion mechanisms of the HIV-1 glycoproteins. Monash University. *Burnet.*
- Khong S.** The role of arginase II in cardiovascular pathology. Monash University. Anticipated completion: 2010. *Baker IDI / Department of Medicine, Monash.*
- Khoury G.** Viral reservoirs: role of naïve T-cells in pathogenesis of T-cell decline and long term persistence of HIV infection. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Infectious Diseases Unit, Alfred / Burnet.*
- Khurana I.** Chromatin immunopurification strategies for the application and standardisation of next generation sequencing. Monash University. Anticipated completion: 2017. *Department of Medicine, Monash.*
- Kim H.** An analysis of mechanisms for the enhancement of yields of influenza B viruses in the preparation of human vaccines. RMIT University. *Burnet.*
- Ko H-J.** Induction of immune tolerance for the treatment of autoimmunity. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash.*
- Kouloyan-Ilic S.** Functional MRI in the brain. *Department of Radiology, Alfred.*
- Kowalski G.** The role of IL-10 in macrophages in obese insulin resistance mouse models. Monash University. Anticipated completion: 2011. *Baker IDI.*
- Kune C.** Cognitive impairment in heart failure. Swinburne University. Anticipated completion: 2012. *Department of Cardiovascular Medicine, Alfred.*
- La J.** Small molecule inhibitors targeting HIV-1 reverse transcriptase dimerisation. Monash University. *Burnet.*
- Lai ZW.** Characterisation of ectodomain shedding of angiotensin-converting enzyme 2. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash.*
- Lam N.** Biology of stem cells in the failing heart. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Latour P.** The optimisation of an immunotherapy to treat persistent HCV infection. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash / Burnet.*
- Lee G.** Atrial arrhythmias post transplantation. University of Melbourne. Anticipated completion: 2012. *Department of Cardiovascular Medicine, Alfred.*
- Lee GA.** The utility of the ECG in detecting and managing cardiovascular disease in South Africa: The heart of Soweto study. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Baker IDI.*
- Lee H.** Defining the role of protease-activated receptors in thrombosis. Monash University. Anticipated completion: 2013. *Australian Centre for Blood Diseases, Monash.*
- Lee PSS.** Influence of n3:n6 fatty acids ratio on vascular inflammatory profile in patients with hypercholesterolemia. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Department of Cardiovascular Medicine, Alfred / Baker IDI.*
- Lee S.** Omega-3 fatty acids and recovery from cardiovascular risk. Monash University. Anticipated completion: 2010. *Department of Cardiovascular Medicine, Alfred.*
- Lekawanvijit S.** Interaction between stem cell and antifibrotic drug therapy in heart failure. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- LeMasurier J.** The effect of particles on acute allergic airway inflammation. Monash University. Anticipated completion: 2012. *Department of Allergy, Immunology and Respiratory Medicine, Alfred / Department of Immunology, Monash.*

- Lewis P.** Methodological considerations in cerebral autoregulation assessment. Monash University. Anticipated completion: 2014. *Department of Neurosurgery, Alfred / Department of Surgery, Monash.*
- Lewis S.** Public health interventions for obesity: understanding the perspectives of overweight individuals. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash.*
- Lichtfuss G.** Quantification of HIV viral fitness and the relationship to treatment outcomes. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Infectious Diseases Unit, Alfred / Burnet.*
- Lim M.** Sexually transmitted infections and risk behaviours: novel surveillance and health promotion approaches. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash / Burnet.*
- Lin C.** The role of phosphatase CD45 in determining signalling, proliferation and therapeutic drug sensitivities of human myeloma cells. Monash University. Anticipated completion: 2013. *Australian Centre for Blood Diseases, Monash.*
- Ling L-H.** Atrial fibrillation and heart failure. University of Melbourne. Anticipated completion: 2011. *Department of Cardiovascular Medicine, Alfred.*
- Liu Y.** Macrophage migration inhibitory factor: pathological and therapeutic significance in cardiac ischemic injury. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash.*
- Lloyd B.** Longitudinal study of maternal depression and its impact on children. University of Queensland. Completed: 2009. *Burnet.*
- Loh E.** The utility of monitoring the outcomes of mortality reviews as a marker of quality of care within hospitals. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*
- Lowthian J.** Increasing demand for emergency patient services in the Australian community: underlying drivers, implications and potential solutions. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- Lu B.** Structural and functional analysis of the interaction of plasmin lysine binding sites with antiplasmin C-terminus. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- Lunke S.** Epigenetic regulation of the human survival of motor neuron gene in spinal muscular atrophy. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Lyons J.** Heart disease in women: inflammation and infection induced changes to HDL cholesterol. University of Melbourne. Anticipated completion: 2011. *Baker IDI.*
- MacFarlane E.** Occupational exposures and cancer risk in Australian workers. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Markouski J.** Chronic depression – an investigation of personality development experiences and responses to TMS. Australian Catholic University. Completed: 2009. *Monash Alfred Psychiatry Research Centre.*
- Mathiyalagan P.** Epigenetics in human health and disease. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Baker IDI.*
- Maxwell S.** The MeCP2 associated regulatory complex in the brain epigenetics. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- McCaffrey K.** Characterisation of a novel HCV vaccine candidate. University of Melbourne. *Burnet.*
- McGrady M.** Epidemiological assessment of aboriginal and non-aboriginal Australians at high risk of developing heart failure. Monash University. Anticipated completion: 2011. *Clinical Pharmacology Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- McKay F.** HIV positive refugee resettlement in Australia. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash.*
- McKenzie D.** The development, comparison and application of brief psychological diagnostic and screening tests by statistical and machine learning methods. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash.*
- McMahon J.** Social, behavioural and clinical factors associated with poor outcomes in patients living with HIV on antiretroviral therapy. Monash University. Anticipated completion: 2012. *Infectious Diseases Unit, Alfred / Department of Medicine, Monash.*
- McQuilten Z.** Improving patient outcomes through understanding and changing transfusion practice. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- McTier L.** Defining patient participation in treatment in acute care context. Deakin University. Anticipated completion: 2010. *Nursing, Alfred.*
- Medi C.** Atrial remodelling in pulmonary and systemic hypertension. University of Melbourne. Anticipated completion: 2010. *Department of Cardiovascular Medicine, Alfred.*
- Meehan A.** Investigating the function of natural killer cells during immunological responses following lung transplantation. Monash University. *Department of Medicine, Monash.*
- Michell D.** Hypertension induced inflammation in the endothelium: the signalling pathways involved. Monash University. Anticipated completion: 2013. *Baker IDI / Department of Medicine, Monash.*
- Mijch A.** Measuring and managing viral breakthrough in HIV disease. Monash University. Anticipated completion: 2010. *Infectious Diseases Unit, Alfred / Department of Medicine, Monash.*
- Mitra B.** Transfusion practice in trauma resuscitation. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash / Emergency Medicine, Alfred.*
- Mohamud R.** The effects of nanoparticles on regulatory T cells in lungs: implication for asthma developments and immunotherapy. Monash University. Anticipated completion: 2012. *Department of Immunology, Monash / Department of Allergy, Immunology and Respiratory Medicine, Alfred.*
- Mohebbi M.** Multilevel (hierarchical) regression models and their application to spatial statistics and reliability studies. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- Monaghan K.** Microenvironmental factors impacting on multiple myeloma drug resistance. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Australian Centre for Blood Diseases, Monash.*
- Moore E.** A prospective study of the effects of erythropoietin and early, sustained hypothermia on renal biomarkers and renal function in patients with traumatic brain injury. Monash University. Anticipated completion: 2012. *Intensive Care Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Mountford J.** Investigating class II phosphoinositide 3-kinase function in murine megakaryocytes. Monash University. Anticipated completion: 2011. *Australian Centre for Blood Disease, Monash.*
- Nasa Z.** The induction of immune tolerance through genetic manipulation of haematopoietic stem cells. Monash University. Anticipated completion: 2012. *Department of Immunology, Monash.*
- Nataraj S.** Bioethics and HIV interventions. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Neill E.** Investigating the neural basis of memory impairments in schizophrenia. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- New P.** A study of patient flow through inpatient rehabilitation and potential for improvements. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*
- Newton E.** Social cognition, perception and temperament: associations with social adjustment in adolescents and young adults. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Newton J.** Psychosocial predictors of organ donation registration in Australia. Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*

- Nguyen H-A.** Development of a mouse model of chronic asthma and allergic inflammation. Monash University. Anticipated completion: 2010. *Department of Allergy, Immunology and Respiratory Medicine, Alfred / Department of Immunology, Monash.*
- Nguyen LK.** Investigation of GPIb-V-IX mediated signalling. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- Nguyen T.** Prevention of cytomegalovirus disease after stem cell transplantation. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash.*
- Nheu LN.** Effects of androgens on cardiovascular cell physiology: events relevant to atherogenesis. Monash University. *Department of Medicine, Monash.*
- Nicholls C.** Regulation and inhibition of telomerase in cancer cells. Monash University. Anticipated completion: 2011. *Department of Immunology, Monash.*
- Nicholls E.** Heat shock proteins and their role in the resistance of bone marrow cancer cells to standard and novel chemotherapeutic strategies. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- Nicholls H.** Inflammation in insulin signalling. RMIT University. Anticipated completion: 2010. *Baker IDI.*
- Niego B.** The effect of blood proteases on structure and function of the blood-brain barrier in health and disease. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- O'Brien L.** Determining readiness of people with acute brain injury to engage in hand therapy treatment. Monash University. Anticipated completion: 2010. *Occupational Therapy Service, Alfred.*
- O'Connor D.** Understanding delusions in Alzheimer's disease. University of Melbourne. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- O'Neill A.** Using communications technology to improve the health and wellbeing of patients following myocardial infarction. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- Ono A.** Investigation of mechanisms underlying thrombus stability. Monash University. Completed: 2009. *Australian Centre for Blood Diseases, Monash.*
- Ooi J.** Epigenetic modification and the role of chromatin modifying determinants in the hypertrophied heart. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- O'Reilly G.** International Trauma Epidemiology: paths and challenges to the establishment of trauma registries in developing (and developed) countries. Monash University. Anticipated completion: 2016. *Emergency Medicine, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Orlowski C.** Epigenetic responses to external stimuli in embryonic stem cells. University of Melbourne. Anticipated completion: 2011. *Baker IDI.*
- Osadnik C.** Airway clearance techniques for chronic obstructive pulmonary disease. La Trobe University. Anticipated completion: 2011. *Physiotherapy Department, Alfred.*
- O'Toole J.** Water reuse and alternative water sources: attitudes, practices, risk assessment and human health outcomes. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash.*
- Panjari M.** Efficacy and safety of exogenous DHEA in postmenopausal women. Monash University. Anticipated completion: 2010. *Women's Health Program, Monash / Department of Medicine, Monash.*
- Pedrana A.** On the scene: the epidemiology of HIV among men who have sex with men in Victoria. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Burnet.*
- Peyton P.** The effect of V/Q inhomogeneity on the second gas effect during anaesthesia. University of Melbourne. Anticipated completion 2010. *Department of Allergy, Immunology and Respiratory Medicine, Alfred.*
- Pham Y.** Atherosclerosis and fibrosis: role of cell division auto antigen 1. Monash University. Completed: 2009. *Department of Immunology, Monash / Baker IDI.*
- Pratt B.** Developing a just policy framework for the conduct on international health research. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- Pretorius L.** Beneficial role of genes activated in the athlete's heart in a setting of heart failure: role of PI3K (p110) and exercise. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Prior L.** Cardiovascular consequences of obesity. University of Melbourne. Completed: 2009. *Baker IDI.*
- Pritchett S.** Processed EEG monitor development in anaesthesia. Monash University. Anticipated completion: 2010. *Department of Anaesthesia and Perioperative Medicine, Alfred.*
- Qiao JL.** Regulation of platelet receptors in health and disease. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- Quinn B.** The Un-MET Study: understanding the barriers to health service and treatment utilisation for methamphetamine users. Monash University. *Burnet.*
- Rajasuriar R.** Biological determinants of immune reconstitution. Monash University. Anticipated completion: 2010. *Infectious Diseases Unit, Alfred / Department of Medicine, Monash / Burnet.*
- Rawal LB.** Why do women in rural Nepal choose to deliver at home and not in a health facility? Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- Rijal S.** Investigating the prognostic significance of phosphoinositide signalling in acute myeloid leukaemia. Monash University. Anticipated completion: 2013. *Australian Centre for Blood Diseases, Monash.*
- Roche M.** Understanding HIV-1 entry; insights through the envelope protein. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash / Burnet.*
- Rodrigo S.** Health effects of increased usage of recycled water and alternative water sources. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Ryan C.** The HIV epidemics in Australia, Papua New Guinea and the Pacific Islands – a molecular epidemiological investigation. Monash University. Completed: 2009. *Department of Medicine, Monash / Burnet.*
- Sanagou M.** Preoperative hierarchical risk prediction modelling for 30 day mortality following cardiac surgery in Australia. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- See F.** Mechanisms underlying cardiac remodelling and dysfunction following myocardial infarction in the progression to heart failure. Monash University. Completed: 2009. *Department of Medicine, Monash.*
- Selathurai A.** CD4+ CD25+ T cells regulating atherosclerosis: mechanisms and therapeutic targets. Monash University. Anticipated completion: 2010. *Baker IDI.*
- Semple B.** Chemokines in secondary tissue damage following traumatic brain injury. Monash University. Anticipated completion: 2010. *Department of Medicine, Monash / National Trauma Research Institute, Alfred.*
- Sepulveda P.** Dissecting the mechanisms implicated in acute follistatin-mediated muscle growth. Deakin University. Anticipated completion: 2012. *Baker IDI.*
- Slater J.** Traumatic brain injury, neurotrauma and road traffic crashes. Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- Smith B.** Novel approaches for the diagnosis and management of atherosclerosis. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Department of Cardiovascular Medicine, Alfred / Baker IDI.*
- Smith R.** Development of a real time high dose rate brachytherapy treatment verification system. Monash University. Anticipated completion: 2012. *William Buckland Radiotherapy Centre, Alfred.*
- Smyth R.** Recombination and the evolution of HIV. Monash University. *Burnet.*
- Snelgrove S.** The role of beta-2 microglobulin in type 1 diabetes. Monash University. Completed: 2009. *Department of Immunology, Monash.*

- Socratous F.** Sympathetic activation in chronic renal disease: role of the novel soluble monoamine oxidase 'renalase'. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Baker IDI.*
- Sofian T.** Characterisation of the interaction between plasmin and antiplasmin. Monash University. Anticipated completion: 2010. *Australian Centre for Blood Diseases, Monash.*
- Soufan C.** The effect of physical activity in the knee joint: is it good or bad? Monash University. Anticipated completion: 2009. *Department of Rheumatology, Alfred.*
- Spence A.** Mediators of child dietary patterns in a parent-directed intervention to improve toddler nutrition. Deakin University. Anticipated completion: 2011. *Department of Nutrition, Alfred.*
- Stefanovic A.** Semantic priming, schizophrenia and the ketamine model of psychosis. University College London. Completed: 2009. *Monash Alfred Psychiatry Research Centre.*
- Sterjovski J.** Pathogenesis of CCR5-restricted HIV type 1. Monash University. Completed: 2009. *Burnet / Department of Medicine, Monash.*
- Stewart-Andrews C.** Continuous indirect calorimetry – a new method for measurement of metabolic and anaesthetic gas exchange in anaesthetised patients. Monash University. Completed: 2009. *Department Allergy, Immunology and Respiratory Medicine, Alfred.*
- Strange G.** Seeing the invisible: the impediments of timely diagnosis of pulmonary hypertension. Monash University. Anticipated completion: 2016. *Department of Epidemiology and Preventive Medicine, Monash.*
- Stuckey R.** Evaluation of occupational health for light vehicle use. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Szollosi I.** Characteristics of sleep disordered breathing in heart failure. Monash University. Anticipated completion: 2010. *Department of Allergy, Immunology and Respiratory Medicine, Alfred / Department of Medicine, Monash.*
- Taechalertpaisam T.** Investigation of human erythrocyte invasion by *Plasmodium falciparum*. University of Melbourne. *Burnet.*
- Tan A.** Pathological pathways determined by the interaction between advanced glycation receptors in diabetic nephropathy. University of Melbourne. Completed: 2009. *Baker IDI.*
- Tanamas S.** Novel approaches to musculoskeletal disease prevention. Monash University. Anticipated completion: 2012. *Department of Rheumatology, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Teh A.** Electrical and structural changes associated with atrial fibrillation. University of Melbourne. Anticipated completion: 2011. *Department of Cardiovascular Medicine, Alfred.*
- Teichtahl A.** The determinants of articular cartilage health. Monash University. Anticipated completion: 2016. *Department of Epidemiology and Preventive Medicine, Monash.*
- Teo JW.** Design of novel 'intelligent' drugs for the treatment of thrombosis and myocardial infarction. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash.*
- Thallas-Bonke V.** Advanced glycation end products by protein kinase C dependent pathways play a role in diabetic vascular complications. University of Melbourne. Anticipated completion: 2010. *Baker IDI / Department of Endocrinology and Diabetes, Alfred.*
- Thom O.** Preventative aspects of non invasive haemodynamic monitoring in severely ill patients in the Emergency Department. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Department of Anaesthesia and Perioperative Medicine, Alfred.*
- Thomson N.** Public health implications of amphetamine use epidemic in Northern Thailand. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash.*
- Tippett E.** Contribution of monocyte subsets to HIV-1 viral reservoirs. Monash University. Anticipated completion: 2011. *Department of Medicine, Monash / Burnet.*
- To YYK.** The mechanisms of action and suppression of natural killer T cells in atherosclerosis. Monash University. Anticipated completion: 2010. *Department of Immunology, Monash / Baker IDI.*
- Tong YK.** VLP for improved immune response to HIV-1 gp140. Monash University. Completed: 2009. *Department of Immunology, Monash / Burnet.*
- Tran L.** Therapeutic targeting of signalling pathways in cardiovascular disease. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash / Clinical Pharmacology, Alfred.*
- Tuano N.** Epigenetic modification and responses in embryonic stem cells. Monash University. Anticipated completion: 2013. *Department of Medicine, Monash / Baker IDI.*
- Vaddadi G.** Sympathetic neurobiology of recurrent syncope. Monash University. Completed: 2009. *Department of Cardiovascular Medicine, Alfred / Department of Medicine, Monash / Baker IDI.*
- Van der Kraan G.** The role of focal adhesion kinase in myeloma cell drug resistance. Monash University. Anticipated completion: 2012. *Australian Centre for Blood Diseases, Monash.*
- van der Merwe J.** Effect of VentrAssist pump on the peripheral circulation and the response of the pump to exercise. Monash University. Anticipated completion: 2012. *Department of Surgery, Monash / Department of Cardiothoracic Surgery, Alfred.*
- Varnfield M.** Clinical outcomes of an ICT-based home care model in primary and secondary prevention with lifestyle modifications for chronic diseases and mental health. Monash University. Anticipated completion: 2013. *Department of Epidemiology and Preventive Medicine, Monash.*
- Walker J.** Chlamydia incidence and re-infection rates: a longitudinal study of young Australian women. University of Melbourne. Anticipated completion: 2010. *Melbourne Sexual Health Centre, Alfred.*
- Walls H.** Effectiveness, cost-effectiveness and equity of obesity prevention strategies. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Wang L.** Investigation of gene-engineered T-cells in a self-antigen mouse model. Monash University. *Department of Immunology, Monash.*
- Wang QF.** An assessment of the medical and psychosocial outcomes of adolescents with congenital heart disease. Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Wang XW.** Novel single-chain antibody-targeted ultrasound-based contrast agents for molecular imaging of atherosclerotic plaques in a mouse model of atherosclerotic disease. Monash University. Anticipated completion: 2012. *Department of Medicine, Monash / Baker IDI.*
- Wapling J.** Role of highly conserved reverse transcriptase (RT) residues in RT dimerisation, maturation and HIV-1 replication. Monash University. *Burnet.*
- Wasiak J.** The physical and psychosocial outcomes following burn injury: a 12-month follow up study. Monash University. Anticipated completion: 2015. *Burns Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Watson C.** Use of oral garlic (*Allium sativum*) in recurrent thrush (vulvovaginal candidiasis). University of Melbourne. Anticipated completion: 2012. *Melbourne Sexual Health Centre, Alfred.*
- Weeks K.** Targeting critical nodes on the IGF1-Pi3K(p110alpha) signalling pathway to improve function of the failing heart. University of Melbourne. Anticipated completion: 2011. *Baker IDI.*
- Weller C.** Chronic wounds: outcomes for people attending specialist wound clinics. Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Wijayarathne SP.** Osteoarthritis – factors affecting patella cartilage volume in healthy population. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash.*
- Wijemunige R.** Improving the prevention and early detection of secondary brain injury in severe TBI patients. Monash University. Anticipated completion: 2010. *Department of Neurosurgery, Alfred / Intensive Care Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*

- Willis C.** The practicality of using indicators to assess quality within health systems. Monash University. Completed: 2009. *Department of Epidemiology and Preventive Medicine, Monash / Emergency Medicine, Alfred / National Trauma Research Institute, Alfred.*
- Wong HC.** FoxO proteins and cardiomyocyte death. Monash University. Anticipated completion: 2012. *Baker IDI.*
- Wong P.** An examination of the families' perspective of the intensive care experience. La Trobe University. Anticipated completion: 2012. *Nursing, Alfred.*
- Wong SS.** The function of the M protein of Dengue virus. University of Melbourne. *Burnet.*
- Wood-Bradley R.** The role of material low protein diets and folate intake on the developmental programming of adulthood diseases. Monash University. Anticipated completion: 2012. *Baker IDI.*
- Wright E.** Neuropathogenesis of HIV dementia. Monash University. Anticipated completion: 2010. *Infectious Diseases Unit, Alfred / Department of Medicine, Monash / Burnet.*
- Wynne R.** Pulmonary dysfunction and pulmonary complications after cardiac surgery: antecedents from the postoperative context. Deakin University. Anticipated completion: 2010. *Nursing, Alfred.*
- Yan BPY.** Drug-eluting stent utilisation and impact in contemporary Australian interventional cardiology practice: insight from the Melbourne Interventional Group Registry. Monash University. Anticipated completion: 2017. *Department of Epidemiology and Preventive Medicine, Monash.*
- Yang E.** Targeting oncoproteins by combined immunotherapy for breast and prostate cancer. University of Melbourne. *Burnet.*
- Yap F.** The contribution of AGEs and their receptors to beta cell dysfunction. Monash University. Anticipated completion: 2012. *Baker IDI.*
- Yap SH.** Role of mutations in the connection domain of the HIV reverse transcriptase in drug resistance. Monash University. *Burnet.*
- Yu K.** Implementing a core dataset for the reporting of medication incidents. Monash University. Anticipated completion: 2010. *Pharmacy Department, Alfred.*
- Zaffino L.** Role of FoxO proteins in the regulation of skeletal muscle anabolism, catabolism and insulin sensitivity. Monash University. Anticipated completion: 2010. *Baker IDI.*
- Zhu TP.** Succinate receptor, GPR91, mediates activation of the renin-angiotensin system in retinal diseases. Monash University. *Department of Immunology, Monash.*
- Ziebell J.** Cell apoptosis and inflammation following focal closed head injury. Monash University. Completed: 2009. *National Trauma Research Institute, Alfred / Department of Medicine, Monash.*
- Zimmet H.** Stem cells in treatment of heart failure. Monash University. Anticipated completion: 2010. *Clinical Pharmacology Unit, Alfred / Department of Epidemiology and Preventive Medicine, Monash.*
- Zomer E.** Epidemiological modelling of cardiovascular disease and prevention strategies in patients with metabolic syndrome. Monash University. Anticipated completion: 2011. *Department of Epidemiology and Preventive Medicine, Monash.*
- Zou H.** Human papilloma virus in men who have sex with men. University of Melbourne. Anticipated completion: 2012. *Melbourne Sexual Health Centre, Alfred.*
- Other Doctorates**
- Adamides A.** Intensive monitoring of severe brain injury. Doctor of Medicine, Monash University. Completed: 2009. *Department of Neurosurgery, Alfred / Department of Surgery, Monash.*
- Andrews S.** Mirror neuron system in schizophrenia. Doctor of Psychology, Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Bullen D.** Determining the educational needs of parents experiencing a pre-natal diagnosis of congenital heart defect. Doctor of Psychology, Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Buttigieg K.** An investigation of the psychosocial correlates to optimal health management in young people with insulin-dependent diabetes mellitus. Doctor of Psychology, Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Cox A.** The schoolyard participation project. Doctor of Occupational Therapy, La Trobe University. Anticipated completion: 2010. *Occupational Therapy Service, Alfred.*
- Doolan G.** Occupational exposure using self reports and a job exposure matrix in relation to prostate cancer from an Australian case-control study. Doctor of Public Health, Monash University. Anticipated completion: 2010. *Department of Epidemiology and Preventive Medicine, Monash.*
- Duncan G.** Incidence and prevalence study of people experience chronic wounds in the community in Victoria. Doctor of Public Health, Monash University. Anticipated completion: 2012. *Department of Epidemiology and Preventive Medicine, Monash.*
- Field S.** Memory processing in patients with schizophrenia who experience verbal auditory hallucinations. Doctor of Psychology, Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Furtado C.** A prospective longitudinal study into the cognitive impairments and neuroanatomic abnormalities associated with a major depressive episode and after symptomatic recovery. Doctor of Psychology, Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Gibbs Z.** Psychoneuroendocrinological relationship between menopause and mood. Doctor of Psychology, Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Inledon E.** Psychosocial predictors of overweight and obesity in children and preadolescents. Doctor of Psychology, Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Ireland S.** Optimising the monitoring and management of hypothermia in adult major trauma patients. Doctor of Nursing, La Trobe University. Completed: 2009. *Nursing, Alfred / Emergency Medicine, Alfred.*
- Lee A.** The relationship between current symptoms of mental illness and childhood abuse in women. Doctor of Clinical Psychology, Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Leet A.** Myocardial fibrosis and function after heart transplantation. Doctor of Medicine, Monash University. Anticipated completion: 2014. *Department of Medicine, Monash / Department of Cardiovascular Medicine, Alfred.*
- Michael M.** The camptothecins: alternative assessments of their pharmacology, toxicity and clinical efficacy. Doctor of Medicine, Monash University. Completed: 2009. *Department of Medicine, Monash.*
- Montjoy R.** Cognitive biases associated with belief formation in anorexia nervosa. Doctor of Clinical Psychology, La Trobe University. Completed: 2009. *Monash Alfred Psychiatry Research Centre.*
- O'Halloran C.** The localisation and fractionation of executive attention and social cognition within the cerebellum following cerebellar infarction. Doctor of Clinical Neuropsychology, La Trobe University. Anticipated completion: 2010. *Department of Neurology, Alfred.*
- Ong S.** Memory and learning in mild cognitive impairment: contribution of working memory. Doctor of Clinical Neuropsychology, La Trobe University. Completed: 2009. *Department of Neurology, Alfred / Caulfield Hospital.*
- Segrave R.** EEG, alpha and depression. Doctor of Clinical Neuropsychology, Monash University. Anticipated completion: 2010. *Monash Alfred Psychiatry Research Centre.*
- Sheehan J.** The development and evaluation of a education program for parents of children with cystic fibrosis. Doctor of Psychology, Monash University. Anticipated completion: 2011. *Monash Alfred Psychiatry Research Centre.*
- Sinclair K.** Fatigue and sleep disturbance following traumatic brain injury: treatment with bright light therapy. Doctor of Psychology, Monash University. Anticipated completion: 2012. *Monash Alfred Psychiatry Research Centre.*
- Willmott C.** Doctor of Psychology, Monash University. Completed: 2009. *National Trauma Research Institute, Alfred.*



PUBLICATIONS

Journal Articles

Abbott AL. Medical (nonsurgical) intervention alone is now best for prevention of stroke associated with asymptomatic severe carotid stenosis: results of a systematic review and analysis. *Stroke* 2009;40(10):e573-83.

Abbott IJ, Chang CC, Skinner MJ, Street A, Perry G, McLean C, Wright EJ, Cameron PU. Development and management of systemic lupus erythematosus in an HIV-infected man with hepatitis C and B co-infection following interferon therapy: a case report. *J Med Case Reports* 2009;3:7289.

Abbott IJ, Spelman D. Bacteriology and management of necrotizing soft tissue infections. *J Emerg Med* 2009;37(4):420-1.

Abramson MJ, Benke GP, Dimitriadis C, Inyang IO, Sim MR, Wolfe RS, Croft RJ. Mobile telephone use is associated with changes in cognitive function in young adolescents. *Bioelectromagnetics* 2009;30(8):678-86.

Absetz P, Oldenburg B, Hankonen N, Valve R, Heinonen H, Nissinen A, Fogelholm M, Talja M, Uutela A. Type 2 diabetes prevention in the real world: three-year results of the GOAL lifestyle implementation trial. *Diabetes Care* 2009;32(8):1418-20.

Ad Hoc Committee representing the National Stroke Foundation and the Stroke Society of Australasia. The implementation of intravenous tissue plasminogen activator in acute ischaemic stroke--a scientific position statement from the National Stroke Foundation and the Stroke Society of Australasia. *Intern Med J* 2009;39(5):317-24.

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Addamo PK, Farrow M, Hoy KE, Bradshaw JL, Georgiou-Karistianis N. A developmental study of the influence of task characteristics on motor overflow. *Brain Cogn* 2009;69(2):413-9.

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Addington DE, Labelle A, Kulkarni J, Johnson G, Loebel A, Mandel FS. A comparison of ziprasidone and risperidone in the long-term treatment of schizophrenia: a 44-week, double-blind, continuation study. *Can J Psychiatry* 2009;54(1):46-54.

Ademi Z, Liew D, Chew D, Conner G, Shiel L, Nelson M, Soman A, Steg G, Bhatt DL, Reid C; REACH registry investigators. Drug treatment and cost of cardiovascular disease in Australia. *Cardiovasc Ther* 2009;27(3):164-72.

Agostino M, Jene C, Boyle T, Ramsland PA, Yuriev E. Molecular docking of carbohydrate ligands to antibodies: structural validation against crystal structures. *J Chem Inf Model* 2009;49(12):2749-60.

Agostino M, Sandrin MS, Thompson PE, Yuriev E, Ramsland PA. *In silico* analysis of antibody-carbohydrate interactions and its application to xenoreactive antibodies. *Mol Immunol* 2009;47(2-3):233-46.

Agrotis A, Koulis C. STIM1, a new therapeutic target in occlusive vascular disease? *Cardiovasc Res* 2009;81(4):627-8. Editorial.

Ahrens I, Bode C. Novel antiplatelet therapies following percutaneous coronary interventions. *Curr Opin Investig Drugs* 2009;10(9):902-11. Review.

Ahrens I, Peter K. FX-06, a fibrin-derived B β 15-42 peptide for the potential treatment of reperfusion injury following myocardial infarction. *Curr Opin Investig Drugs* 2009;10(9):997-1003. Review.

Aitken C, Dwyer R, Spelman T, Power R. Is handedness associated with health outcomes for people who inject illicit drugs? *Drugs Educ Prev Policy* 2009;16(5):471-7.

Aitken CK, Fry TR, Farrell L, Pellegrini B. Smokers of illicit tobacco report significantly worse health than other smokers. *Nicotine Tob Res* 2009;11(8):996-1001.

Aitken CK, Lewis JA, Hocking JS, Bowden DS, Hellard ME. Does information about IDUs' injecting networks predict exposure to the hepatitis C virus? *Hepatitis Mon* 2009;9(1):17-23.

Al-Badriyeh D, Leung L, Davies GE, Stewart K, Kong D. Successful salvage treatment of *Scedosporium apiospermum* keratitis with topical voriconazole after failure of natamycin. *Ann Pharmacother* 2009;43(6):1139-42.

Al-Badriyeh D, Leung L, Davies GE, Stewart K, Kong D. Successful use of topical voriconazole 1% alone as first-line antifungal therapy against *Candida albicans* keratitis. *Ann Pharmacother* 2009;43(12):2103-7.

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Al-Badriyeh D, Li J, Stewart K, Kong DC, Leung L, Davies GE, Fullinfaw R. Stability of extemporaneously prepared voriconazole ophthalmic solution. *Am J Health Syst Pharm* 2009;66(16):1478-83.

Al-Badriyeh D, Liew D, Stewart K, Kong DC. Economic impact of caspofungin as compared with liposomal amphotericin B for empirical therapy in febrile neutropenia in Australia. *J Antimicrob Chemother* 2009;63(6):1276-85.

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- Al-Tamimi M, Mu FT, Arthur JF, Shen Y, Moroi M, Berndt MC, Andrews RK, Gardiner EE.** Anti-glycoprotein VI monoclonal antibodies directly aggregate platelets independently of FcγRIIIa and induce GPIIb/IIIa shedding. *Platelets* 2009;20(2):75-82.
- Al-Tamimi M, Mu FT, Moroi M, Gardiner EE, Berndt MC, Andrews RK.** Measuring soluble platelet glycoprotein VI in human plasma by ELISA. *Platelets* 2009;20(3):143-9.
- Ambrose Z, Herman BD, Sheen CW, Zelina S, Moore KL, Tachedjian G, Nissley DV, Sluis-Cremer N.** The human immunodeficiency virus type 1 nonnucleoside reverse transcriptase inhibitor resistance mutation I132M confers hypersensitivity to nucleoside analogs. *J Virol* 2009;83(3):3826-33.
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- Apostolopoulos V.** Peptide-based vaccines for cancer: are we choosing the right peptides? *Expert Rev Vaccines* 2009;8(3):259-60. Review.
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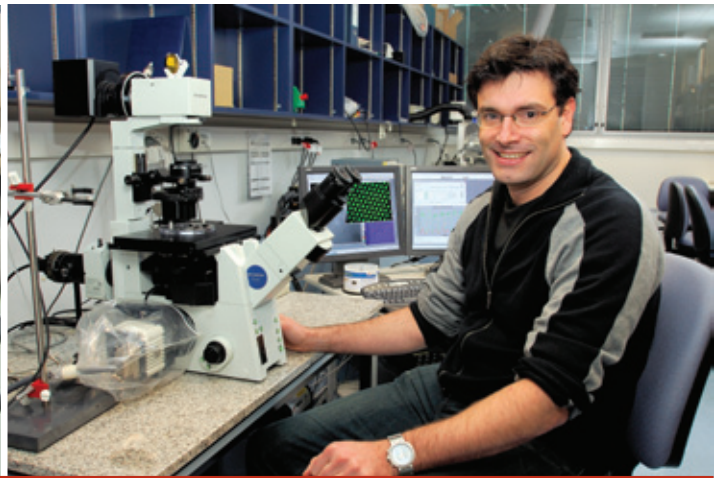
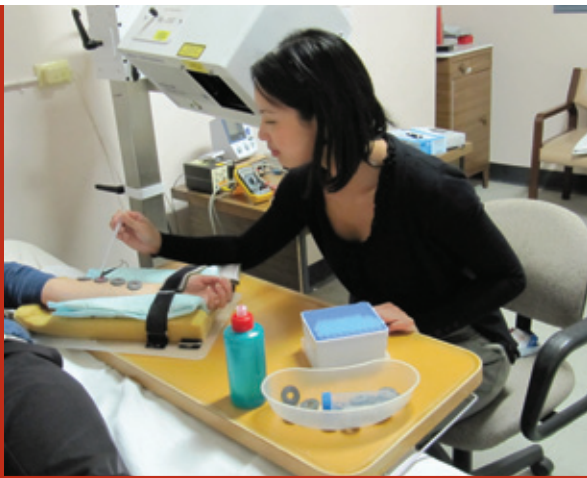
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