Menzies Research Institute
Annual Report 2007

Menzies
Research
Institute

About us

At the Menzies Research Institute our aspiration is to contribute significantly to improving human health and wellbeing.

Menzies is renowned locally, nationally and internationally for its research excellence that utilises the competitive advantages Tasmania has to offer.

We are finding answers to local health problems that have global significance.

Tasmania is an ideal environment with many competitive advantages for medical research to thrive, including our small island geography, stable population, extensive genealogical records and a community that participates willingly as study participants.

Our History

The Menzies Centre for Population Health Research was founded in 1988 by the Sir Robert Menzies Memorial Foundation, with support from the Tasmanian Government and the University of Tasmania (UTAS), to focus on population research into diseases common in Tasmania and the rest of the world.

Menzies was designated a World Health Organization (WHO) Collaborating Centre in 1990, for research and training of non-communicable diseases in the western Pacific region, which includes south-east Asia.

We quickly gained a reputation for our ground-breaking work into the link between babies' sleeping position and sudden infant death syndrome (SIDS).

From this work, our research expanded to encompass other diseases of importance to the Tasmanian population. Epidemiological research programs developed in the areas of multiple sclerosis, childhood asthma, genetic epidemiology, cancer, musculoskeletal disorders and cardiovascular disease.

In 2000, the Tasmanian Government named Menzies a "Tasmanian Icon" in recognition of our scientific achievements, status and place in the Tasmanian community.

We underwent significant governance and structural changes in 2004, including a name change to the Menzies Research Institute and the appointment of an independent Board.

A significant ongoing growth strategy was implemented in 2006 which saw Menzies undergo a dynamic transformation. We became Tasmania's premier medical research facility. Menzies' research programs were expanded to focus on both clinical and basic science to ensure that the depth and quality of our research was enhanced and strengthened.

Today

We have continued to attract new high-quality researchers to Tasmania with a diverse range of skills which has enabled us to establish new links within the national and international research community.

Complementing this ongoing strategy for growth is a $58 million investment towards Stage One of a new Menzies building, with state of the art laboratories, to be developed on a shared site with the School of Medicine, UTAS. The new building is due for completion in late 2009.

Today, Menzies has developed excellent relationships with the Tasmanian community, the Tasmanian and Australian governments, local community groups, external funding bodies and philanthropic organisations.

We have also built strong collaborative links with other medical researchers throughout the world.

Our Research

Menzies' researchers are currently working on over 100 projects that focus on preventing or curing a range of diseases, including heart disease, cancer, dementia, multiple sclerosis, diabetes, cystic fibrosis, arthritis, osteoporosis and mental health.

The research program at Menzies is organised around themes of research excellence:

- Biostatistics;
- Cancer;
- Cardiovascular Disease;
- Diabetes and Metabolism;
- Genetics;
- Immunology;
- International Health;
- Musculoskeletal;
- Neuroscience;
- Population Health and Epidemiology;
- Primary Health Care; and
- Respiratory.

Our research discoveries include:

- Highlighting the importance of vitamin D in the development of bones in children and adults;
- Evidence of the link between early life sun-exposure and susceptibility to multiple sclerosis;
- Discovering the link between babies' sleeping position and sudden infant death syndrome (SIDS);
- Discovering genes that influence the development of disease; and
- Showing the link between infant bedding and childhood asthma.

Our Future

Our plan for the future is to expand our research to cover more disease areas; to attract the best senior researchers, postdoctoral research fellows and research students to Tasmania; and to increase our collaborative links throughout Australia and internationally.

Contents

Chairman's Report	2
Director's Report	4
Management	6
Research	7
Grants	42
Publications	44
Education and Training	49
Administration Team	53
Volunteers	56
Donations	57
Financial Statements	61

Chairman's Report:
Dr Dan Norton

The Menzies Research Institute has undergone considerable change and development during the past twelve months, resulting in significant growth and progress towards achieving our aspirations and core goals.

This significant growth and progress included:

- Total income grew by 74 per cent from $6.9 million in 2006 to $12.1 million in 2007;
- Research income grew by 58 per cent from $5.1 million in 2006 to $8.1 million in 2007;
- Competitive grant income grew by 73 per cent from $3.1 million in 2006 to $5.4 million in 2007;
- Menzies researchers were awarded 19 grants ($14 million) from the National Health and Medical Research Council (NHMRC) and Australian Research Council for funding to commence in 2008. This was a success rate of 36 per cent for NHMRC project grants, well above the national average of 28 per cent;
- Menzies attracted the first NHMRC Program Grant to be awarded in Tasmania;
- The number of research publications increased by 149 per cent from 55 in 2006 to 137 in 2007;
- Staff numbers increased by 43 per cent from 112 in 2006 to 160 in 2007; and
- The number of PhD and masters students increased by 247 per cent from 15 in 2006 to 52 in 2007.

With our excellent researchers, and the strategies and governance arrangements in place, we are optimistic that we will continue to grow and build high quality medical research at Menzies.

Underpinning our strategy is a series of activities that the Board and Senior Management Team continue to monitor to ensure we stay on track and achieve our goals.

The point we have now reached has been the result of great co-operative effort involving a number of key Menzies' stakeholders including, the University of Tasmania, the Royal Hobart Hospital, the Department of Health and Human Services and numerous organisations directly supporting our research, such as The Cancer Council Tasmania, the Royal Hobart Hospital Research Foundation, the Multiple Sclerosis Society and the National Heart Foundation.

Congratulations to all the highly skilled researchers and their staff for their outstanding efforts this year. There have been several significant grant and research successes in 2007.

I would like to take this opportunity to personally thank my fellow Board directors for their guidance and expertise; they have been instrumental in the success of our research endeavours.

I must also make special mention of the Management Team for the outstanding results they achieved this year.

Professor Simon Foote, Director of Menzies has been tireless in his efforts to lead the organisation through this important time of growth and the development of critical mass, which has resulted in one central medical research institute for Tasmania.

Dr Dan Norton

Our work is not possible without the continuous support and generosity of the whole community. Menzies has been very fortunate in receiving support from hundreds of individuals, community groups, businesses, philanthropic and other funding bodies, in providing valuable funds to enable us to carry out vital research. Our volunteers deserve a special mention for the time and effort they give to Menzies.

On behalf of all our staff at Menzies, I would like to thank you all for your tremendous support. Your support does not go unnoticed and every contribution you make has a vital impact to our organisation and our research endeavours. It is also an expression of your confidence in our efficiency to pursue our vision and we thank you.

We have come a long way in recent years. I look forward to further successes in 2008, as we travel along this pathway of research discovery.

Dr Dan Norton
Chairman

The Board

The Board is the governing body of the Menzies Research Institute.

Board Directors:

Dr Dan Norton (Chairman)

Dr David Boadle

Professor Simon Foote

Sir Guy Green AC KBE

Mr Damon Thomas

Professor Jonathan West

Professor Judith Whitworth AC

Director's Report:
Professor Simon Foote

Professor Simon Foote

A year of rapid change and growth

The last twelve months has been a dramatic and exciting time for the Menzies Research Institute. Our vision of significant growth and expansion is becoming a reality.

The new strategy enabled us to build the critical mass required to compete at a national and international level and resulted in a central and significant institute in Tasmania, focusing on medical research.

It significantly increased our number of researchers and programs and fostered a new level of collaboration between research groups.

Through these initiatives for growth, Menzies has grown to be competitive with some of Australia's best medical research institutes.

The new direction of Menzies offered an attractive environment for the recruitment of world-class medical researchers to Tasmania. Financial support from the University of Tasmania allowed us to recruit several internationally renowned researchers who will commence in 2008.

With these changes, Menzies further increased in size during 2007 to 229 staff and students; and we aim to increase to the optimum size of 500 people around 2013.

This year our researchers were awarded 19 grants ($14 million) from the National Health and Medical Research Council (NHMRC) and Australian Research Council for funding to commence in 2008, including one program grant. This was a success rate of 38 per cent for NHMRC project grants, well above the national average of 28 per cent.

The program grant was considered significant, as it was the first program grant awarded to Tasmania, and valued at over $8 million. This is a multidisciplinary grant between genetics, bioinformatics, ethics and law, and clinicians; yet again demonstrating the potential outcomes for Menzies.

Menzies' researchers were also competitive in NHMRC's fellowship programs, with six of our researchers being awarded fellowships commencing in 2008. On a total dollars-to-be-received basis, Menzies ranked fifth of the 36 independent medical research institutes in Australia; and only seven universities obtained more funding than Menzies.

Many of our projects are significant national studies, carried out in collaboration with interstate and international researchers. While the majority of our research is Australian-based, our international efforts focus on the western Pacific and south-east Asian regions. In Vietnam, we are leading a significant study that aims to introduce a sustainable non-communicable disease surveillance system for all of Vietnam.

In 2007, Menzies introduced postdoctoral fellow and postgraduate student prizes (one for each category). The prizes are awarded on the basis of excellent research achievement over the previous 12 months, indicated by journal articles published or accepted for publication; grants awarded; conference presentations; and honours and awards.

The recipients of the 2007 awards were Dr Roger Chung for the postdoctoral fellow prize and Stella Foley for the postgraduate student prize.

A Bright Future

Menzies has a clear vision for the future. Further growth and expansion of our infrastructure and services will enable us to continue to significantly contribute to improving human health and well being.

Menzies' recent growth will continue into 2008 and beyond.

Complimenting the expansion of the Menzies Research Institute will be the new $58 million building, with state of the art laboratories on a shared site with the Tasmanian School of Medicine. The new building is scheduled to be completed by late 2009.

Acknowledgments

We are extremely grateful for the ongoing support of the Tasmanian community, who are the backbone of our organisation. On behalf of Menzies, I would like to express our deepest appreciation to our supporters, including study participants, volunteers and those who provide financial support. Every contribution made to Menzies has a vital impact on our organisation and thus human health and well-being.

I would like to also thank all our staff for their hardwork, dedication, innovation and intellectual rigour. Our people are our strength and we are proud of their achievements.

The Menzies Board has continued to provide excellent strategic direction, and I would like to sincerely thank them for their continued support and guidance, in what has been yet another significant year.

Finally, I would like to thank the University of Tasmania, the Menzies Foundation, the Tasmanian Government and the many philanthropic organisations for their significant financial support.

We are looking forward to the challenges and opportunities that next year will bring, as we continue to grow and build upon our research endeavours.

Professor Simon Foote
Director

Management

The Menzies' Board is responsible for the overall corporate governance of the Menzies Research Institute. It is accountable for the vision, strategy and general oversight of overall performance at Menzies. The Director is empowered to manage the operations of Menzies in conformity with agreed plans, policies and procedures, and is accountable to the Board for operational performance.

The role of the Senior Management Team is to advise the Director on issues arising during the course of the operation of Menzies.

Current members of the Management Team are:

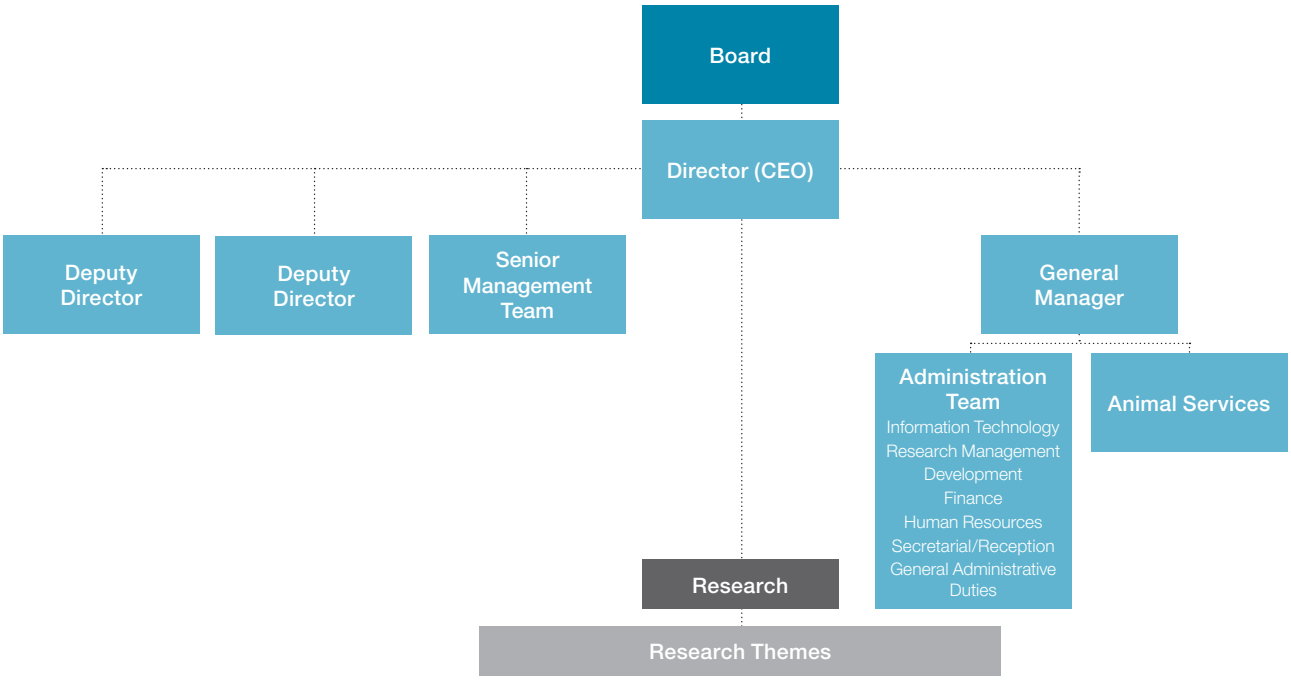
- Professor Simon Foote (Director)
- Professor Michael Clark (Senior Member)
- Associate Professor Alison Venn (Deputy Director)
- Professor Graeme Jones (Senior Member)
- Professor Haydn Walters (Senior Member)
- Associate Professor Meng Inn Chuah (Senior Member)
- Professor James Vickers (Deputy Director)
- Dr Roger Chung (Member)
- Mark Bennett (General Manager)

Menzies' research themes are consistent with our objectives and build on Menzies' foundation in population health research.

Supporting the research programs is the Administration Team, including research management, information technology, human, financial and physical resource management. Development activities promote Menzies' research and facilitate the development of beneficial relationships with government, industry and the community. Honorary researchers, scientific advisers and volunteers also provide invaluable support.

General Manager, Mark Bennett

Organisational Structure



Research

Senior Members

Associate Professor Leigh Blizzard

Associate Professor Meng Inn Chuah

Professor Michael Clark

Professor Simon Foote

Professor Graeme Jones

Professor Mark Nelson

Professor Anne-Louise Ponsonby

Associate Professor Stephen Rattigan

Associate Professor Bruce Taylor

Associate Professor Alison Venn

Professor James Vickers

Professor Haydn Walters

Associate Professor Adrian West

Members

Dr Roger Chung

Dr Tracey Dickson

Dr Changhai Ding

Dr Adele Holloway

Associate Professor David Johns

Dr Michelle Keske

Dr Stephen Richards

Dr Kristy Sanderson

Dr Ingrid van der Mei

Dr Tania Winzenberg

Associate Professor Greg Woods

Dr Jane Zochling

Honorary Members

Professor Michael Ashby

Dr Melanie Bahlo

Associate Professor Peter Dargaville

Dr Shyamali Dharmage

Dr Matthew Jose

Professor Ray Lowenthal

Dr Katherine Marsden

Dr David Reid

Professor Andrew Robinson

Professor David Small

Professor Terry Speed

Professor Jeff Summers

Associate Professor Paul Turner

Dr Chris Ward

Dr Michael Wiese

Associate Professor Richard Wood-Baker

Research

Biostatistics and International Health	Associate Professor Leigh Blizzard	9
Cancer and Immunology	Dr Adele Holloway	13
Cancer and Immunology	Associate Professor Greg Woods	14
Diabetes	Professor Michael Clark, Associate Professor Stephen Rattigan, Dr Stephen Richards and Dr Michelle Keske	16
Genetics and International Health	Professor Simon Foote	18
Neuroscience and Multiple Sclerosis	Professor Anne-Louise Ponsonby, Associate Professor Bruce Taylor and Dr Ingrid van der Mei	21
Neuroscience	Associate Professor Meng Inn Chuah, Associate Professor Adrian West and Dr Roger Chung	24
Neuroscience	Professor James Vickers and Dr Tracey Dickson	26
Musculoskeletal	Professor Graeme Jones and Dr Changhai Ding	28
Musculoskeletal	Dr Jane Zochling	30
Musculoskeletal and Primary Health Care	Dr Tania Winzenberg	31
Population Health, Cancer, and Cardiovascular Disease	Associate Professor Alison Venn	32
Population Health	Dr Kristy Sanderson	34
Primary Health Care	Professor Mark Nelson	36
Respiratory	Professor Haydn Walters	38
Respiratory	Associate Professor David Johns	39

Biostatistics and International Health

RESEARCH – Senior Member:

Associate Professor Leigh Blizzard

THEME AREA:

Biostatistics and International Health

RESEARCH TEAM:

Dr Jahar Bhowmik, Biostatistician

Petr Otahal, Statistical Officer

Dr Devindri Perera, Biostatistician/ Genetic Statistician

Dr Stephen Quinn, Biostatistician

Dr Jim Stankovich, Biostatistician/ Genetic Statistician

Dr Russell Thomson, Biostatistician/ Genetic Statistician

Cigarette Type and Lung Function Study:

Michael Austin, Lung Scan Technician

A/Prof David Johns, Member

Clare Munro, Study Coordinator

Damon Richardson, Laboratory Technician

Prof Haydn Walters, Senior Member

A/Prof Richard Wood-Baker, Honorary Member

Cystic Fibrosis Mortality in Australia:

Ceri Flowers, Project Officer

Dr David Reid, Honorary Member

Dace Shugg, Honorary Project Adviser

Jockey Falls and Performance Attributes:

A/Prof Leigh Blizzard, Chief Investigator

Peta Hitchens, PhD Candidate

Vietnam and WHO Projects:

Tim Albion, IT Consultant

Dr Au Bich Thuy, PhD Candidate

Mark Bennett, Project Management

Catrina Boon, Survey Consultant

Dr Do Khang Chien, Project Officer – Clinical Services (Hanoi)

Le Thanh Hai, Project Assistant (Hanoi)

Costan Magnussen, Survey Consultant

Petr Otahal, Statistical Consultant

Dr Seana Paul, Stroke Surveillance

Dr Phung Ngoc Hai, Project Manager

Dr Tran Hoang Mai, Honorary Associate

Dr Tran Quoc Bao, Project Officer – Surveillance System (Hanoi)

Dr Tran Thanh Huong, Project Officer (Hanoi)

Dr Tran Thanh Thu, Project Assistant (Hanoi)

Dr Velandai Srikanth, Stroke Surveillance

A/Prof Alison Venn, Cancer Registration

Principal Collaborator:

Dr Velandai Srikanth, Honorary Member

The CDOT Study:

Wendy Davidson, Volunteer – Clinics and Administration

Glenna Harvey, Project Coordinator/ Retinal Photography

Keryl Houlgrave, Participant Liaison

Pam McDonald, Administrative Assistant

Gloria Lawson, Research Officer

Charlotte McKercher, Research Officer

Costan Magnussen, Research Officer

Sally Merritt, Ultrasonographer

Jan Stacey, Psychologist

Dr Sue Pearson, Research Fellow

Zoe Perry, Psychologist

Marie Steele, Volunteer

Bob Uren, Volunteer

Marylyn Uren, Volunteer

Dr Velandai Srikanth, Chief Investigator

A/Prof Alison Venn, Senior Member

The TASCOG Study:

Georgie Boon, Administration Assistant

Kate Butorac, Project Coordinator/ Retinal Photography

Michele Callisaya, Masters Candidate/Gait Assessments

Stella Foley, Falls Risk/ Gait Assessments

Keryl Houlgrave, Participant Communications

Gloria Lawson, Research Officer

Pam McDonald, Administrative Assistant

Costan Magnussen, Research Officer

Kara Martin, PhD Candidate

Clare Munro, Study Coordinator

Charlotte McKercher, Psychologist

Sally Merritt, Ultrasound Radiographer

Emma Rouse, Psychologist

Shalee Richardson, Study Coordinator

Jan Stacey, Psychologist

Marie Steele, Volunteer

Marylyn Uren, Volunteer

Dr Velandai Srikanth, Chief Investigator

EXTERNAL COLLABORATORS:

Kees Albers, Radboud University, Nijmegen

Dr Melanie Bahlo, Walter and Eliza Hall Institute

A/Prof Paul Baird, University of Melbourne

Dr Henrik Bengtsson, University of California, Berkeley

Prof Sam Berkovic,
University of Melbourne

Dr Christine Chen,
University of Melbourne

Dr Lesley Day, Monash University
Accident Research Centre

Prof David Hosmer,
University of Massachusetts

A/Prof Patcharee Lertrit,
Mahidol University

Dr Justin Rubio, Howard Florey
Institute, University of Melbourne

Jeremy Silver,
Walter and Eliza Hall Institute

Dr Timothy Thornton,
University of California, Berkeley

Prof David Reutens,
Monash University

Dr Thanh Phan, Monash University

Dr Amanda Wood,
Monash University

A/Prof Amanda Thrift,
Baker Heart Research Institute

Dr Josephine Forbes,
Baker Heart Research Institute

A/Prof Gerald Muench,
University of Western Sydney

A/Prof Stephen Robinson,
Monash University

Dr Robyn Tapp, Monash University

A/Prof Sudha Seshadri,
Boston University

Prof Matthew Brown,
University of Queensland

FUNDING BODIES:

The Atlantic Philanthropies Inc

Australia-Thailand Institute

Australian Cystic Fibrosis
Research Trust

Betfair Australia

Department of Foreign Affairs
and Trade

National Health and Medical
Research Council:

The Australian Medical
Bioinformatics Resource

Tasmanian Thoroughbred
Racing Council

TOTE Tasmania Pty Ltd

Biostatistics

The biostatistics team aims to provide high quality support to researchers at the Menzies Research Institute by providing:

- Advice on study design, sample size, and statistical methods;
- Training in the use of statistical methodology;
- Advice and assistance with data management;
- Advice and assistance with data analysis;
- Assistance with analysis and interpretation of data; and
- Contributions to report writing and the preparation of manuscripts for publication.

The team was disappointed to lose Dr Jahar Bhowmik, who returned to Melbourne for pressing family reasons, but was delighted to welcome local statistician Mr Petr Otahal to its ranks. Petr will be responsible for providing statistical assistance to the Tasmanian Cancer Registry and to Menzies Research Institute researchers, principally members of the Childhood Determinants of Adult Disease (CDAH) study team.

A further published contribution in statistical methodology for relative risk estimation was made during 2007. The relative risk is a measure of the effect of exposure to a disease-causing agent. It is used to compare the proportion of exposed subjects who get the disease with the proportion of non-exposed subjects who get the disease. Our contribution was to propose and demonstrate a new method of estimating relative risk when the outcome has more than two attributes, such as infection status (never infected, previously but not currently infected, currently infected). Work is underway on a novel method of determining ninety-five per cent confidence intervals for the population attributable fraction, calculated from relative risk estimation models. The team was successful in winning a project grant from the National Health and Medical Research Council that provides funding for future work during 2008–10 to develop methods of assessing the goodness-of-fit of relative risk estimation models.

Genetic Statistics

Statistical analysis is an important component of projects to identify and characterise susceptibility genes for a number of diseases. Those projects include studies at the Menzies Research Institute of haematological cancer, prostate cancer, renal disease, multiple sclerosis and epilepsy. They also include studies at other institutions of myopia, Leber's Hereditary Optic Neuropathy and Action Myoclonus Renal Failure. The genetic statisticians are also collaborating in a very large national study to search for multiple sclerosis susceptibility genes.

A notable methodological development was the publication of a new method to analyse genotype data collected from very large families, and work continued on a second such method.

Members of the team also organised and presented at a course in genetic statistics held in Bangkok, Thailand.

Cigarette Type and Lung Function Study

The premise for monitoring and regulating tar yields as part of Australia's comprehensive tobacco control strategy was that cigarettes with lower tar delivery would be less hazardous. The study seeks to determine whether there are differences in lung function between people who smoke low-yield cigarettes, and those who smoke cigarettes that have higher yields. To shed light on the causal pathways involved, the lungs of participants are

scanned to determine whether the pattern of deposition of smoke-like particles differs between smokers of lower-yield and higher-yield cigarettes.

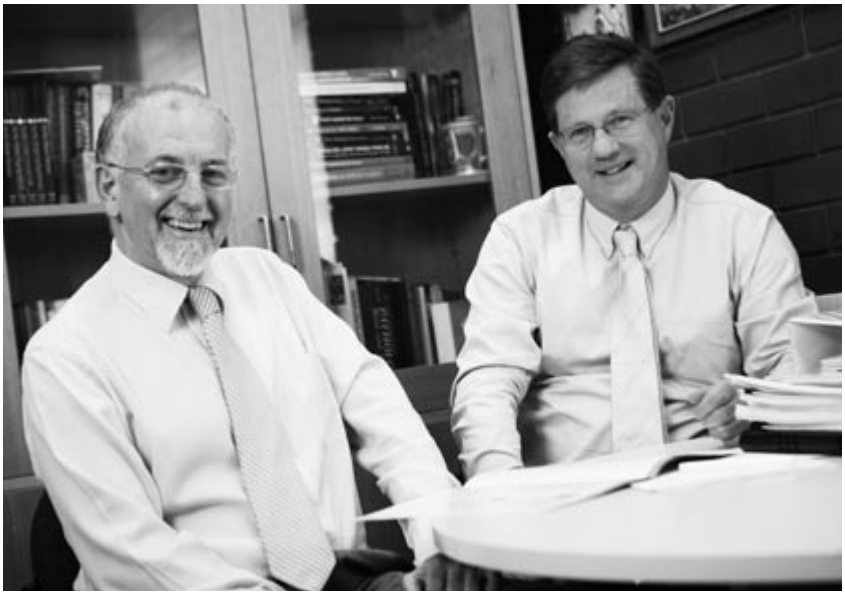
Progress has been slower than anticipated due to the limitations on access to the scanning equipment, which is in full use for medical diagnostic purposes, but testing has now been completed and analyses have commenced on the data that was collected.

Cystic Fibrosis Mortality in Australia

This project is examining trends in mortality from cystic fibrosis in Australia using data supplied by the Australian Institute of Health and Welfare and lung transplant units of hospitals in Melbourne and Sydney. Of research interest, is whether modern treatments have increased survival from birth, and whether the outcomes differ for males and females. Activities during 2007 were confined to the time-consuming tasks of seeking ethics approvals and to obtaining and cleaning the data.

Jockey Falls and Performance Attributes

During 2007, in the first phase of this project, a comprehensive database of race day falls by jockeys in Australia has been compiled. It covers race meetings conducted by Principal Racing Authorities (PRA) from each state and territory of Australia during the period from 1 August 2002 to 31 July 2006. The reports of stipendiary stewards from those meetings were collated, information on falls was extracted from them, and this information was linked to race field information supplied by Racing Information Services Australia (RISA) with 1:1 matching on race date, race course, race number, jockey name and horse name. The database contains data on 3,360 jockey falls resulting in 861 injuries from 748,367 rides in 75,434 races and 10,373 race meetings.



Associate Professor Leigh Blizzard and Dr Stephen Quinn work together in the area of biostatistics

The data will be used to study the potentially modifiable factors that are associated with falls and injuries.

Vietnam and WHO Projects

Survey of Risk Factors for Cardiovascular Diseases and Diabetes in Can Tho

Analysis continued of the results of this survey, that was conducted in collaboration with the Can Tho University of Medicine and Pharmacy. Interim results were presented at a meeting with Dr Nguyen Do Nguyen and members of his staff at the School of Public Health of the University of Ho Chi Minh City in November. Informal comparisons were made with the results of a survey of Ho Chi Minh City (HCMC) conducted by Dr Nguyen using the same methodology. A decision was made at that meeting to pool the data from the Can Tho and HCMC surveys to enable formal analyses of urban-rural differences.

Integrated surveillance system for non-communicable diseases in Vietnam

The aim of this project is to develop a sustainable system for surveillance of non-communicable disease (NCD) in Vietnam. The focus of initial action is on heart disease and stroke, diabetes mellitus and cancer. Primarily what is sought is a nationally coordinated system for assembling information on the incidence/prevalence of those chronic diseases and their modifiable risk factors, enabling these to be tracked over time in response to national strategies to prevent and manage NCD. The project has two further arms of healthy lifestyle intervention and monitoring clinical outcomes of NCD management.

To initiate the project, Dr Phung Ngoc Hai (Project Manager) was relocated to Hanoi for a year until June 2007. During that time an office for the project was established in the Department of Therapy in Hanoi and Dr Tran Thanh Huong, a local Hanoian, was appointed to manage it. Project officers for the surveillance and clinical services arms of the project have been recruited, together with two administrative assistants. Further appointments will be made in 2008. A strategic plan has been developed, sentinel sites for surveillance of NCD and risk factors have been selected, and a team of

consultants from Menzies travelled to Hanoi and HCMC in November 2007 to commence training.

WHO Fellowship Training Program

In August 2007, Menzies provided a four-week program of training in population survey methodology, and in health promotion through tobacco control and physical activity interventions, to World Health Organisation Fellows from Iraq, Malaysia, Mongolia and the Philippines. The senior project officer from the NCD office in Hanoi, and two key collaborators from the Ministry of Health in Vietnam, attended the population survey component of the program.

WHO Short-term Consultancy, Brunei Darussalam

In September 2007, A/Prof Leigh Blizzard undertook a short-term consultancy to the Government of Brunei Darussalam on behalf of the World Health Organisation. The purpose of the consultancy was to develop a plan for national surveillance of risk factors for non-communicable disease in that country.

The Cognition and Type 2 Diabetes in Older Tasmanians (CDOT) Study

Diabetes mellitus is considered by some to be a form of accelerated ageing affecting several organ systems including the brain. There is good evidence supporting its association with an increased risk of cognitive impairment and dementia. However, the mechanisms of cognitive decline in diabetes remain poorly understood and present an important area for investigation.

The primary aim is to study mechanisms of cognitive decline in type 2 diabetes mellitus, postulating an important role for cerebrovascular disease, neurodegeneration and advanced glycation end products (AGEs).

This project commenced in 2007. Field staff members were recruited, ethics approval was obtained, study protocols were fully developed and field-tested, and a standard recruitment strategy was devised with the assistance of the National Diabetes Service Scheme (NDSS). Recruitment of the expected 300 participants commenced and, commencing in January 2008, the first participants will attend study clinics.

The Tasmanian Study of Cognition and Gait (TASCOG) Study

This is a study of cerebrovascular mechanisms underlying gait, balance and cognition in a population-based sample of Tasmanian people aged at least 60 years. The primary aim is to measure brain structural changes identified by magnetic resonance imaging (MRI), and to examine in detail the effect of their volume and location on key aspects of brain function (gait, balance and cognition). A further aim of the study is to discover factors that can be modified or treated in order to prevent dementia and falls, and thus contribute in a significant way to improving the health of older Australians.

Recruitment of the 400 study participants is now complete. MRI scans have been segmented for cerebral white matter hyper intensities (WMH) in 390 people. Our analyses indicate that WMH and atrophy are correlated with several gait and balance variables, and these data have been presented at the International Meeting of the Vascular Cognitive and Behavioural Society and at several national scientific meetings. A manuscript reporting the findings is under review. We have also published two manuscripts, one showing that gender modifies the effect of ageing on gait in older people, and the other being a statistical paper explaining procedures that can be used to deal with outlier data in our sample. Several other analyses are in progress, with two PhD students and a research master's student involved with those investigations. The team was successful in winning a project grant from the National Health and Medical Research Council in the 2007 round of funding to follow-up this cohort of participants over the next four years.

Cancer and Immunology

RESEARCH – Member:
Dr Adele Holloway

THEME AREA:
Cancer and Immunology

RESEARCH TEAM:
Phillippa Oakford, PhD Student

Owen Sprod, PhD Student

William Upcher, Honours Student

EXTERNAL COLLABORATORS:
Prof Frances Shannon, John Curtin School of Medical Research, Australian National University

Dr Sudha Rao, John Curtin School of Medical Research, Australian National University

FUNDING BODIES:
David Collins Leukaemia Foundation

Royal Hobart Hospital Research Foundation

Dr Adele Holloway leads a team in the area of cancer and immunology

Deregulation of Gene Expression by RUNX1 Fusion Proteins in Leukaemia

The RUNX1 (or Acute Myeloid Leukaemia 1) protein is altered in a significant proportion of leukaemias. This project aims to investigate how an altered RUNX1 protein, called RUNX1/ETO, functions within cells in order to understand how it contributes to the development of leukaemia.

RUNX1 regulates the expression of a factor called GM-CSF, which is important for normal blood cell growth. GM-CSF is expressed in normal myeloid cells, but not in cells containing the leukaemia-associated RUNX1/ETO protein. We have found that this is because when RUNX1/ETO binds to the GM-CSF gene it changes the environment of the gene so that it is silenced. However, we have found that treating the RUNX1/ETO containing cells with pharmacological agents called histone deacetylase inhibitors can reverse these changes, allowing the GM-CSF gene to be switched back on.

Switching Genes on in Immune Cells: How does Basal Chromatin Structure Predict Cytokine Gene Responses?

Cells within the immune system are activated to fight infection by producing a host of signalling molecules called cytokines. Immune diseases arise when these genes are not switched on at the correct time and place. This project aims to determine how particular marks or 'tags' associated with the DNA encoding cytokine genes controls their ability to be switched on in response to immune signals.

The DNA environment of a gene can be changed by the presence of different epigenetic marks or 'tags'. We have identified a number of epigenetic 'tags' that mark the GM-CSF cytokine gene in a particular way only in cells in which it can be switched on. We have found that GM-CSF becomes overproduced if we increase the amount of these 'tags' associated with the gene.

Furthermore, by adding these tags to the gene in other cell types we are able to switch the gene on in cells where it is not normally produced. We are now in a position to determine whether the inappropriate expression of GM-CSF in immune diseases is associated with changes in these 'tags'.

Cancer and Immunology

RESEARCH – Member:
Associate Professor Greg Woods

THEME AREA:
Cancer and Immunology

RESEARCH TEAM:
Ms Vicki Carroll, Technical Officer

Mrs Jill Chuckowree, Technical Officer

Mr Mark Cozens, Technical Officer

Mrs Narelle Phillips, Technical Officer

Miss Shannon Ray, Technical Officer

Mr Nicholas Casey, PhD Student

Mr Alexandre Kreiss, PhD Student

Dr Roslyn Malley; PhD Student

Miss Heather McGee, PhD Student

Mrs Deborah Scott, PhD Student

LOCAL COLLABORATORS:
Prof H Konrad Muller, Head – School of Medicine, UTAS

Dr Silvana Bettiol, Lecturer in Mircrobiology, School of Medicine, UTAS

EXTERNAL COLLABORATOR:
Prof Mary Norval, University of Edinburgh

FUNDING BODIES:
National Health and Medical Research Council

The Cancer Council Tasmania

The David Collins Leukaemia Foundation

Paul Mackay Bolton Scholarship for Cancer Research

Eric Guiler Foundation

Long Term Effects of UV-B Irradiation on the Developing Skin Immune System

Exposure to sunlight, which includes ultraviolet radiation, during early childhood has been linked to the development of skin cancer later in life. We believe that ultraviolet radiation alters development of the immune system, leading to immunosuppression in adult life. This project aims to analyse the immediate and long term effects of ultraviolet radiation on the immune system of neonatal mice, with the aim of scientifically demonstrating a link between neonatal exposure to ultraviolet radiation and skin cancer development.

The Skin Immune System in Cutaneous Carcinogenesis

Vitamin D is produced in the skin in response to exposure to sunlight. As excess sunlight can contribute to the development of skin cancer we assessed how the skin immune system and skin cancer development was influenced by vitamin D. To do this we analysed the effects of vitamin D deficiency throughout life to determine if vitamin D deficiency in mice impairs the development and function of the skin immune system as well as increasing the susceptibility to sunlight induced skin cancer.

The outcomes to date indicate that males and females respond to different extents to vitamin D. When analysing the function of the skin immune system it was found that vitamin D controls the regulation of the skin immune system more effectively in males than in females. Vitamin D protected against sunlight induced DNA damage, and this was more effective in females than in males. The role of vitamin D may explain why females are more prone to autoimmune disease but less prone to skin cancer than their male counterparts.

Analysis of a Lentivirus-Delivered shRNA to Prevent Leukaemic Cell Growth

Carefully designed short-hairpin RNAs (shRNAs) have the potential to inactivate specific cancer causing genes. This project is aimed at producing shRNAs to target a range of leukaemic genes, which will cause the leukaemic cells to either

Associate Professor Greg Woods and his team work in the area of cancer and immunology

differentiate, or to die. Either way the cells will no longer be cancer cells.

A number of lentiviral vectors to deliver the shRNAs have been tested and some of these have induced a significant knock-down of the target gene and may prove to be useful in targeted leukaemic cells.

The Immune Responses of the Tasmanian Devil and the Devil Facial Tumour Disease (DFTD)

The Tasmanian devil is currently under threat from a devastating disease known as Devil Facial Tumour Disease (DFTD). A remarkable feature of this disease is that it is directly transferred between devils. There has been no evidence for resistance against DFTD in the wild population and the species has been upgraded to endangered under the threatened species list. In order to evaluate this we analysed the immune response of the Tasmanian devil against DFTD.

We determined that the Tasmanian Devil has a competent immune response and that the transmission between devils is most likely due to a lack of genetic diversity. West coast devils have a much greater diversity than the diseased east coast and we immunised two Tasmanian Devils with irradiated DFTD tumour cells. One of these devils responded to the immunisation and when challenged with live tumour cells, resisted the disease. Hence it might be possible to protect some devils by vaccinating. Mixed lymphocyte reactions among eastern and western devils were performed, and some experiments (especially between West vs East devils) showed high reactions, supporting the evidence for increased genetic diversity in the western population.

Evaluation of Natural Products on the Immune Response and Other Related Health Parameters

Nature has provided many natural products that have the potential to promote our health. In this project we are evaluating products from the marine environment with an emphasis on boosting our immune system.

Volunteers had their diet supplemented with a “natural seafood” capsule. Analysis of the data indicated that our natural supplement only had a minor effect on the immune system, but did appear to have a beneficial effect on cold sores.

Diabetes

RESEARCH – Senior Members:

Professor Michael Clark and Associate Professor Steve Rattigan

Members: Dr Stephen Richards and Dr Michelle Keske

THEME AREA:

Diabetes

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Dr Bente Kiens, August Krogh Institute, Copenhagen, Denmark

Prof Gene Barrett, University of Virginia, USA

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FUNDING BODIES:

National Institutes of Health, USA

National Health and Medical Research Council

National Heart Foundation

Dr Michelle Keske, Associate Professor Steve Rattigan and Dr Stephen Richards conduct research in the area of diabetes and metabolism

Nutrient and Hormone Delivery to Muscle: Interactions Between Insulin and Exercise

The overall goal of the proposed studies is to define the mechanisms responsible for contraction and insulin-induced capillary recruitment in muscle.

The hypothesis is that similar mechanisms operate, with both insulin and muscle contractions acting via Nitric Oxide-dependent mechanisms. Because of capillary reserve, and different initial steps of the signalling systems stimulated by insulin and exercise, contraction will further stimulate capillary recruitment to insulin at both sub-maximal and perhaps at maximal insulin pathway stimulation.

Our research established that delivery of insulin was critical for its metabolic action in muscle. We also showed that the character of the microvascular changes in blood flow is essentially similar between

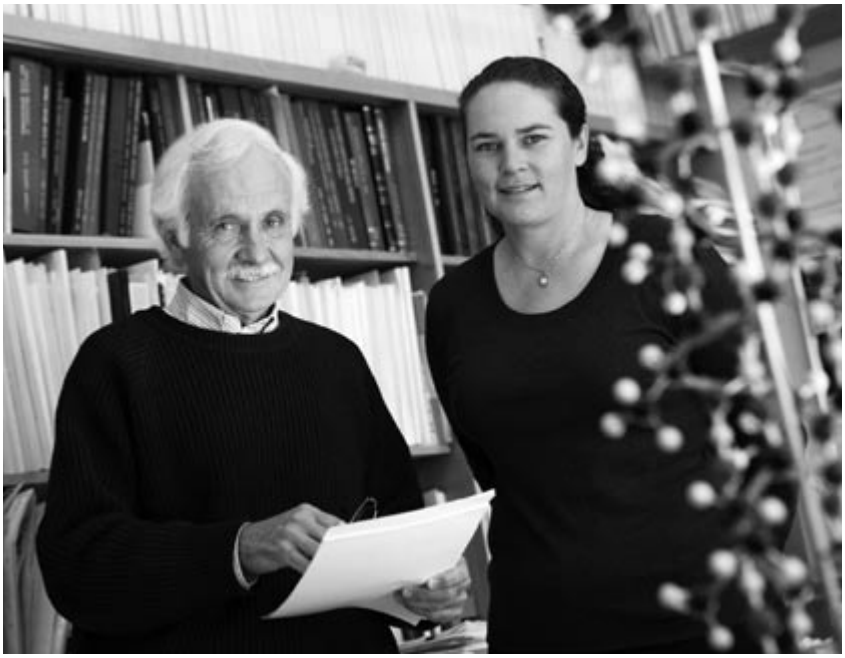
insulin and contraction. We made a number of observations concerning the involvement of endothelin-1 in redirecting flow in muscle under normal insulin action and inhibiting insulin action and contraction at pathologically high concentrations.

In addition, using contrast-enhanced ultrasound measurement of muscle capillary recruitment in vivo, we showed that AICAR (an activator of AMPK and proposed signalling kinase in exercise) stimulates capillary recruitment and may thus simulate exercise (muscle contraction) in this respect.

Central and Peripheral Actions of Insulin for the Control of Muscle Capillary Recruitment

The overall goal of the proposed studies is to explore the hypothesis that insulin controls microvascular perfusion of muscle by a central neural mechanism ending at terminal arterioles on the vasculature and endeavour to identify the details of this control. In-house novel techniques will be used for examining both the role of central control mechanisms involving the brain as well as peripheral mechanisms by local infusion of various agents likely to enhance or block insulin's microvascular action.

We have demonstrated that: (i) Centrally administered insulin failed to show any increase in muscle capillary recruitment, glucose uptake, limb blood flow or capillary recruitment, until the amount administered began to spill-over into the systemic blood and raise plasma insulin concentrations; (ii) Central administration (i.e. ICV) of a nitric oxide synthase (NOS) inhibitor, L-NMMA, had no effect on blood pressure or heart rate, but blocked systemic insulin-mediated capillary recruitment and femoral blood flow. D-NMMA, the inactive form of NOS inhibitor, had no effect when an identical dose was centrally administered; and (iii) Locally applied NOS inhibitor in the epigastric artery of the test leg blocked systemic insulin-mediated capillary recruitment. Together these findings are suggesting both a central and peripheral NO-dependent component of systemically administered insulin-mediated capillary recruitment.



Professor Michael Clark and Dr Michelle Keske discuss their research findings

Novel Therapeutic Interventions to Increase Blood Flow to Skeletal Muscle

The general aim of this project was to examine whether the cytokine IL-6 could be used to enhance nutritive blood flow in skeletal muscle and to examine the signalling pathways underpinning these effects.

To examine the signalling pathways, we studied the effect of IL-6 on AMPK, insulin signalling and nitric oxide release in human aortic endothelial cells (HAEC). To determine the physiological significance of the endothelial signalling events, control and euglycemic hyperinsulinemic clamps were performed in anesthetized rats with and without the infusion of IL-6.

Treatment of HAEC with insulin increased phosphorylation (Tyr612) of IRS1, the association of the p85 subunit of PI3-kinase with IRS1, the phosphorylation of Akt (Ser473) and eNOS (Ser1177) and nitric oxide (NO) release compared with vehicle. Contrary to our hypothesis, however, co-treatment with IL-6 blunted these responses and also reduced phosphorylation of AMPK (Thr172) compared with vehicle. Consistent with the effects observed in endothelial cells, infusion of IL-6 blunted the insulin mediated increase in capillary recruitment. In contrast with these effects, IL-6 increased Akt phosphorylation (Ser473) in hind limb skeletal muscle and enhanced whole body glucose disappearance and hind limb glucose uptake during the euglycemic hyperinsulinemic clamp.

These results demonstrate that IL-6 plays opposing roles on insulin stimulated blood flow and glucose metabolism and highlights the complex role of this cytokine in the aetiology of whole body metabolism.

Genetics and International Health

RESEARCH – Senior Member:

Professor Simon Foote

THEME AREA:

Genetics and International Health

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Professor Ray Lowenthal, Clinical Oncologist

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Dr Russell Thomson, Research Fellow

Dr Devindri Perrera, Research Fellow

Ms Andrea Polanowski, Research Assistant

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Dr Stephen Quinn, Research Fellow

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Ms Annette Banks, Genealogist

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Jason Smith, School of Chemistry, UTAS

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Dr James McKay, Research Fellow, International Agency for Research on Cancer, France

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FUNDING BODIES:

Howard Hughes Medical Institute, USA

Murigen Therapeutics

National Collaborative Research Infrastructure Strategy, Department of Education, Science and Training

National Health and Medical Research Council

Australian Cancer Research Foundation

Perpetual Trustees

The Cancer Council Tasmania

David Collins Leukaemia Foundation

Max Bruce Trust, administered by Peter Worrall Lawyers

Mazda Foundation

Royal Hobart Hospital Research Foundation

ANZ Charitable Trusts

State Trustees

The Role of Platelets in Malaria Infections

Platelets play an important role in the early stages of malarial infection. We have demonstrated that they can directly kill a malarial parasite inside the red cell. This happens in an infection in mice, but we have also demonstrated that it is also true for cultured human malaria. Inhibitors of platelet activation can prevent platelets from killing malarial parasites. This is a particularly important finding as aspirin, an inhibitor of platelet activation, also prevents platelets from killing parasites. Aspirin is still the antipyretic agent of choice in the third world where malaria is rife.

Finding Suppressor Mutations for Epilepsy

A large-scale screen in mice has almost come to an end. This screen has been using the drug, kainic acid, to induce epilepsy in mice and to screen many progeny of ENU-treated animals to identify animals that do not fit. This screen has been perfected and around 30 animals have been progeny tested. Unfortunately, very few of these produced progeny with an altered phenotype.

Identifying Host Targets for Novel Anti-Malarial Therapy Using an ENU Suppressor Screen

The problem with current anti-malarial therapy is that it targets the parasite and the parasite then develops resistance, by changing either the target or its metabolism. We believe that if we were to target host molecules that are required by the parasite, then we could circumvent the problem of resistance as the parasite would not be able to easily evade the action of the drug. We are screening the progeny of mice treated with ENU

to identify mice that are resistant to infection by malarial parasites. Mutations in genes rendering mice resistant may also prove to be therapeutic targets. This screen will take several years but the first mice have been screened.

Identifying Host Targets for Novel Anti-Malarial Therapy Using a Bioinformatics Approach

We have taken a different approach to identify host targets for anti-malarial drugs. We have found several genes that produce proteins in red cells, but do not do so in the malarial parasite, despite all predictions to the contrary. We know that the parasite imports some of these proteins from the red cell. We are beginning to develop new molecules to target some of these proteins. We can inhibit the growth of the malarial parasite by the use of enzymatic inhibitors of some of these proteins, indicating that a host-directed therapeutic strategy may prove successful.

The Tasmanian Familial Haematological Malignancies Research Study

Leukaemia, lymphoma and myeloma are cancers of blood cells (haematological malignancies). These affect both children and adults, with over 6,400 cases diagnosed each year in Australia. Therapies and survival rates have improved, however treatments such as chemotherapy and bone marrow transplantation are associated with considerable morbidity and mortality. There remains an urgent need to understand the underlying causes of these haematological cancers. Elucidation of the genes predisposing individuals to developing these cancers will assist in understanding the process of development of disease and reveal new strategies for treatment. Knowledge of susceptibility genes will also help us understand how environmental risk factors may interact with these identified genes to influence risk of disease and disease course.

The study of families with multiple cases of disease offers a powerful approach to finding the genes that contribute to development of the disease. More than 200 families with multiple cases of haematological malignancies have been identified.

Professor Simon Foote works in genetics

Six very large families have been prioritised for recruitment. Over 200 individuals have participated to date. Of particular interest is one large family, with DNA samples collected from affected and unaffected individuals, in this priority family for genetic analysis. Using the Affymetrix HMA250K SNPchip platform available at the Australian Genome Research Facility, genetic profiles for these individuals have been generated.

Our biostatistical team, Dr Jim Stankovich, Dr Russell Thomson and Dr Devindri Perrera, have performed the highly complex genetic analysis required, revealing two genetic regions of interest. Subsequent work in the laboratory has identified and confirmed a single genetic region likely to harbour a gene contributing to genetic susceptibility to blood cancers in this family.

The Tasmanian Familial Prostate Cancer Genetics Study

Every year around 18,000 Australian men are diagnosed with prostate cancer, and more than 2,800 die, making prostate cancer the second largest cause of male cancer related death. There remains a great need to improve our understanding of the contributing factors determining onset and progression of prostate cancer through the elucidation of the underlying genes causing disease. Our study aims to identify those genes which predispose individuals to developing prostate cancer, and also those genes contributing to progression of this disease.

The study of families with multiple cases of prostate cancer is a powerful approach used to identify the genes that cause disease. Our team has developed a rare dataset comprising a number of such families. An in depth examination of the genetic profiles of individuals with and without prostate cancer has been conducted. This analysis has identified a gene on chromosome 5p, significantly associated with prostate cancer risk. Further work designed to gain a better understanding of how this gene may influence the development of prostate cancer, is also currently being undertaken.

Ms Liesel FitzGerald was awarded her PhD in 2007 and has accepted a post-doctoral position at the prestigious Fred Hutchinson Cancer Research Centre, USA.

Neuroscience and Multiple Sclerosis

RESEARCH – Senior Members:

Professor Anne-Louise Ponsonby and Associate Professor Bruce Taylor

Member:

Dr Ingrid van der Mei

THEME AREA:

Neuroscience and Multiple Sclerosis

RESEARCH TEAM:

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Jillian Burrill, Project Officer

Jenny Cochrane, Data Manager

Professor Simon Foote, Director

Carol Hurst, Research Assistant

Professor Graeme Jones, Senior Member

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Steve Simpson, PhD Student

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Professor Terry Dwyer, Murdoch Childrens Research Institute

Dr Peter Giles, Australian Radiation Laboratory

Alison Jacob, Partner Investigator, Department of Education

Associate Professor Jill Keeffe, University of Melbourne

Professor Andrew Kemp, University of Sydney

Luca Litewka, St Vincent's Hospital

Dr Robyn Lucas, Australian National University

Professor George Patton, Murdoch Childrens Research Institute, University of Melbourne and Royal Children's Hospital

Angela Pezic, Murdoch Childrens Research Institute

Dr Elizabeth Williamson, Murdoch Childrens Research Institute

Professor Ann Richardson University of Otago NZ

Associate Professor Clive Sabel UC London

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ANZGENE consortium

AUSIMMUNE collaboration

FUNDING BODIES:

Australian Research Council

Financial Markets for Children Foundation

Ian Potter Foundation

MS Society of Tasmania

MS Trish Foundation

National Health and Medical Research Council

Royal Hobart Hospital Research Foundation

US MS Society

HRC New Zealand

MS Research Australia

ANZGENE

ANZGENE is an Australian and New Zealand collaborative group recruiting patients with MS to undertake a genome wide SNP scan on 3,000 cases. We aim to discover genes that may contribute to the causation and progression of Multiple Sclerosis (MS). Menzies is coordinating the Tasmanian and New Zealand nodes of the study. This study is funded by MS Research Australia and an ARC linkage grant.

The study commenced recruiting cases in 2007 and 156 Tasmanian cases were included in the first stages. Collection of another 200 Tasmanian cases is underway. New Zealand study recruitment has commenced and will be completed by June 2008.

Tasmanian MS Genes and Prevalence Study

This study aims to document the prevalence of MS in Tasmania and the economic burden of MS to the individual and community. It is also designed to study how Tasmanians have possibly inherited MS from a few distant ancestors (founder effect). Genetic material from this study is also contributing to the ANZGENE project.

Study commenced late 2007.

New Zealand MS Prevalence Study

This study commenced in 2006 with the aim of identifying all persons living with MS in New Zealand. It is also designed to study the affect of latitude of residence throughout a person's life on the risk of developing MS.

Recruitment of nearly 3,100 people with MS in New Zealand will be completed in February 2008.

Associate Professor Bruce Taylor is helping to unravel the puzzle of multiple sclerosis

AUSIMMMUNE Study

This is an Australian multicentre study of first demyelinating events in the central nervous system that may represent the first attack of MS. This large national project was designed to investigate why the prevalence of multiple sclerosis varies by latitude across Australia and to what extent environmental factors can explain this regional variation.

This study is looking at the effect of latitude (centres are Brisbane, Newcastle, Geelong and Tasmania) on development of first demyelinating events.

Participant recruitment was completed during 2007 and follow up interviews have commenced.

MS Research Australia has continued to support the Ausimmune Study during 2007. Funding for extension for a further two years has been submitted to the National Health and Medical Research Council.

MS Longitudinal Study in Southern Tasmania

This study intensively followed a cohort of 200 people with MS resident in Southern Tasmania between 2002 and 2005 to test how various environmental factors contributed to the progression of MS.

Study analysis has continued in 2006. Researchers are focussing on environmental determinants of disease progression, for the purpose of developing new interventions to slow MS progression. Further funding was then obtained to allow genetic assessment of disease progression, with a special emphasis on immunogenetics.

Extensive analysis of all cohort data continued in 2007 resulting in the completion of 4 manuscripts for publication. Intensive analysis of this cohort is continuing.

An examination of the effect of smoking on disease progression among people with MS was conducted. This report has been submitted for publication.

An assessment was conducted on adherence to immunomodulatory therapy among people with MS and the factors that were associated with non-adherence or cessation of this treatment. This report is now in press.

An assessment of whether relapses with MS were associated with climatic conditions or season was conducted and a report submitted for publication.

Other work on how other environmental or genetic factors are associated with MS progression continues.

Additional funding was obtained from the National Health and Medical Research Council to examine the link between infection and disease progression more intensively in this cohort.

The Tasmanian Environmental Control Study of MS

This case control study has been very informative to date and this was recognised by the National Health and Medical Research Council in a report on the most productive National Health and Medical Research Council grants funded from 1999–2003. The study has provided information on the possible role of early life factors such as low sun exposure, low contact with infants and infection in determining the risk of MS. The study team is now working with the genetics group to explore gene-environment interactions in MS.

Three separate papers on different gene-environment interactions were developed in 2007 and one of these has been submitted.

Dr van der Mei visited Harvard University and collaborative work between Harvard University and Menzies commenced in 2007.

Does Binocular Vision Training Enhance Literacy among Children with Low Literacy?

Past work has shown that some children with normal intelligence have reading problems because of problems coordinating both eyes to read visual images. The Literacy Pathways project screened for vision coordination problems among children with low literacy. Children who were found to have problems with their binocular vision were invited to participate in an educational trial designed to improve their reading.

The vision screening of eligible children was completed in 2006. The study design for the randomised control trial was finalised and the Project Officers completed their training for the interventions. One hundred and twenty-one children were eligible for the ten week trial and 89 children agreed to participate. Seventy-nine children completed the post-assessments.

The six month follow-up was conducted in the first half of 2007. Two reports were prepared. The first report examines how common poor binocular vision is among poor readers and the factors and disorders that are associated with poor binocular vision. The second report involves a randomised controlled trial analysis comparing the three different approaches evaluated as part of the formal trial.

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Neuroscience

RESEARCH – Senior Members:

Associate Professor Meng Inn Chuah and Associate Professor Adrian West

Member: Dr Roger Chung

THEME AREA:

Neuroscience

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Associate Professor Rannar Sillard, Estonia

Associate Professor Steve Cheung, Singapore

Dr Marc Ruitenberg, University of Western Australia

FUNDING BODIES:

National Health and Medical Research Council

Australian Research Council

Clive & Vera Ramaciotti Foundation

Alzheimer's Australia Foundation

Defence Science and Technology Agency, Singapore

Royal Hobart Hospital Research Foundation

Using Metallothioneins as a Model for Understanding Cellular and Biochemical Interactions between Neurons and Astrocytes within the Brain (ARC Discovery Project)

We have recently identified a novel and major neuroprotective mechanism within the injured brain, involving an interaction between injured neurons and the major supporting cell within the brain, astrocytes. This involves the up-regulation and secretion of the astrocytic protein metallothionein, which is then able to directly interact with neurons to promote recovery. We propose to use this system as a model to enhance our fundamental understanding of some of the cellular and biochemical mechanisms involved in brain function. This research may also provide insight into ways of improved healthy aging.

We have had a number of important achievements this year. Using fluorescently-labelled metallothionein, we have been able to observe for the first time the intercellular transfer of metallothionein from expressing astrocytes to neighbouring neurons. We have also identified a neuronal receptor responsible for mediating the action of metallothionein. These exciting discoveries provide strong evidence to validate our research hypothesis, and provide a strong indication of the importance of metallothionein proteins in the injured brain.

Identifying the Specific Structural Features of Metallothionein that Regulate its Ability to Modulate Astrogliosis (ARC Linkage Project in collaboration with Bestenbalt LLC, Estonia)

CNS injury is rapidly detected by resident astrocytes, which respond by triggering a stereotypical pattern of molecular and morphological alterations termed "reactive" astrogliosis. There has been considerable research and commercial investment spent in identifying therapeutic agents that can modulate astroglial behaviour to promote CNS recovery following injury. Our preliminary data suggests that extracellular metallothionein (MT) acts directly upon astrocytes to modulate reactive astrogliosis. In this project we will identify the active regions of the MT molecule responsible for modulating reactive astrogliosis with the goal of developing an MT-based therapeutic for modulating astrogliosis to enhance recovery from CNS injury.

Our collaborating partner has developed novel methods for producing variants of metallothionein, which we are currently testing in our models to identify the active regions of the protein. We have also investigated how metallothionein alters the function of astrocytes within the context of the injured brain.

Can Metallothionein Protect Against Axonal Degeneration Following Traumatic Brain Injury?

Our research group has recently identified that metallothionein is a potent promoter of axon regeneration (regeneration of injured

Associate Professor Meng Inn Chuah, Dr Roger Chung and Associate Professor Adrian West work in neuroscience

neurons). The goal of this project is to investigate different methods of administering metallothionein to injured neurons, and to investigate molecular mechanisms that regulate the ability of metallothionein to promote axon regeneration.

We found that forcing neurons to express metallothionein resulted in improved regeneration following injury. We have also characterised some of the intracellular signalling pathways associated with metallothionein-mediated regeneration.

Identifying New and Novel Therapeutic Targets for Treating Mild and Moderate Brain Injury

We used DNA microarray and proteomic techniques to assess differential gene and protein expression changes caused by non-disruptive and severe axonal injury in axons and nerve cell bodies.

We have performed the microarray experiments and identified a number of novel and interesting candidate genes which may be associated with neuroprotection and/or neuroregeneration. We are currently in the process of following some of these new research directions.

Developing Metallothioneins as a Therapeutic Agent for Promoting Neuronal Recovery from CNS Injury or Neurodegenerative Disease

Neuronal dysfunction as a consequence of injury or disease has a significant impact upon the entire community. Unfortunately there are no clinical therapies currently available to either protect neurons from dying or promote neuronal recovery following CNS injury or disease. However, our recent research has identified the exciting potential of metallothionein (MT) proteins as a neuroprotective and neuroregenerative agent.
In this project, we will evaluate the therapeutic potential of MT proteins in several animal models of neuronal injury and neurodegenerative disease, including traumatic brain injury, motor neurone disease and Alzheimer's Disease.

We are in the process of a second phase of experimental trials using well established experimental models of Alzheimer's Disease and motor neurone disease. These experiments take between 12–18 months, since the experimental models mimic the progression observed for these diseases (over many years). The outcome of these trials will be known some time in 2008.

Protection of the Brain from Infection: Immune Properties of Olfactory Ensheathing Cells

This project aims to understand how tissues in the nose play a role in protecting the brain from infection. In particular, we are interested in how olfactory ensheathing cells, the supporting cells of the olfactory nerves, are able to dispose of harmful bacteria. The data show that olfactory ensheathing cells produce nitric oxide that can kill bacteria and also cytokines that activate cells of the adaptive immune system.

The findings have been presented at the Seventh IBRO World Congress of Neuroscience and the 28th Annual Meeting of the Australian Neuroscience Society.

Neuroscience

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Member: Dr Tracey Dickson

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Jerome Staal, PhD Student

Marian Quilty, PhD Student

Catherine Blizzard, PhD Student

Ruth Musgrove, PhD Student

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Associate Professor Meng Inn Chuah, Senior Member

Dr Roger Chung, Member

Professor David Small, Senior Member

Associate Professor Steve Cheung, Senior Member

Professor Andrew Robinson, Honorary Member

Associate Professor Paul Turner, Honorary Member

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Dr Paul Adlard, Mental Health Research Institute, Victoria

FUNDING BODIES:

National Health and Medical Research Council

Australian Research Council

Royal Hobart Hospital Research Foundation

Tasmanian Masonic Centenary Medical Research Foundation

ANZ Charitable Trust (JO & JR Wicking Trust)

Australian Rotary Health Research Fund

Motor Neurone Disease Research Institute of Australia Inc

University of Tasmania Foundation (Brian Marks Bequest)

Nerve Cell Plasticity and the Neuropathology of Parkinson's Disease

Parkinson's Disease (PD) is one of the most common neurodegenerative disorders. Its incidence increases steadily with age affecting approximately 1 per cent of the population at age 65 and up to 5 per cent by the age of 85. At the time of diagnosis, patients suffer from a range of motor impairments that worsen over time. Pathologically these patients are characterised by the accumulation of a protein known as alpha-synuclein in specific types of nerve cells in the brain. However, the function of this protein is unknown. This research aims to clarify the role of alpha-synuclein in PD and normal CNS function and provide new potential therapeutic targets for the treatment of PD and other neurodegenerative disorders in which oxidative stress, excitotoxicity and central nervous system trauma have been implicated.

Our studies found that the protein alpha-synuclein is upregulated in neurones in response to chronic oxidative stress and is associated with neuroprotection. Furthermore, we have determined that a similar reaction occurs in response to neuronal physical trauma, which is a risk factor for PD and also occurs across a range of nerve cell types including those

that are selectively vulnerable to PD. We have established two colonies of transgenic mice, one that models a genetic mutation in alpha-synuclein that is present in some cases of PD and another that does not produce the protein at all, therefore introducing a range of experimental possibilities for these investigations.

Cellular Degeneration in Alzheimer's Disease and Related Dementias

Alzheimer's disease is a neurodegenerative disease that progresses over the course of many years and has several pathological hallmarks, namely, β-amyloid plaques, neurofibrillary tangles and neuropil threads. Although much is now known about Alzheimer's disease there is still considerable controversy over which of the pathological hallmarks causes the disease, why only certain populations of nerve cells die and how these nerve cells degenerate in this condition. The aim of this project is to study the pathological hallmarks of Alzheimer's disease in human brains and to utilise *in vivo* and *in vitro* models to investigate the crucial cellular changes underlying neurodegeneration in this condition. In collaborative studies with Professor Andrew Robinson, we are also investigating health care systems for people with dementia.

Our studies utilising human brain tissue and transgenic mouse models of Alzheimer's disease have identified the earliest neuronal changes associated with amyloid plaque formation. These investigations provide new insights into potential therapeutic interventions that target the early brain changes of the disease, before substantial nerve cell degeneration has occurred. We also determined the particular characteristics of the pathological changes that occur in strongly inherited forms of Alzheimer's linked to mutations in the 'presenilin' genes. In collaboration with Professor Robinson, our studies on the health care system associated with dementia care have focussed on elaborating the information needs across the sector and determining the factors that lead to increased carer stress.

Dr Tracey Dickson and Professor James Vickers are neuroscientists, working on diseases such as Parkinson's and Alzheimer's

The Cause of Neural Degeneration in Motor Neurone Disease

Motor neurone disease involves the selective degeneration of the nerve cells involved in movement in the spinal cord and the cortex of the brain. The reasons for this selective degeneration and the cellular alterations resulting in nerve degeneration are unknown.The aim of this project is to investigate the mechanisms involved in neurodegeneration in the main form of motor neurone disease, amyotrophic lateral sclerosis (ALS).

This study developed novel cell culture models that replicate key intracellular changes which lead to ALS-like degeneration of spinal neurons. These studies demonstrated that filamentous (cytoskeletal) proteins within nerve cell processes are susceptible to abnormal accumulation in this disease, which may then trigger a gradual degeneration of the neuron. Our investigations also showed that overstimulation of excitatory receptors, known as excitotoxicity, can cause the disruption and accumulation of cytoskeletal proteins in distinct segments of the axon.

Axon Regeneration in the Mature Central Nervous System

Brain and spinal cord injury are major causes of death and disability. The aim of this project is to determine how nerve cells in the brain respond to injury, utilising unique cell culture models developed at the Menzies Research Institute. Our research is aimed at determining the cellular features that characterise the adaptive response of nerve axons to damage in the adult brain and comparing and contrasting these with developmental events. It may then be possible to manipulate this axonal response to injury to help damaged brains to repair themselves.

Studies in 2007 determined key similarities and differences between how mature nerve cells respond to injury as compared to the cellular features of developing neurons. Our investigation showed that damaged axons of mature neurons can sprout, but that this regenerative response is undirected and not responsive to growth factor cues that are important in initial axon growth. We also developed a new cell culture model that involves transient stretch injury to axons, modelling the forces that impinge on nerve cells in closed brain trauma. Our studies have identified key cellular changes that are linked with secondary degeneration of stretched axons.

Musculoskeletal

RESEARCH – Senior Member:

Professor Graeme Jones

Member: Dr Changhai Ding

THEME AREA:

Musculoskeletal

RESEARCH TEAM:

Dr Jane Zochling, Member

Dr Tania Winzenberg, Member/ Research Fellow

Dr Ying Jin, Postdoctoral Fellow

Dr Sandi Powell, Research Fellow

Dr Dev Mewar, Research Fellow

Dr Fiona Scott, Honorary Research Fellow

Dr Krysten Hynes, Research Fellow

Catrina Boon, Study Coordinator/ Research Officer

Pip Boon, Research Officer

Tanya O'Byrne, Research Officer

Margie Green, Research Officer

Stella Foley, PhD Student

David Scott, PhD Student

Dawn Dore, Honours Student

Jenny Flynn, Medical Student

Paulina Bhatt, Medical Student

Rob Warren, MRI Reader

Dale Pitt, Administration Assistant

Joan Clough, Data Entry

Associate Professor John Burgess, Royal Hobart Hospital

Dr Venkat Parameswaran, Royal Hobart Hospital

Dr Ray Udayan, Royal Hobart Hospital

EXTERNAL COLLABORATORS:

Prof Flavia Cicuttini, Monash University Melbourne

A/Prof Lyn March, Sydney University

Dr Catherine Hill, Queen Elizabeth Hospital, Adelaide

Prof J Martel-Pelletier, Montreal

Prof M Brown, UQ, Brisbane

A/Prof Nigel Morrison, Griffith University, Queensland

Prof F Cicuttini, Monash University Melbourne

Prof J Martel-Pelletier, University of Montreal, Canada

Prof J Xu, Anhui Medical University, China

FUNDING BODIES:

National Health and Medical Research Council

Royal Hobart Hospital Research Foundation

Arthritis Australia

Tasmania Community Fund

University of Tasmania Institutional Research Grant Scheme

T-Bone Study

We followed 415 children from birth to age sixteen, looking at factors determining bone health.

Key findings:

1. Bone density at age eight predicts fractures through puberty
2. Bone density tracks strongly from age eight to age sixteen
3. Heel ultrasound is a good predictor of fractures
4. Breastfed children have higher bone mass and lower fracture risk at age sixteen
5. Diet in utero predicts bone mass in the children at age sixteen
6. Vitamin D deficiency is very common in sixteen year olds and is associated with poorer bone health.

TASOAC

To understand the factors determining incidence and progression of osteoarthritis and osteoporosis in people aged 50–80 years old.

Key findings:

1. Low levels of inflammation in the blood predict bone loss
2. Cartilage in the knee is under both hormonal and mechanical control
3. Vitamin D deficiency is also very common in this age group
4. Development of a technique for assessing bone strength in the knee.

Vitamin D Status Over Time: Association with Knee Structural Change Assessed by MRI, Falls Risk, Change in Bone Density and Vertebral Fracture Risk in the Tasmanian Older Adult Cohort (TASOAC) Study

We determined the associations between baseline serum vitamin D levels, change in vitamin D levels over 2.9 years, baseline radiographic osteoarthritis, baseline cartilage volume, and change in cartilage volume over 2.9 years.

Key findings:

1. Vitamin D deficiency is significantly associated with more medial joint space narrowing in both right and left knees
2 Baseline vitamin D levels are positively associated with baseline medial and lateral tibial cartilage volume

Study Coordinator, Catrina Boon and Research Officer, Pip Boon

3. Higher baseline vitamin D levels predict increases in both medial and lateral tibial cartilage volume over 2.9 years
4. Change in vitamin D levels is positively associated with change in knee cartilage volume over 2.9 years.

Are Serum Inflammatory Markers Predictive of Knee Structural Changes and Bone Loss in the Elderly? Tasmanian Older Adult Cohort (TASOAC) Study

We determined the associations of serum inflammatory markers [high sensitivity C-reactive protein (hs-CRP), interleukin (IL)-6, tumour necrosis factor (TNF)-α] with bone loss over 2.9 years. Furthermore, the association between leptin and knee cartilage volume was determined.

Key findings:

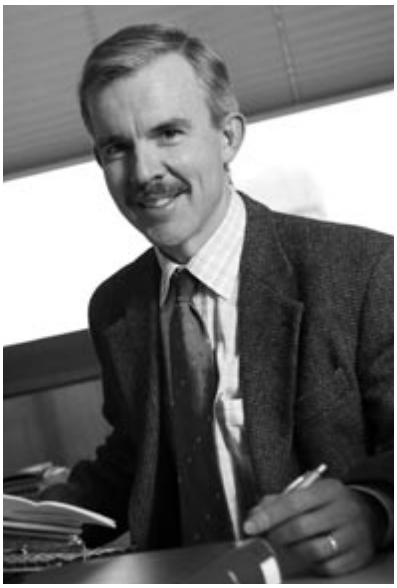
1. Bone loss was associated with baseline hs-CRP, IL-6 and TNF-α as well as change in hs-CRP and IL-6
2. IL-6 was significantly associated with hs-CRP and TNF-α, and was the most relevant marker for bone loss. These suggest inflammatory mechanism in the aetiology of osteoporosis
3. Serum levels of leptin were negatively associated with knee cartilage volume. Cartilage volume loss with obesity and female sex is related to leptin and, thus, is hormonally mediated in older adults.

Are Bone Turnover Biomarkers Associated with Knee Structural Change Assessed by Magnetic Resonance Imaging (MRI) in the Elderly?

We determined the association between baseline urinary pyridinoline/creatinine ratio (PYR/Cr), change in PYR/Cr, and change in knee cartilage volume. In addition, the association between inflammatory markers and change in PYR/Cr was determined.

Key findings:

1. Baseline PYR/Cr predicted loss of patellar cartilage volume over 2.9 years. Change in PYR/Cr was associated with loss of knee cartilage volume, but the associations did not reach significance
2. Change in PYR/Cr was positively associated with baseline IL-6, hs-CRP and their changes in women but not men.



Professor Graeme Jones heads up the musculoskeletal team

Musculoskeletal

RESEARCH – Member:
Dr Jane Zochling

THEME AREA:
Musculoskeletal

RESEARCH TEAM:
Professor Graeme Jones, Senior Member/Professorial Research Fellow

Dr Steven Quinn, Biostatistician

EXTERNAL COLLABORATORS:
Professor David Kilpatrick, University of Tasmania

Professor Juergen Braun, University of Bochum, Germany

Professor Maxime Dougados, Hospital Cochin, Paris, France

FUNDING BODIES:
Department of Health and Human Services

Abbott Australia

Tasmanian Ankylosing Spondylitis Study (TASS)

Ankylosing spondylitis (AS) is a rheumatic disease that causes arthritis of the spine and joints of the lower back and can cause inflammation of the eyes, lungs and heart valves. It can vary from intermittent episodes of back pain that occur throughout life to a severe chronic disease that attacks the spine, peripheral joints and other body organs, resulting in severe joint and back stiffness.

AS affects one in 200 Australians and occurs in twice as many men as women. AS usually has its onset between the ages of 16 to 35. The cause of AS is unknown but there appears to be a strong genetic link. Dr Zochling is initiating an inception cohort of AS patients in order to investigate prognostic markers, disease activity and functional impairment in this disease.

Tasmanian Systemic Sclerosis Epidemiology Study (TASSiE)

This study is investigating the prevalence and clinical features of systemic sclerosis (also called scleroderma) in Tasmania. A database of people with systemic sclerosis has been set up to look at the epidemiology of the disease, and a number of people with primary Raynaud's disease have been included as controls.

There are already over 120 patients with systemic sclerosis and 80 patients with Raynaud's disease participating in the study.

Australian Scleroderma Screening Program (ASSP)

Participants in the TASSiE study also have the opportunity to be a part of the nationwide ASSP study, a part-clinical and part-research program which helps to ensure people with systemic sclerosis (scleroderma) receive timely and appropriate medical follow-up, in particular with regard to the potentially devastating complications of pulmonary fibrosis and pulmonary hypertension. Professor David Kilpatrick is providing cardiology expertise for the study.

Over 120 patients have participated in this program in 2007, and preliminary results will be available this year.

3e (Evidence, Expertise, Exchange) in Rheumatology

An international collaboration of rheumatologists, supported by an unrestricted educational grant from Abbott Australia, have come together to develop national and international recommendations based on research evidence and clinical expertise to aid rheumatologists in their daily clinical practice.

Development and publication of the Australian Recommendations for the Management of Ankylosing Spondylitis, and the International Evidence-Based Recommendations for the Management of Ankylosing Spondylitis has resulted. Preliminary development of the Australia New Zealand and the International Recommendations for the Use of Methotrexate in Rheumatic Diseases has also been completed.

Dr Jane Zochling works in rheumatic diseases, Ankylosing Spondylitis

Musculoskeletal and Primary Health Care

RESEARCH – Member:
Dr Tania Winzenberg

THEME AREA:
Musculoskeletal and Primary Health Care

RESEARCH TEAM:
Professor Graeme Jones, Senior Member and Head Musculoskeletal Unit

Professor Mark Nelson, Senior Member

Dr Kelly Shaw, Honorary Associate

Ms Pam Reid, Research Assistant

Dr Kate Greenhill, Research Assistant

FUNDING BODIES:
National Health and Medical Research Council

Royal Australian College of General Practitioners, Cardiovascular Research Grants in General Practice

Masonic Centenary Medical Research Foundation

Dr Tania Winzenberg's research interests are in musculoskeletal and primary health care

The Assessment of Physical Activity in General Practice

This project is aimed at improving knowledge in the area of physical activity (PA) assessment by general practitioners (GPs) as little is known about PA assessment in general practice.

The first part of the study investigates how GPs describe their current practice of assessing the PA of their patients through interviews with 15 GPs.

The second study aims to determine whether or not PA measured by GPs obtaining self-report from their patients is an accurate way of determining whether patients meet recommended PA levels. It compares GP's assessments with an objective PA measure made using an accelerometer. This measures the frequency, duration and intensity of PA.

The results of these studies will improve current knowledge of how GPs assess PA, and will be used to guide further research into developing innovative ways to promote PA in the general practice setting.

For the first part of the study, interviews with 15 GPs were completed and transcription and analysis is underway.

Data collection for the second part of the study commenced in late 2007.

Musculoskeletal Conditions – What's New from Cochrane and How Might this Affect Your Practice?

This project aimed to improve dissemination of the results Cochrane Collaboration systematic reviews in the musculoskeletal area to general practitioners. Dr Winzenberg, in collaboration with the Cochrane Musculoskeletal Group, co-ordinated a series of case-based articles using evidence from Cochrane reviews for the Australian Family Physician, the peer-reviewed national journal of the Royal Australian College of General Practitioners. These were written by Tasmanian general practitioners and rheumatology specialists.

This project led to the publication of six articles in 2007 with a further two articles to be published in 2008.

Population Health, Cancer and Cardiovascular Disease

RESEARCH – Senior Member:

Associate Professor Alison Venn

THEME AREA:

Population Health, Cancer and Cardiovascular Disease

RESEARCH TEAM:

Dr Seana Gall, Research Fellow

Dr Sue Pearson, Research Fellow/Lecturer

Dr Kristy Sanderson, Member

Dr Michael Schmidt, Research Fellow

Dr Russell Thomson, Biostatistician

Petr Otahal, Statistical Officer

Marita Dalton, CDAH Project Manager

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Helen Jordan, PhD Student

Costan Magnussen, PhD Student/ Junior Research Fellow

Charlotte McKercher, PhD Student

Kylie Smith, PhD Student

Shuying Wei, Honours Student

Shirley Catchpole, Administrative Assistant

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Prof George Patton, Murdoch Childrens Research Institute

Prof Paul Zimmet, International Diabetes Institute

Prof David Crawford, Deakin University

Dr Verity Cleland, Deakin University

Dr Sarah McNaughton, Deakin University

Prof Olli Raitakari, University of Turku, Finland

Prof Gerald Berenson, Tulane University, New Orleans, USA

Assoc Prof Dorota Gertig, University of Melbourne

Assoc Prof Anne Kavanagh, University of Melbourne

Prof John Hopper, University of Melbourne

Prof Mal Horne, Howard Florey Institute

Dr Justin Rubio, Howard Florey Institute

FUNDING BODIES:

Cass Foundation

National Health and Medical Research Council

National Heart Foundation

Rebecca L Cooper Foundation

Royal Hobart Hospital Research Foundation

Tasmanian Community Fund

The Sanitarium Health Food Company

The Cancer Council Tasmania

Veolia Environmental Services

The Childhood Determinants of Adult Health (CDAH) Study

The CDAH study is a follow-up of 8,498 children who participated in the 1985 Australian Schools Health and Fitness Survey when they were aged between seven and 15 years. Extensive measures of body composition, fitness and lifestyle were collected in 1985 and again 20 years later. At follow-up 2,410 participants attended one of 34 study clinics Australia-wide and a further 1,585 completed questionnaires. The study aims to examine associations between childhood factors and the risk of cardiovascular disease and type 2 diabetes in adulthood. Associations between childhood factors and adult mental health and bone health are also being explored.

Following the completion of data collection in 2006, data analysis was the main focus of our work in 2007. Results from the study have demonstrated the importance of overweight and obesity in childhood as predictors of obesity in adulthood; the importance of smoking experimentation in childhood and parental smoking as predictors of smoking in adulthood; and the role of body weight and physical fitness in childhood in predicting adult bone mass. Other analyses have examined the role of physical activity in healthy weight maintenance; the effect of compulsory school physical activity on total activity and obesity levels in childhood and adulthood; the relationship between TV viewing and obesity; and the associations between different measures of physical activity and fitness with cardio-metabolic disease risk factors.

International Collaboration on Cardiovascular Disease Risk from Childhood to Adulthood

Very few studies internationally have the capacity to examine the contribution of childhood factors to the risk of cardiovascular disease in adulthood. Those that do, have extensive measures of physical and lifestyle characteristics at multiple time points, and large numbers of participants followed since childhood. This international collaboration has been established to pool data from three such studies: the Childhood Determinants of Adult Health Study conducted at Menzies, the Cardiovascular Risk in Young Finns Study from Finland, and the Bogalusa Heart Study from the USA. By pooling data, we have greater ability to examine rare outcomes and, when findings are consistent across the three cohorts, more confidence in the results.

Our first collaborative project was completed in 2007. It investigated the utility of two currently recommended paediatric dyslipidaemia classifications (for blood cholesterol and triglycerides) in predicting dyslipidaemia in adulthood. The study found that the two classifications had different strengths; one better predicted high density lipoprotein cholesterol and the other better predicted total and low density lipoprotein cholesterol and triglycerides. These findings will be very helpful when existing paediatric dyslipidaemia guidelines are updated.

Tall Girls Breast Density Study

While uncommon in recent years, estrogen treatment to reduce growth in tall girls has been available since the 1950s. This study aims to find out whether this treatment has had any long-term effects on breast tissue. One of the features of breast tissue is the proportion of dense tissue that appears on a breast x-ray (mammogram). This feature, referred to as mammographic density is recognised as a risk factor for breast cancer. Mammographic density is known to be affected by hormones such as estrogen, but it is not known whether hormone levels in adolescence have any long-term effects on the breast.

Women aged 40 years and over, who had been assessed or treated for tall stature as adolescents, and had participated in a previous follow-up study of the effects of treatment, were invited to participate in this study. Data collection was completed in 2007 with 169 treated and 142 untreated tall women having telephone interviews and providing a mammogram for breast density measurements. In summary, the study has found that treated women had a significantly lower absolute dense area than untreated women, suggesting that treatment may have reduced growth of mammographically dense breast tissue as well as reducing growth in height.

The Tasmanian Parkinson's Disease Research Project

Parkinson's disease is a common brain disease, second only in frequency to Alzheimer's disease in people over the age of 60. It is estimated that at least 100,000 Australians suffer from Parkinson's disease. The Tasmanian Parkinson's Disease Research Project is examining the genes that cause Parkinson's disease and aims to discover other genes that have not been linked to the disease before. Identifying inherited risk factors will provide a better understanding of the way that Parkinson's disease develops and is an important step towards preventing and treating the disease.

DNA and medical information have been collected from two groups of Tasmanians: (1) those with a strong family history of Parkinson's disease, and (2) those with Parkinson's disease who are being treated with the drug L-Dopa. Findings from the family study showed that a mutation in the leucine-rich repeat kinase 2 gene (LRRK2) was associated with Parkinson's disease. These findings were published in 2007 along with similar results from other research groups in Australia. Further genetic testing of the DNA samples from L-Dopa treated patients was carried out by our collaborators at the Howard Florey Institute in Victoria.

Associate Professor Alison Venn and her research team

Population Health

RESEARCH – Member:
Dr Kristy Sanderson

THEME AREA:
Population Health

RESEARCH TEAM:
Ms Fiona Cocker,
Research Assistant

LOCAL COLLABORATOR:
Angela Martin,
School of Management

EXTERNAL COLLABORATORS:
Associate Professor Nicholas Graves, Queensland University of Technology

Associate Professor Jan Nicholson, Murdoch Childrens Research Institute

Prof Brian Oldenburg, Monash University

FUNDING BODIES:
Australian Rotary Health Research Fund

National Health and Medical Research Council

Dr Kristy Sanderson is interested in chronic disease and depression

A Prospective Study of Mental Health and Productivity in the Call Centre Industry

The nature of the working environment may have independent effects on mental health and productivity in employees, and thus is potentially an important target for intervention to complement clinical interventions. This project aimed to investigate the inter-relationships between depression and anxiety symptoms, perceptions of the psychosocial working environment, and productivity in a cohort of employees from the call centre industry.

Until recently, measurement of health-related impairment from coming to work ill ("presenteeism") was rudimentary. Using a new generation of presenteeism measures, we showed that choice of presenteeism measure is important as they vary in their sensitivity to mental health-related work impairments. We showed that much of the mental health and economic burden in employees was associated with work factors under the control of management; thus failure to address work environment may counteract the efficacy of clinical interventions. This work was the subject of a number of publications and conference presentations in 2007.

Depression and Anxiety in the Workplace: The Costs and Outcomes of Working While Ill

Depressive and anxiety disorders are common in the working population and potentially costly. Individuals can continue working while ill, or take an absence from work. Whichever of these actions is taken has potential health and economic consequences for themselves, co-workers, and employer. This study is systematically evaluating the economic cost and health outcomes of working while ill versus work absence.

We designed a new approach to address this important question, which draws on existing and published data to develop descriptive epidemiological and economic models. These models are being developed throughout 2008-09 with the support of a National Health and Medical Research Council project grant. We hope to better inform employees, employers and clinicians on how to manage these common health conditions.

The Costs of Chronic Disease in the Workplace from Employee and Employer Perspectives

Accurate evidence on the cost of chronic illness in terms of lost productivity associated with absenteeism and presenteeism is essential for understanding the economic impact on the individual,

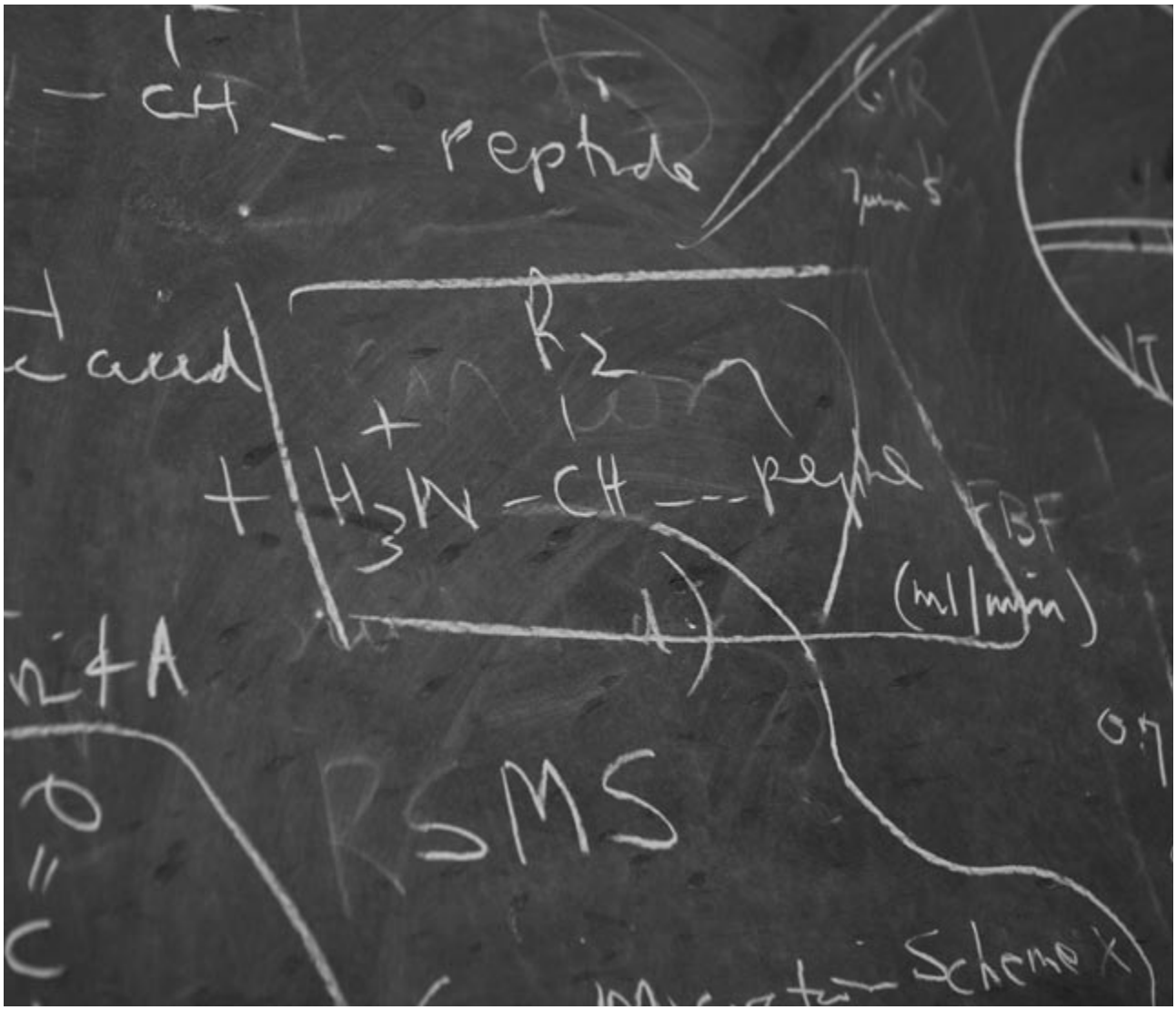
employer and society. Economic data is also used to guide investment in health-related programs by government departments and individual businesses.

A new method has been developed in the US, to cost lost work productivity in employees with health conditions, that takes into account how "replaceable" an employee is, and to what extent their job is reliant on team work. Differences between countries in labour market and individual business operation preclude direct application of this method to Australia. We adapted this method to the Australian business context and will shortly begin a pilot study of this new approach.

Mental Health Promotion in the Workplace

Our work has highlighted that much of the mental health and economic burden in employees is associated with work factors under the control of management. Mental health promotion and preventive efforts requires collaboration with individual employers and industry groups to minimise these workplace risks to health. This project is investigating potential strategies for mental health promotion in the Australian business context, with a focus on small and medium businesses that often have limited resources or access to health promotion initiatives.

We conducted a quantitative analysis of previous research to determine whether the current interest in promoting health in workplaces (e.g. physical activity programs) could potentially also be having a flow-on effect to mental health. We found that there may be some small indirect benefits for mental health, but interventions targeted specifically at mental health are also needed. We applied these results to the design of a mental health promotion intervention which we hope to trial in the near future with the support of industry partners. This work was the subject of a joint research/industry symposium at an important Asia/Pacific regional conference.



Primary Health Care

RESEARCH – Senior Member:

Professor Mark Nelson

THEME AREA:

Primary Health Care

RESEARCH TEAM:

Pru Peschar, Research Assistant

Dr Rachel Boland, Academic Registrar

Dr Katie McMahon, Academic Registrar

Dr Faline Howes, Academic Registrar

Julie Forsyth, Administration

Sally Thurley, Admin Officer – PHCRED

Dr Emily Hansen, PHCRED Coordinator

Theresa Doherty, Statewide Facilitator – PHCRED

Danielle Williams, PHCRED Program Coordinator

Jan Gartlan, Doctoral Student

Julie Walters, Doctoral Student

Petya Fitzpatrick, Researcher

Dr Emily Hansen, Researcher

Amy Imms, Researcher

Elizabeth Newman, Researcher

Jennifer Hargraves, Researcher

Dr Tania Winzenberg, Member

Jan Nelson, Research Nurse

Lin Bowers-Ingram, Research Nurse – ASPREE

Dyan Kelaart, Research Nurse

Shirley Clelland, Research Nurse

Sue Davoren, Research Nurse

Jonette Scott, Research Nurse

Heather Sparkes, Research Nurse

EXTERNAL COLLABORATORS:

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Lawrence J Beilin, University of WA

Jonathon Emery, University of WA

Geoffrey A Donnan, University of Melbourne

Colin I Johnston, Baker Heart Research Institute

Henry Krum, Monash University

Elsdon Storey, Monash University

John J McNeil, Monash University

Andrew Tonkin, Monash University

Leon Piterman, Monash University

John C Breitner, University of Washington, USA

Robert G Hart, University of Texas San Antonio, USA

Charles H Hennekens, University of Miami, USA

Christopher J Bulpitt, Imperial College London

Barry R. Davis, University of Texas, Houston

Michael Kidd, University of Sydney

Dimity Pond, University of Newcastle

Claire Jackson, University of Queensland

Marjan Kljakovic, Australian National University

Richard Grimm, University of Minnesota, USA

Associate Professor Chris M Reid, Monash University

Associate Professor Anne Murray, University of Minnesota, USA

Dr Robyn Woods, Monash University

Dr Rory Wolfe, Monash University

Dr Colin Baigent, Oxford University

Dr Christophe Tzourio, Hôpital Lariboisière, Paris, France

FUNDING BODIES:

Royal Australian College of General Practitioners

Bayer HealthCare

National Health and Medical Research Council

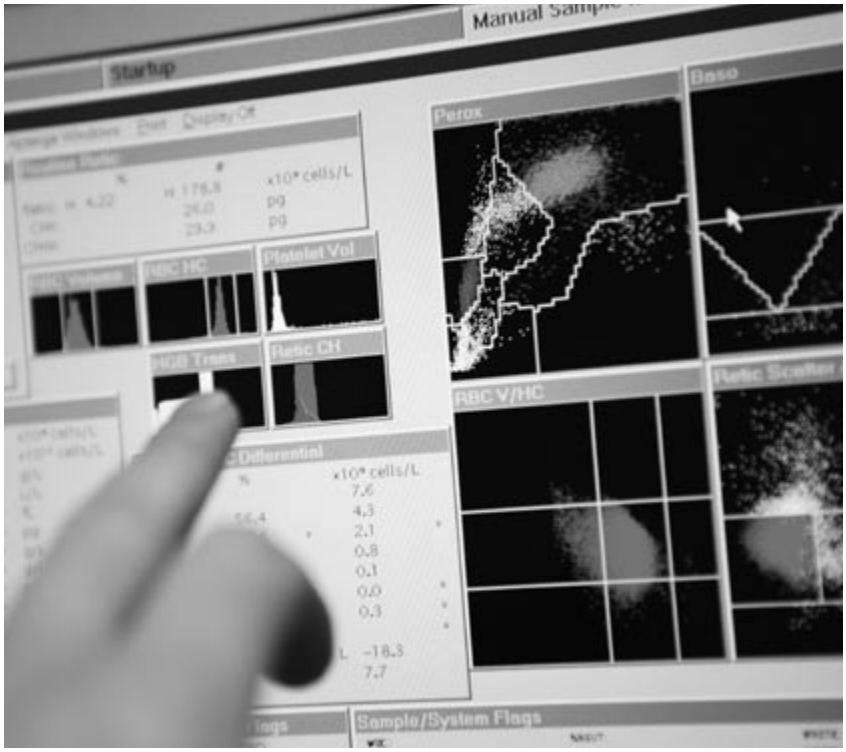
National Heart Foundation

High Blood Pressure Research Council of Australia

Aspirin Reducing Events in the Elderly (ASPREE) (in partnership with Monash University)

ASPREE is a RCT designed to detect a 15 per cent difference in major adverse events between placebo and aspirin in participants aged 70 years and above. Eighteen thousand participants will be required to provide 90 per cent power of a true relative risk benefit of 0.85 for major cardiovascular endpoints in an intention-to-treat analysis with an average follow-up of 5 years. The trial is supported by the Heart Foundation, the National Stroke Foundation, Alzheimer's Australia, and the Australian Divisions of General Practice. It has received financial and in kind support from the National Health and Medical Research Council of Australia (NHMRC), the National Heart Foundation of Australia, and Bayer HealthCare. We have enrolled about 250 participants in Tasmania.

In addition to the NHMRC project grant of $3.5 million, we have received an educational grant from Bayer HealthCare US for $350,000. The study has attracted $3 million from CSIRO for genetics and biomarker substudy, and a further $1.2 million from the NHMRC for a vision substudy. We have secured pre-approval for US$50 million from the National Institute of Aging (NIA) subject to review from the National Institute of Health (NIH).



Spirometry and Asthma Management in Children and Adults in General Practice (in partnership with The University Of Adelaide)

This study aims to critically examine the impact of the measurement of airflow obstruction, using spirometry, on the management of asthma in adults and children. The study will provide evidence for the costs and benefits of spirometry use in the monitoring of asthma. Analysis and publication should commence shortly after completion in South Australia March/April 2008.

Secondary Prevention in Acute Coronary Syndromes: Identifying the Smoking Related Beliefs of People Who Continue to Smoke after an Acute Coronary Event

Quitting smoking is one of the most effective actions a person can take after having a heart attack or angina (an acute coronary event often termed an ACE) in order to prevent having a second and more serious event. This project addresses the question 'Why do some smokers successfully quit after an ACE while others continue to smoke?' A corollary study is also being conducted for the former.

REduction of Atherothrombosis for Continued Health (REACH) (with Monash University)

This is an international registry of individuals with established cardiovascular disease (CVD) or at high risk of developing said (3 CVD risk factors present). The project was completed in 2007.

Yoga for Depression in Adults

A Cochrane systematic literature review titled *Yoga for depression in adults.*

A Cluster Randomised Controlled Trial of an Automated Versus Manual Device for Blood Pressure Management (CRAB)

Automated devices are replacing mercury sphygmomanometers. This may effect blood pressure (BP) measurement and management of hypertension. This study aimed to determine the effect of automated oscillometric sphygmomanometers on digit preference, BP measurement and antihypertensive drug prescribing in primary care.

Researching Practice Nurses Communication Needs in Tasmania 2006

This census located 239 practice nurses (PNs) in the state, the majority working in a clinical capacity. The response rate was for the self-completed questionnaire was 71 per cent (n=140).

PHCRED

Research capacity building program funded by DOHA.

Post Hoc Analyses in the ANBP2 Dataset

ANBP2 was the largest clinical trial ever conducted in Australian general practice. We continue to produce papers from the rich database of the GP management of 6,083 hypertensive elderly Australians.

Barriers to Initiating Treatment in Hypertension and Treating to Target Levels

This research project aims to explore the barriers to general practitioners' initiating treatment and treating hypertension to target goals, in the Australian setting.

A Cross-Sectional Survey of the Management of Cardiovascular Disease Risk in Southern Tasmanian General Practice

A survey of GPs in Southern Tasmania to determine their understanding of Absolute Cardiovascular Risk and how they determine cardiovascular risk in general practice. In particular, assessing use of cardiovascular risk calculators and how they influence patient management.

Respiratory

RESEARCH – Senior Member:

Professor Haydn Walters

THEME AREA:

Respiratory

RESEARCH TEAM:

Kathy Barnsley, PhD Student

Helen Cameron-Tucker, PhD Student

Dr Belinda Cochrane, MD Student

Associate Professor Shyamali Dharmage

Helen Courtney-Pratt, PhD Student

Associate Professor David Johns, Member

Dr Emma Lea, Postdoctoral Fellow

Dr Melanie Matheson, Postdoctoral Fellow

Dr David Reid, Honorary Member

Dr Louise Rodham, Postdoctoral Fellow

Sukhwinder Singh Sohal, PhD Student

Dr Amir Soltani, PhD Student

Dr Justin Walls, School of Medicine

Dr Julia Walters, Postdoc (ALF Fellow)

Steve Weston, Laboratory Manager

Associate Professor Richard Wood-Baker, Honorary Member

LOCAL COLLABORATORS:

Associate Professor Leigh Blizzard, Menzies Research Institute

Dr John Burgess, Royal Hobart Hospital

Dr Glen Jacobson, School of Pharmacy

Professor Mark Nelson, Menzies Research Institute

Professor Greg Peterson, School of Pharmacy

Professor Andrew Robinson, School of Nursing

Associate Professor Paul Turner, School of Information Systems

Associate Professor Alison Venn, Menzies Research Institute

Associate Professor Jenn Scott, Physiology

EXTERNAL COLLABORATORS:

Professor Michael Abramson, Monash University

Professor Peter Gibson, University of Newcastle

Professor John Hopper, University of Melbourne

Dr Melanie Jessup, Griffith University

Dr Chris Ward, University of Newcastle, UK

FUNDING BODIES:

Asthma Foundation of Australia

Commonwealth Department of Health and Ageing

Department of Health and Human Services Tasmania

GlaxoSmithKline Australia

Medical Benefits Fund of Australia

National Health and Medical Research Council

Royal Hobart Hospital Research Foundation

University of Melbourne

Boehringer Engelheim

Physiology

The respiratory research group has developed novel measurement systems for airway stiffness as a subtle means of detecting airway damage and differentiation between large and small airway disease and lung parenchymal disease. These support our immunopathology studies by providing sophisticated physiological phenotype correlations. We are working with large data-sets of lung function data for “mining” patterns of disease and determining mechanisms of exercise-related oxygen desaturation, which seems more common in women than currently recognised.

Airway Disease Immunopathology

This research involves bronchoscopic assessment and tissue sampling of the airways in smokers with normal and abnormal airflow. We are assessing airway inflammation and airway structural remodelling, and the mechanisms involved in linkage between the two processes in patients with chronic obstructive pulmonary disease (COPD).

Our group has a particular interest in vascular endothelial growth factor and angiogenesis in the airways in situations of chronic inflammation, and the response to inhaled corticosteroid and smoking cessation; and TGFβ1 as a central mediator linking epithelial and mesenchymal deeper tissue activation and inflammation with remodelling.

In asthma, we are using albumin staining of biopsies to detect blood vessel leakiness and airway wall oedema. We have shown that this is a very early manifestation of airway inflammation and asthma deterioration clinically.

Cystic Fibrosis

We are studying the chemical environment of the airway that favours growth of the bacteria *Pseudomonas aeruginosa*, especially the handling of ferrous/ferric iron. We are investigating

iron-chelators as potential therapy. We are also looking at virulence factors in *Pseudomonas* in relationship to disease severity, plus the importance of biofilms and their modification to *Pseudomonas* infection.

In the area of health services research we are investigating the use of information technology and self-efficacy building in patient case management.

Evidence-Based Medicine

Our group is the headquarters of the Cochrane Collaboration Australian Airway Network providing systematic reviews in asthma, and COPD to support national and international clinical guideline development.

Health Services Research in COPD

Pathways Home for Chronic Respiratory Disease is a collaboration with the Department of Health and Human Services to develop clinical self-efficacy in patients with COPD, and to foster case-management through training of "mentors" based in community nursing.

We are conducting a study of usefulness and barriers to use of spirometry in case finding and management of COPD in general practice. With the Pharmacy School, we also have an interest in appropriate use of medicines in the community and use of information technology systems for "mining" pharmacy databases to assess and assist.

PhD student Romy Sohal works with laboratory manager Steve Weston

Epidemiology and Genetics

The Tasmanian Asthma Survey is a 36 year follow up of the 1961 Tasmanian birth cohort first studied in 1968 at the age of seven years (approx 8,600 individuals). We have spent five years finding the original probands and undertaking a comprehensive questionnaire survey and laboratory examination of lung function in 1,400 randomly selected probands.

We are currently in the process of enriching the laboratory study for individuals in specific clinical phenotypes determined by the answers to the questionnaire. We have started the next phase of the study in which we are undertaking a questionnaire and a physiological and genetic study of 21,000 phenotypically matched and unmatched siblings. In 2008, we will be bringing 2000 selected siblings up to the laboratory for fuller assessment.

We are also a collaborating centre in the national Burden of Lung Disease (BOLD) study, a multicentre Australian survey of COPD prevalence and risk factors supported by NHMRC.

RESEARCH – Member:

Associate Professor David Johns

THEME AREA:

Respiratory

RESEARCH TEAM:

Dr Justin Walls, School of Medicine

Professor Haydn Walters, Senior Member

Associate Professor Byeong Kang, School of Computing

Dr David Reid, Honorary Member

Associate Professor Richard Wood-baker, Honorary Member

Dr Julia Walters, PhD Student

John Chan, Research Student

Mei Chan, Honours Student

Tristan Ling, PhD Student

EXTERNAL COLLABORATORS:

Dr Kevin Gain, Royal Perth Hospital

Dr Bruce Thompson, The Alfred Hospital

National Asthma Council of Australia

Associate Professor Guy Marks, Woolcock Research Institute

FUNDING BODIES:

Royal Hobart Hospital Research Foundation

Medizintechnik, Switzerland

GlaxoSmithKline Australia

Department of Health and Ageing

Flow Dependence of Anatomical Dead Space and Relationship to Spirometry

We have previously shown that volume of the lung airways (anatomical dead space) varies with expired flow. We have now completed a study to test the hypothesis that this flow-dependence of anatomical dead space provides a sensitive physiological index of abnormal airway function. Our subjects were healthy young adults with normal lung function. The results supported our hypothesis because even though the subjects were young and had normal

lung function, our index of flow-dependence was able to differentiate between subjects with normal and 'super' normal lung function. We are now measuring this index in people with asthma and chronic obstructive pulmonary disease.

This project was completed by our research student John Ho Chan while working at the MRI as an Undergraduate Research Opportunity Program Scholar. Mr Chan presented this data at a scientific conference (Asian Pacific Society of Respirology) in November 2007.

Flow-Dependence of Anatomical Dead Space: Effect of Lung Volume and Bronchodilation

In this study we further investigated the effect of expired flow on the measurement of airway volume (flow-dependence of anatomical dead space) by investigating the effect of lung inflation and inhaled asthma therapy (bronchodilators) in healthy and asthmatic subjects. In both subject groups we found that the flow-dependence of dead space decreased at higher lung volumes. The effect of bronchodilators was to decrease the degree of non-uniform ventilation in the healthy group but to worsen it in our asthmatic subjects. The latter finding suggests that inhaled bronchodilators are preferentially distributed to lung regions served by the more patent airways resulting in a greater degree of non-uniform ventilation.

This project was completed by Honours student Mei Ming Chan. She received First Class Honours and the Thoracic Society of Australia and New Zealand Young Investigator Award at the annual scientific meeting in Tasmania.

Discovering the Patterns of Lung Function Using a Custom Expert Knowledge Acquisition System

The aim of this study was to develop a web-based expert knowledge acquisition system (MCRDR) to provide an automatic classification of lung function tests; an interrogative tool to assist experts explore a large database of patient cases to discover and evaluate new knowledge; and to test research hypotheses. The expert system acquires knowledge incrementally as the expert uses the system and compiles a set of linked rules. The web-based system is now fully developed and ready to receive both archived and prospective lung function test results from several respiratory laboratories in Australia.

Our PhD student, Tristan Ling, who won an APA scholarship to undertake this project, conducted this work.

The results of this research were presented at international scientific conferences in Australia and Korea.

National Spirometry Training Course for General Practitioners: Impact on Uptake and Quality

Spirometry is a an important test of lung function and although practice guidelines recommend its routine use in general practice for detecting, grading and monitoring lung diseases such as asthma and chronic obstructive pulmonary disease, relatively few General Practitioners routinely measure spirometry. We have worked closely with the National Asthma Council of Australia to develop Australia's first national and fully funded spirometry training course specifically designed for General Practitioners. As part of the national roll-out of this course, we are assessing its impact on the uptake and quality of spirometry provided by General Practitioners.

In 2007, the national spirometry training course received formal endorsement by the Australian and New Zealand Society of Respiratory Science. The first course was successfully run in November 2007.

Burden of Obstructive Lung Disease (BOLD) in Australia

Chronic obstructive pulmonary disease (COPD) is a major lung disease most commonly associated with smoking. COPD as a cause of mortality is increasing and globally is expected to rank fifth in burden of disease by 2020. BOLD in Australia is the Australian arm of an international collaborative project to describe the prevalence, burden, severity, risk factors and management of COPD. The study targets people aged ≥40 years from populations located at a number of diverse regions in Australia (Busselton, Melbourne, Tasmania, Kimberley, and New South Wales). We have almost completed data collection at one of the sites and expect data collection to be complete in 2009.

Prediction Equations for Single Breath Diffusing Capacity D_LCO (T_LCO) in a Middle-Aged Caucasian Population

The diffusing capacity of the lung (D_LCO) is a test of alveolar-capillary function that is routinely performed in almost all lung function laboratories worldwide. In this study we developed a set of prediction equations for D_LCO based on a large middle-aged population of healthy subjects using modern computerised equipment and testing methods that meet international standards. Because existing prediction equations for D_LCO are based on studies of predominantly younger subjects, our new prediction equations are more clinically relevant to the older population in which D_LCO is most commonly abnormal due to lung disease.

This research has been presented at national scientific conferences and has been accepted for publication in the journal, *Thorax*.

Tasmanian Cancer Registry

Associate Professor Alison Venn and the Tasmanian Cancer Registry team

DIRECTOR:

Associate Professor Alison Venn

STAFF:

Marita Dalton, Manager

Krystyna Jackman, Administration Officer

Jackie Luck, Medical Coder

Pam Whelan, Data Entry

Petr Otahal, Statistical Officer

FUNDING BODY:

Department of Health and Human Services, Tasmanian Government

Cancer in Tasmania

The Tasmanian Cancer Registry is responsible for collecting, collating and reporting all new cases of cancer and deaths from cancer in Tasmanian residents. By law, cancer registration is required in all Australian states and territories to assist state and national efforts to understand the causes of cancer, to plan health services and to assist prevention efforts. The Tasmanian Cancer Registry is operated by the Menzies Research Institute under a service agreement with the State Department of Health and Human Services.

In 2007 the registry released its report *Cancer Incidence and Mortality 2004*. There were 2,472 new cases of cancer (excluding non-melanoma skin cancers) in Tasmanian residents in 2004 (1,379 males, 1,093 females). The overall age-standardised incidence was 350.8 per 100,000 for males and 267.2 per 100,000 for females. There were 1,092 cancer-related deaths (615 males, 477 females) giving age-standardised mortality rates of 139.8 per 100,000 males and 92.4 per 100,000 females. The most commonly diagnosed cancers were colorectal cancer, cancers of the breast, prostate and lung, and melanoma of the skin.

Grants

ANZ Trustees Ltd – J.O. & J.R. Wicking Trust. *Vickers, JC; *Robinson, A. Proposal to establish the Wicking Dementia Research and Education Centre (WDREC). $1,500,000

Asian Pacific Society of Respirology: Travel. *O'May, C. Reducing iron availability is a potential strategy for combating bacterial infection in the cystic fibrosis (CF) lung. $1,500

Asthma Foundation of Tasmania. *Walters, EH. Tasmanian Asthma Study. $50,000

Australian Cancer Research Foundation. *Foote, SJ; *Venn, A; *Lowenthal, RM; *Vickers, JC; *Dickinson, JL; *Blizzard, CL; *Stankovich, J; Bahlo, M; *Chalmers, DRC. The ACRF Tasmanian Inherited Cancer Centre (ATICC). $1,100,000

Australian Cystic Fibrosis Research Trust. *Reid, DW. Improving self-efficacy in adolescents and adults with cystic fibrosis. $59,250

Australian Lung Foundation: Fellowship. *Walters, JAE. Enhancing Self-Efficacy in COPD. $120,000

Australian Research Council: Linkage Projects Round 1. *Chung, RS; *West, AK; *Chuah, MI. Identifying the Specific Structural Features of Metallothionein that Regulate its Ability to Modulate Astrogliosis. $303,000 (externally administered)

Australian Research Council: Linkage Projects Round 2. Kilpatrick, T; Perreau, V; Broadley, SA; *Foote, SJ; Griffiths, LR; Moscato, PA; Scott, RJ; *Stankovich, J. Identifying Genes that Influence Clinical Course and Susceptibility in Multiple Sclerosis. $400,000

Betfair Australia. *Blizzard, CL; *Hitchens, PL. Assessment of physiological and performance attributes of Tasmanian Jockeys. $2,000

Cancer Council Tasmania. *Dickinson, JL; *Stankovich, J; *Lowenthal, RM; *Marsden, KA; *Patterson, B; *Quinn, SJ. Investigating the genetics of familial haematological cancers in Tasmania. $60,000

Cancer Council Tasmania. *Woods, GM; Muller, HK. Effects of UV radiation and vitamin D deficiency on the development of the skin immune system. $35,000

Cancer Council Tasmania: Travel. *Holloway, AF; *Oakford, PC. EMBO Conference on Chromatin and Epigenetics attendance. $1,200

Clifford Craig Medical Research Trust. *Roddam, LF; *Sanderson, K; *Wood-Baker, R; Tristram, SG; Haug, G. The Acquisition of New Strains of Non-Typeable Haemophilus Influenzae Is The Leading Cause of Acute Exacerbations in Tasmanian COPD Patients. $43,467

Clive & Vera Ramaciotti Foundation. *Chung, RS. Can Metallothionein Protect Against Axonal Degeneration Following Traumatic Brain Injury? $30,000

David Collins Leukaemia Foundation: Professional Development. *Holloway, AF; *Oakford, PC. Philippa Oakford: Epigenetics 2007 Australian Scientific Conference. $400

David Collins Leukaemia Foundation. *Holloway, AF. Deregulation of Gene Expression by RUNX1 Fusion Proteins in Leukaemia. $25,000

David Collins Leukaemia Foundation. *Woods, GM; *Casey, N. Investigation of the potential of lentivirus-delivered shRNA in inhibiting the proliferation of human leukaemic cells in vivo. $10,514

Department of Health and Ageing: Fellowship. *Hansen, EC. Primary Health Care Research, Education and Development Mid-Level Research Fellowship. $422,000

Department of Health and Human Services: Funding Agreement. *Walters, EH; *Wood-Baker, R. Pathways Home II Feasibility: COPD Case Management in Primary Care. $60,000

Department of Innovation, Industry, Science and Research: Agreement-National Collaborative Research Infrastructure Strategy's (NCRIS). Goodnow, C; O'Bryan, M; Hilton, D; Furness, J; Whitelaw, E; Pass, D; Kuchel, TR; *Foote, SJ. Implementing the Australian Phenomics Network for the National Collaborative Research Infrastructure Strategy's Research Capability known as 'Integrated Biological Systems' – Animal Models of Disease. $16,034,000 ($1,500,000 to UTAS; externally administered)

General Practice Education and Training Limited. *Howes, FS; *Nelson, MR; *Hansen, EC. Barriers to initiating treatment in hypertension and barriers to treating hypertension to target levels. $9,447

GlaxoSmithKline Australia: Fellowship. *Wood-Baker, R; *Walters, EH; *Reid, DW; *Soltani Abhari, A. Investigation of airway inflammation in COPD. $80,000

High Blood Pressure Research Council of Australia. *Nelson, MR; *Winzenberg, TM. A Cluster Randomised controlled trial of an Automated versus manual device for blood pressure management (CRAB). $59,086

Ian Potter Foundation: Travel Grant. *Hynes, K. Australian and New Zealand Bone and Mineral Society Annual Scientific Meeting. $1,000

Ian Potter Foundation: Travel Grant. *van der Mei, IAF. Proposal to visit the Harvard School of Public Health in Boston USA. $3,000

Masonic Centenary Medical Research Foundation: Scholarship. *Vickers, JC; *Blizzard, C. PhD Scholarship: Cathy Blizzard. $60,000

Motor Neurone Disease Research Institute of Australia Inc: Zo-ee MND Research Grant. *Vickers, JC; *King, AK; *Dickson, TC; *Chung, RS; *West, AK; *Chuah, MI. Unravelling the cellular pathology underlying neuronal degeneration in motor neurone disease. $24,744

Multiple Sclerosis International Federation: Du Pre Award. *van der Mei, IAF. Study tour to Harvard School of Public Health, Boston. $7,000

Multiple Sclerosis Tasmania: Agreement-Fellowship Support. *Taylor, BVM. Menzies Research Institute Senior Fellowship Support – Bruce Taylor. $180,000

National Heart Foundation: Travel. *Schmidt, MD. International Conference on Physical Activity and Obesity in Children, Toronto, ON. $1,500

National Heart Foundation: Travel. *Winzenberg, TM. Conference Travel:

** Denotes Menzies Research Institute researcher.*

18th World WONCA (World Organisation of Family Doctors) Conference, Singapore. $1,500

National Health & Medical Research Council: Fellowship-Practitioner. *Jones, G. Graeme Jones Practitioner Fellowship. $340,000

National Health & Medical Research Council: Fellowship-Public Health (Australia). *Paul, SL. Cardiovascular disease risk behaviours: understanding childhood origins. $274,000

National Health & Medical Research Council: Fellowship-Training. *van der Mei, IAF. Gene-environment interaction in MS risk and progression: focus on ultraviolet radiation and Epstein-Barr virus pathways. $137,000

National Health & Medical Research Council: Project. Cheng, HC; *Cheung, NS. Deciphering how PTEN phosphatase mediates excitotoxic neuronal death. $498,750 (externally administered).

National Health & Medical Research Council: Project. *Clark, MG; *Rattigan, S; *Richards, SM; Choi-Lundberg, DL. Central and Peripheral Actions of Insulin for the Control of Muscle Capillary Recruitment. $417,750

National Health & Medical Research Council: Project. *Dharmage, S; Hopper, J; *Walters, EH; Matheson, MC; Abramson, M; Byrnes, G. Genetic epidemiology of chronic respiratory diseases from childhood to adulthood: A prospective study of sibships. $852,563 (externally administered)

National Health & Medical Research Council: Project. *Dickson, TC; *Vickers, JC. The Neuroprotective Properties of Alpha-Synuclein. $310,250

National Health & Medical Research Council: Project. *Srikanth, V; Forbes, J; Phan, T; Munch, G; *Pearson, S; *Venn, A. A study of mechanisms of cognitive decline in Type 2 diabetes mellitus. $492,575 (externally administered).

Qantas Airways Ltd: Tasmanian Devil Research Scholarship. *Woods, GM; *Kreiss, A. Tasmanian Devil Research Scholarship – A *Kreiss. $19,321

Royal Australian College of General Practitioners. *Howes, FS; *Nelson, MR; *Hansen, EC. Barriers to initiating treatment in hypertension and treating to target levels. $11,920

Royal Hobart Hospital Research Foundation: Fellowship – Sypkes Respiratory Medicine Research. *Soltani Abhari, A. Sypkes Respiratory Medicine Research Fellowship: Dr Amir Soltani. $272,728

Royal Hobart Hospital Research Foundation: Fellowship – Sypkes Respiratory Medicine Research. *Walters, EH. Sypkes Respiratory Epidemiology Research Fellowship: Dr John Marrone – The epidemiology of respiratory disease. $272,727

Royal Hobart Hospital Research Foundation. Bettiol, SS; *Sanderson, K; *Reid, DW. Neutrophil function in patients with cystic fibrosis. $12,150

Royal Hobart Hospital Research Foundation. *Chuah, MI; *West, AK; Muller, HK. Protection of the brain from infection: Immune properties of olfactory ensheathing cells. $10,000

Royal Hobart Hospital Research Foundation. *Jose, M. The role of erythropoietin receptors in monocytes and macrophages in chronic kidney disease. $13,636

Royal Hobart Hospital Research Foundation. *Holloway, AF; Shannon, MF; *Walters, EH. Switching genes on in immune cells: how does basal chromatin structure predict cytokine gene responses? $20,000

Royal Hobart Hospital Research Foundation. *Reid, DW; *Walters, EH; *Wood-Baker, R; *Johns, DP; Kirov, SM. Whether 3-day course of systematic corticosteroids is as effective as 14-day course in the treatment of acute exacerbations of COPD. $18,182

Royal Hobart Hospital Research Foundation. *Stewart, NJ. The role of vitamin D and its receptor in the action of T regulatory cells, a set of cells important in the prevention of autoimmune diseases. $4,979

Royal Hobart Hospital Research Foundation. *Vickers, JC; *Dickson, TC. Axon regeneration in the mature CNS. $20,000

Royal Hobart Hospital Research Foundation. *Walters, EH; Dharmage, S. Risk factors for BHR in middle age: a prospective study from childhood to middle age among northern Tasmanians. $20,000

Roche Products Pty Ltd: CellCept Australia Research Grant Award. *Jose, MD; Lawton, P; Rogers, N. Improving Indigenous kidney transplant outcomes. $40,000

TOTE Tasmania Pty Ltd. *Blizzard, CL; *Hitchens, PL. Assessment of physiological and performance attributes of Tasmanian jockeys. $4,000

Tasmanian Thoroughbred Racing Council. *Blizzard, CL; *Hitchens, PL. Assessment of physiological and performance attributes of Tasmanian jockeys. $1,000

University of Tasmania – Dr Eric Guiler Tasmanian Devil Research Grant. *Woods, GM; *Kreiss, A. An immunological and immunogenetic approach to protect Tasmanian devils against Devil Facial Tumour Disease (DFTD). $23,524

Western Australian Institute of Medical Research: Phylogica – Neurotrauma Research Program. Watt, PM; *West, AK; Meloni, BP; Milech, N. Validation of Phylomer peptides in neurotrauma-related brain injury models. $266,600 (externally administered)

World Health Organisation: Fellowship Program. *Blizzard, CL; *Otahal, P; *Schmidt, MD; *Paul, SL; *Pearson, S. WHO Fellowship Program. $13,000

Publications

Refereed Articles

Andreasyan K, *Ponsonby AL, *Dwyer T, Dear K, *Cochrane J. Infant feeding and childhood atopy: does early introduction of non-milk fluids matter? Pediatr Allergy Immunol. 2007 May; 18(3):250–7.

Andreasyan K, *Ponsonby AL, *Dwyer T, Morley R, Riley M, Dear K, *Cochrane J. Higher maternal dietary protein intake in late pregnancy is associated with a lower infant ponderal index at birth. Eur J Clin Nutr. 2007 Apr; 61(4):498–508.

Baldwin T, Sakthianandeswaren A, Curtis JM, Kumar B, Smyth GK, *Foote SJ, Handman E. Wound healing response is a major contributor to the severity of cutaneous leishmaniasis in the ear model of infection. Parasite Immunol. 2007 Oct; 29(10):501–13.

Bennett CM, Simpson P, Raven J, Skoric B, Powell J, Wolfe R, *Walters EH, Abramson MJ. Associations between ambient PM2.5 concentrations and respiratory symptoms in Melbourne, 1998-2005. J Toxicol Environ Health A. 2007 Oct; 70(19):1613–8.

***Blizzard CA, *Haas MA, *Vickers JC, *Dickson TC.** Cellular dynamics underlying regeneration of damaged axons differs from initial axon development. Eur J Neurosci. 2007 Sep; 26(5):1100–8.

***Blizzard L, Hosmer DW.** The log multinomial regression model for nominal outcomes with more than two attributes. Biometrical Journal 2007; 49:889–902.

***Blizzard L, Hosmer DW.** Authors' reply. Biometrical Journal 2007; 49:330–1.

***Bradley EA, *Clark MG, *Rattigan S.** Acute effects of wortmannin on insulin's hemodynamic and metabolic actions in vivo. Am J Physiol Endocrinol Metab. 2007 Mar; 292(3):E779–87.

Burfoot RK, Jensen CJ, Field J, *Stankovich J, Varney MD, Johnson LJ, Butzkueven H, Booth D, Bahlo M, Tait BD, *Taylor BV, Speed TP, Heard R, Stewart GJ, *Foote SJ, Kilpatrick TJ, Rubio JP. SNP mapping and candidate gene sequencing in the class I region of the HLA complex: searching for multiple sclerosis susceptibility genes in Tasmanians. Tissue Antigens. 2007 Oct 30 (E-published).

Burgess JA, *Walters EH, Byrnes GB, Giles GG, Jenkins MA, Abramson MJ, Hopper JL, *Dharmage SC. Childhood adiposity predicts adult-onset current asthma in females: a 25-yr prospective study. European Respiratory Journal. 2007; 29(4):668–75.

Burgess JA, *Walters EH, Byrnes GB, Matheson MC, Jenkins MA, Wharton CL, *Johns DP, Abramson MJ, Hopper JL, *Dharmage SC. Childhood allergic rhinitis predicts asthma incidence and persistence to middle age: A longitudinal study. J Allergy Clin Immunol. 2007 Oct; 120(4):863–9.

***Callisaya ML, *Au BT, *Blizzard L, *Schmidt MD, McGinley J, *Srikanth VK.** Subject-matter considerations in assessing the fit of a linear regression model. Australasian Epidemiologist 2007; 14:35–37.

Chasan-Taber L, Freedson PS, Roberts DE, *Schmidt MD, Fragala MS. Energy expenditure of selected household activities during pregnancy. Res Q Exerc Sport. 2007 Mar; 78(2):133–7.

Chasan-Taber L, *Schmidt MD, Pekow P, Sternfeld B, Manson J, Markenson G. Correlates of physical activity in pregnancy among Hispanic women. Maternal & Child Health Journal 2007; 11:353–363.

Chen CY, Scurrah KJ, *Stankovich JM, Garoufalis P, Dirani M, Pertile KK, Richardson A, Mitchell P, Baird P. Heritability and shared environment estimates for myopia and associated ocular biometric traits: the Genes in Myopia Family Study. Human Genetics 2007; 121(3–4):511–520.

Chen CY, *Stankovich J, Scurrah KJ, Garoufalis P, Dirani M, Pertile KK, Richardson AJ, Baird PN. Linkage replication of the MYP12 locus in common myopia. Investigative Ophthalmology and Vision Science 2007; 48(10):4433–4439.

***Chung RS, Fung SJ, Leung YK, Walker AK, *McCormack GH, *Chuah MI, *Vickers JC, *West AK.** Metallothionein expression by NG2 glial cells following CNS injury. Cell Mol Life Sci. 2007; 64(19–20):2716–2722.

***Clark MG, *Rattigan S, Barrett EJ, *Vincent MA, Poole DC, Brown MD, Hudlicka O.** There is/is not capillary recruitment in active skeletal muscle during exercise. J Appl Physiol. 2007 Jul 26 (E-published).

***Dickson TC, *Chung RS, *McCormack GH, Staal JA, *Vickers JC.** Acute reactive and regenerative changes in mature cortical axons following injury. Neuroreport. 2007 Feb 12; 18(3):283–8.

***Ding C, Cicuttini F, *Blizzard L, *Jones G.** Smoking interacts with family history with regard to change in knee cartilage volume and cartilage defect development. Arthritis Rheum. 2007 May; 56(5):1521–8.

***Ding C, Cicuttini F, *Blizzard L, Scott F, *Jones G.** A longitudinal study of the effect of sex and age on rate of change in knee cartilage volume in adults. Rheumatology 2007; 46(2):273–279.

***Ding C, Cicuttini F, *Jones G.** Tibial subchondral bone size and knee cartilage defects: relevance to knee osteoarthritis. Osteoarthritis Cartilage 2007 May; 15(5):479–86.

***Ding C, Martel-Pelletier J, Pelletier JP, Abram F, Raynauld JP, Cicuttini F, *Jones G.** Knee meniscal extrusion in a largely non-osteoarthritic cohort: association with greater loss of cartilage volume. Arthritis Res Ther. 2007; 9(2):R21.

***Ding C, Martel-Pelletier J, Pelletier JP, Abram F, Raynauld JP, Cicuttini F, *Jones G.** Meniscal tear as an osteoarthritis risk factor in a largely non-osteoarthritic cohort: a cross-sectional study. J Rheumatol. 2007 Apr; 34(4):776–84.

***Ding C, Martel-Pelletier J, Pelletier JP, Abram F, Raynauld JP, Cicuttini F, *Jones G.** Two-year prospective longitudinal study exploring the factors associated with change in femoral cartilage volume in a cohort largely without knee radiographic osteoarthritis. Osteoarthritis Cartilage. 2007 Sep 22 (E-published).

***D'Souza WJ, Fryer JL, *Quinn SJ, *Taylor BV, Ficker DM, O'Brien TJ, Pearce NE, Cook MJ.** The Tasmanian Epilepsy Register – A Community-Based Cohort. Neuroepidemiology 2007; 29: 255–63.

***D'Souza WL, O'Brien TJ, Murphy M, Trost NM, Cook MJ.** Toothbrushing-induced epilepsy with structural lesions in the primary somatosensory. Neurology 2007; 68(10):769–771.

Dwyer N, Smart D, *Reid DW. Scuba diving, swimming and pulmonary oedema. Internal Medicine Journal 2007; 37(5):345–7.

***Dwyer T, Hosmer D, Hosmer T, *Venn AJ, *Blizzard CL, *Granger RH, *Cochrane JA, Blair SN, Shaw JE, Zimmet PZ, Dunstan D.** The inverse relationship between number of steps per day and obesity in a population-based sample: the AusDiab study. Int J Obes (Lond). 2007 May; 31(5):797-804.

** Denotes Menzies Research Institute researcher.*

***Dwyer T, *Hynes KL, Fryer JL, *Blizzard CL, Dalais FS.** The lack of effect of isoflavones on high-density lipoprotein cholesterol concentrations in adolescent boys: a 6-week randomised trial. Public Health Nutr. 2007 Sep 4; 1–8 (E-published).

Feltis BN, Wignarajah D, *Reid DW, Ward C, Harding R, *Walters EH. Effects of inhaled fluticasone on angiogenesis and vascular endothelial growth factor in asthma. Thorax. 2007; 62(4):314–9. Epub 2006 Nov 14.

Fitzgerald K, Stephens N, Newman L, *Venn A. Inaccuracies in self-reported histories of non-melanoma skin cancer. Aust N Z J Public Health. 2007 Feb; 31(1):87.

***Fitzgerald M, *Bartlett CA, *Nairn P, *Chung RS, *West AK, Beazley LD*,** 'Metallothionein-IIA promotes neurite growth via the megalin receptor', Experimental Brain Research 2007; 183(2):171–180.

Flynn J, *Foley S, *Jones G. Can BMD Assessed by DXA at Age 8 Predict Fracture Risk in Boys and Girls During Puberty? An Eight-Year Prospective Study. Journal of Bone and Mineral Research, September 2007:22:1463–1467.

***Foley S, *Ding C, Cicuttini F, *Jones G.** Physical activity and knee structural change: a longitudinal study using MRI. Med Sci Sports Exerc. 2007 Mar; 39(3):426–34.

Gartlan J, Male S, Donaldson L, *Nelson M, *Winzenberg T. GP workforce participation in Tasmania. Aust Fam Physician. 2007 May; 36(5):378–80, 384.

Gladman DD, Mease PJ, Strand V, Healy P, Helliwell PS, Fitzgerald O, Gottlieb AB, Krueger GG, Nash P, Ritchlin CT, Taylor W, Adebajo A, Braun J, Cauli A, Carneiro S, Choy E, Dijkmans B, Espinoza L, van der Heijde D, Husni E, Lubrano E, McGonagle D, Qureshi A, Soriano ER, *Jochling J. Consensus on a Core Set of Domains for Psoriatic Arthritis. Journal of Rheumatology 2007; 34(5):1167–1170.

***Green CM, Kearns LS, Wu J, Barbour JM, Wilkinson RM, Ring M, Craig JE, Wong TL, Hewitt AW, Mackey DA.** How significant is a family history of glaucoma? Experience from the Glaucoma Inheritance Study in Tasmania. Clinical and Experimental Ophthalmology 2007; 35: 793–799.

Gregory J, *Johns DP, Walls J. Relative vs. absolute physiological measures as predictors of mountain bike cross-country race performance. Journal Strength Conditioning Research. 2007; 21(1):17–22.

Grill E, *Zochling J, Stucki G, Mittrach R, Scheuringer M, Liman W, Kostanjsek N, Braun J. International Classification of Functioning, Disability and Health (ICF) Core Set for patients with acute arthritis. Clin Exp Rheumatol. 2007 Mar-Apr; 25(2):252–8.

Haas MA, Chuckowree JA, *Chung RS, *Vickers JC, *Dickson TC. Identification and characterization of a population of motile neurons in long-term cortical culture. Cell Motil Cytoskeleton. 2007 Apr; 64(4):274–87.

Haas MA, *Vickers JC, *Dickson TC. Rho kinase activates ezrin-radixin-moesin (ERM) proteins and mediates their function in cortical neuron growth, morphology and motility in vitro. J Neurosci Res. 2007 Jan; 85(1):34–46.

Hassen T, *Pearson S, Cowled P, Fitridge R. Preoperative nutritional status predicts the severity of the systemic inflammatory response syndrome (SIRS) following major vascular surgery. European Journal of Vascular and Endovascular Surgery 2007; 33(6):696–703.

Huang Y, Halliday G, Vandebona H, Mellick G, Mastaglia F, Stevens J, Kwok J, Garlepp M, Silburn P, Horne M, Kotschet K, *Venn A, Rowe D, Rubio J, Sue C. The prevalence of common LRRK2 mutations in Australians with Parkinson's disease. Movement Disorders 2007; 15:982–9.

Janakiramanan N, Teichtahl AJ, Wluka AE, *Ding C, *Jones G, Davis SR, Cicuttini FM. Static knee alignment is associated with the risk of unicompartmental knee cartilage defects. J Orthop Res 2007 (Epublished).

Johns DP, Pierce R. Book. 2nd edition: Pocket Guide to Spirometry. Publisher McGraw-Hill. ISBN 978-0-07-013464-5. 160 pages. July 2007.

Johns DP, Burton D, *Walters JAE, *Wood-Baker R. Reply to Value of recommended spirometry accuracy checks on office spirometers in primary care unknown. Respirology 2007; 12:170–171.

Johnston F. Ecohealth and Aboriginal Testimony of the Nexus Between Human Health and Place. Ecohealth 2007; 4(4):489–499.

Jones A, *Wood-Baker R, *Walters EH. Domiciliary oxygen therapy services in Tasmania: prescription, usage and impact of a specialist clinic. Med J Aust. 2007 Jun 18; 186(12):632–4.

***Jones G, Cicuttini F.** Database research in Australia: time to dredge up some action. Intern Med J 2007 Sep; 37(9):587–8.

***Jones G, *Dwyer T, *Hynes KL, Parameswaran V, Udayan R, Greenaway TM.** A prospective study of urinary electrolytes and bone turnover in adolescent males. Clin Nutr. 2007 Sep 26 (E-published).

***Jones G, Flynn J, *Foley S.** Site Specificity of Fracture Prediction in Children. J Bone Miner Res. 2007 Dec 11 (E-published).

***Jordan HL, Bruinsma FJ, Thomson RJ, Amir LH, Werther GA, *Venn AJ.** Adolescent exposure to high-dose estrogen and subsequent effects on lactation. Reprod Toxicol. 2007 Nov–Dec; 24(3-4):397–402.

Kabat AP, Rose RW, *West AK. Shivering, muscle tone, and uncoupling proteins in a developing marsupial, the Tasmanian bettong (Bettongia gaimardi). J Thermal Biology 2007; 32(5):282–292.

Khor YH, Feltis BN, *Reid DW, Ward C, *Johns DP, *Wood-Baker R, *Walters EH. Airway cell and cytokine changes in early asthma deterioration after inhaled corticosteroid reduction. Clinical and Experimental Allergy. 2007; 37:1189–1198.

Kiltz U, Brandt J, *Zochling JM, Braun J. Rheumatic manifestations of lymphoproliferative disorders. Clinical and Experimental Rheumatology 2007; 27(1):35–39.

***King AE, *Dickson TC, *Blizzard CA, Foster SS, *Chung RS, *West AK, *Chuah MI, *Vickers JC.** Excitotoxicity mediated by non-NMDA receptors causes distal axonopathy in long-term cultured spinal motor neurons. Eur J Neurosci. 2007 Oct; 26(8):2151–9.

Kirov SM, Webb JS, *O'May CY, *Reid DW, Woo JKK, Rice SA, Kjelleberg S. Biofilm differentiation and dispersal by mucoid Pseudomonas aeruginosa isolates from patients with cystic fibrosis. Microbiology 2007 (E-published).

Kolka CM, *Rattigan S, *Richards SM, *Clark MG. Potential for endothelin-1-mediated impairment of contractile activity in hypertension. Clinical and Experimental Phamacology and Physiology 2007; 34(March):217–222.

***Kreiss A, Fox N, Bergfeld J, *Quinn SJ, Pyecroft S, *Woods GM.** Assessment of cellular immune responses of healthy and diseased Tasmanian devils (Sarcophilus harrisii). Dev Comp Immunol. 2007 Oct 16 (E-published).

Lucas RM, *Ponsonby AL, McMichael AJ, *van der Mei I, Chapman C, Coulthard A, Dear K, *Dwyer T, Kilpatrick TJ, Pender MP, *Taylor B, Valery P, *Williams D. Observational analytic studies in multiple sclerosis: controlling bias through study design and conduct. The Australian Multicentre Study of Environment and Immune Function. Mult Scler. 2007 Aug; 13(7):827–39.

***Magnussen CG, Raitakari OT, Thomson R, Juonala M, Patel DA, Viikari JSA, Marniemi J, Srinivasan SR, Berenson GS, *Dwyer T, *Venn A.** (2008). Utility

of Currently Recommended Pediatric Dyslipidemia Classifications in Predicting Dyslipidemia in Adulthood: Evidence from the Childhood Determinants of Adult Health (CDAH) Study, Cardiovascular Risk in Young Finns Study, and Bogalusa Heart Study. Circulation 2007; Dec 10 (E-published).

Matheson MC, Erbas B, Balasuriya A, Jenkins MA, Wharton CL, Lai-Kuan Tang M, Abramson MJ, *Walters EH, Hopper JL, *Dharmage SC. Breastfeeding and atopic disease: A cohort study from childhood to middle age. J Allergy Clin Immunol. 2007 Nov; 120(5):1051–7.

Matheson MC, Raven J, *Johns DP, Abramson MJ, *Walters EH. Associations between reduced diffusing capacity and airflow obstruction in community-based subjects. Respiratory Medicine. 2007; 101(8):1730–7.

***McMorran BJ, Ouvry Patat S, Carlin J, Grimwood K, Jones A, Armstrong D, Galati J, Cooper P, Byrnes C, Francis P, Robertson C, Hume D, Borchers C, Wainwright C, Wainwright B.** Novel neutrophil-derived proteins in bronchoalveolar lavage fluid indicate an exaggerated inflammatory response in pediatric cystic fibrosis patients. Clinical Chemistry 2007; 53(10):1782–1791.

Morley B, Pirkis J, *Sanderson K, Burgess P, Kohn F, Naccarella L, Blashki G. Better outcomes in mental health care: impact of different models of psychological service provision on patient outcomes. Aust N Z J Psychiatry. 2007 Feb; 41(2):142–9.

Mundt DJ, Mundt KA, Luippold RS, *Schmidt MD, Farr C. Clinical epidemiological study of employees exposed to perfluorononanoic acid (PFNA) blend. Occupational and Environmental Medicine 2007; 64:589–594.

Nakajima K, Dharmage SC, Carlin JB, Wharton CL, Jenkins MA, Giles GG, Abramson MJ, *Walters EH, Hopper JL. Is childhood immunisation associated with atopic disease from age 7 to 32 years? Thorax. 2007; 62(3):270–5.

***Newman JM, *Ross RM, *Richards SM, *Clark MG, *Rattigan S.** Insulin and Contraction Increase Nutritive Blood Flow in Rat Muscle In Vivo: Determined by Microdialysis of [14C]-L-Glucose. J Physiol. 2007; 585(1)217–29.

***O'Toole DA, *West AK, *Chuah MI.** Effect of olfactory ensheathing cells on reactive astrocytes in vitro. Cell Mol Life Sci. 2007 May; 64(10):1303–9.

Panelli R, Kilpatrick C, Moore SM, Matkovic Z, *D'Souza WJ, O'Brien TJ. The Liverpool Adverse Events Profile: Relation to AED Us and mood. Epilepsia 2007. 48(3):456–463.

***Paul S, *Srikanth V, Thrift A.** The large and growing burden of stroke. Current Drug Targets 2007; 8:786–793.

***Ponsonby AL, Brown SA, Kearns LS, Mackinnon JR, Scotter LW, *Cochrane JA, Mackey DA.** The association between maternal smoking in pregnancy, other early life characteristics and childhood vision: the twins eye study in Tasmania. Ophthalmic Epidemiol. 2007; Nov-Dec (E-published).

***Powell S, *Ma D, *Jones G.** Determinants of skeletal age deviation in a cross-sectional study. J Clin Endocrinol Metab. 2007 Dec 4 (E-published).

***Rattigan S, *Bussey CT, *Ross RM, *Richards SM.** Obesity, insulin resistance, and capillary recruitment. Microcirculation. 2007 Jun; 14(4):299–309.

***Reid DW, *Carroll V, *O'May C, Champion A, Kirov SM.** Increased airway iron as a potential factor in persistence of Pseudomonas aeruginosa infection in Cystic Fibrosis. European Respiratory Journal. 2007 Aug; 30(2):286–292.

***Reid DW, Misso N, Aggarwal S, Thompson PJ, *Walters EH.** Oxidative stress and lipid-derived inflammatory mediators during acute exacerbations of cystic fibrosis. Respirology. 2007; Jan; 12(1):63–9.

***Ross RM, Downey KA, *Newman JM, *Richards SM, *Clark MG, *Rattigan S.** Contrast enhanced ultrasound measurement of microvascular perfusion relevant to nutrient and hormone delivery in skeletal muscle: a model study in vitro. Microvascular Research 2007 (E-published).

***Ross RM, Kolka CM, *Rattigan S, *Clark MG.** Acute blockade by endothelin-1 of haemodynamic insulin action in rats. Diabetologia. 2007 Feb; 50(2):443–51.

***Ross RM, Wadley GD, *Clark MG, *Rattigan S, McConell GK.** Local NOS inhibition reduces skeletal muscle glucose uptake but not capillary blood flow during in situ muscle contraction in rats. Diabetes 2007 Dec; 56(12):2885–92.

Rubio JP, Bahlo M, *Stankovich J, Burfoot RK, Johnson LJ, Huxtable S, Butzkueven H, Lin L, *Taylor BV, Speed TP, Kilpatrick TJ, Mignot E, *Foote SJ. Analysis of extended HLA haplotypes in multiple sclerosis and narcolepsy families confirms a predisposing effect for the class I region in Tasmanian MS patients. Immunogenetics. 2007 Mar; 59(3):177–86.

***Sanderson K, Tilse E, Nicholson J, Oldenburg B, Graves N.** Which presenteeism measures are more sensitive to depression and anxiety? J Affect Disord. 2007 Aug; 101(1-3):65–74.

***Schmidt MD, *Blizzard CL, *Venn AJ, *Cochrane JA, *Dwyer T.** Practical considerations when using pedometers to assess physical activity in population studies: lessons from the Burnie Take Heart Study. Res Q Exerc Sport 2007; 78:162–170.

Scott DK, Lord R, Muller HK, *Malley RC, *Woods GM. Proteomics identifies enhanced expression of stefin A in neonatal murine skin compared with adults: functional implications. Br J Dermatol. 2007 Jun; 156(6):1156–62.

Seneviratne U, *D'Souza W, Cook M. Long-term assessment of oxcarbazepine in a naturalistic setting: a retrospective study. Acta Neurologica Scandinavica 2007; Nov 19 (E-published).

***Shaw KA, *Srikanth VK, *Fryer JL, *Blizzard L, *Dwyer T, *Venn AJ.** Dual energy X-ray absorptiometry body composition and aging in a population-based older cohort. International Journal of Obesity 2007; 31(2):279–284.

Siddle HV, *Kreiss A, Eldridge MD, Noonan E, Clarke CJ, Pyecroft S, *Woods GM, Belov K. Transmission of a fatal clonal tumor by biting occurs due to depleted MHC diversity in a threatened carnivorous marsupial. Proc Natl Acad Sci USA. 2007 Oct 9; 104(41):16221–6.

Sims AM, Shephard N, Carter K, Doan T, Dowling A, Duncan EL, Eisman J, *Jones G, Nicholson G, Prince R, Seeman E, Thomas G, Wass JA, Brown MA. Genetic Analyses in a Sample of Individuals With High or Low Bone Density Demonstrates Association With Multiple Wnt Pathway Genes. J Bone Miner Res. 2007 Nov 19 (E-published).

***Srikanth VK, Fryer J, *Venn A, *Blizzard L, Newman L, Cooley H, *Albion T, *Jones G.** The association between non-melanoma skin cancer and osteoporotic fractures – a population-based record linkage study. Osteoporos Int. 2007 May; 18(5):687–92.

***Staal JA, *Dickson TC, *Chung RS, *Vickers JC.** 'Cyclosporin – a treatment attenuates delayed cytoskeletal alterations and secondary axotomy following mild axonal stretch injury', Developmental Neurobiology 2007; Aug 13 (E-published).

***Stewart N, *Taylor B, *Ponsonby AL, *Pittas F, *van der Mei I, *Woods G, *Walters H.** The effect of season on cytokine expression in multiple sclerosis and healthy subjects. J Neuroimmunol. 2007 Aug; 188(1–2):181–6.

Symons RC, Turakulov R, *Foote SJ, Craig JE, McCartney PJ, Mackey DA. No maternally inherited diabetes and deafness mutations in a sample of 193 Tasmanian diabetics with glaucoma. Ophthalmic Genet. 2007 Mar; 28(1):39-41.

***Thomson RJ, *Quinn S, McKay J, Silver J, Bahlo M, Fitzgerald L, *Foote SJ,**

** Denotes Menzies Research Institute researcher.*

***Dickinson J, *Stankovich JM.** The advantages of dense marker sets for linkage analysis with very large families. Human Genetics 2007; 121:459-468.

***van der Mei IA, *Ponsonby AL, *Dwyer T, *Blizzard L, *Taylor BV, Kilpatrick T, Butzkueven H, McMichael AJ.** Vitamin D levels in people with multiple sclerosis and community controls in Tasmania, Australia. J Neurol. 2007 May; 254(5):581-90.

***van der Mei IA, *Ponsonby AL, Engelsen O, Pasco JA, McGrath JJ, Eyles DW, *Blizzard L, *Dwyer T, Lucas R, * Jones G.** The high prevalence of vitamin D insufficiency across Australian populations is only partly explained by season and latitude. Environ Health Perspect. 2007 Aug; 115(8):1132-9.

***Venn AJ, Hosmer T, Hosmer D, Bruinsma F, Jones P, Lumley J, Pyett P, Rayner J, Werther G.** Oestrogen treatment for tall stature in girls: estimating the effect on height and the error in height prediction. Clinical Endocrinology 2007; doi:10.1111/j.1365-2265.2007.03128.x (E-published).

***Venn AJ, *Thomson RJ, *Schmidt MD, Cleland VJ, *Curry BA, Gennat HC, *Dwyer T.** Overweight and obesity from childhood to adulthood: a follow-up of participants in the 1985 Australian Schools Health and Fitness Survey. Med J Aust. 2007 May 7; 186 (9):458–60.

***Vincent AJ, Choi-Lundberg DL, Harris JA, *West AK, *Chuah MI.** Bacteria and PAMPs activate nuclear factor kappaB and Gro production in a subset of olfactory ensheathing cells and astrocytes but not in Schwann cells. Glia. 2007 Jul; 55(9):905–16.

Vollus GC, *Bradley EA, Roberts MK, *Newman JM, *Richards SM, *Rattigan S, Barrett EJ, *Clark MG. Graded occlusion of perfused rat muscle vasculature decreases insulin action. Clin Sci (Lond). 2007 Apr; 112(8):457–66.

***Walters EH, *Walters JA, *Wood-Baker R.** Anti-IgE and chemotherapy: a critical appraisal of treatment options for severe asthma. Expert Opinion on Pharmacotherapy. 2007; 8(5):585–92.

***Walters EH, Gibson PG, Lasserson TJ, *Walters JA.** Long-acting beta2-agonists for chronic asthma in adults and children where background therapy contains varied or no inhaled corticosteroid. Cochrane Database Systematic Review. 2007 Jan 24; (1):CD001385.

***Walters JA, *Hansen EC, *Johns DP, *Walters EH, *Blizzard L, *Wood-Baker R.** A mixed methods study to compare models of spirometry delivery in primary care for patients at risk of Chronic Obstructive Pulmonary Disease. Thorax. 2007 Dec 5 (E-published).

***Winzenberg T, Buchbinder R, *Shaw K, *Jones G.** Musculoskeletal conditions - what's new from Cochrane and how might this affect your practice? Aust Fam Physician. 2007 Jun; 36(6):433-4.

***Winzenberg T, *Zochling J.** Colchicine – What is its place in the management of acute gout? Aust Fam Physician 2007; 36:529-30.

***Winzenberg T, *Hansen E, *Jones G.** How do women change osteoporosis-preventive behaviours in their children? Eur J Clin Nutr. 2007 Apr 4 (E-published).

***Winzenberg T, *Powell S, *Jones G.** Strontium ranelate – does it affect the management of postmenopausal osteoporosis? Aust Fam Physician. 2007 Aug; 36(8):631–2.

***Winzenberg T, *Shaw K, *Fryer J, *Jones G.** Calcium supplements in healthy children do not affect weight gain, height, or body composition. Obesity (Silver Spring). 2007 Jul; 15(7):1789–98.

***Wood-Baker R, *Walters J, *Walters EH.** Systemic corticosteroids in chronic obstructive pulmonary disease: an overview of Cochrane systematic reviews. Respiratory Medicine. 2007; 101(3):371–7.

***Woodhouse A, *Dickson TC, *Vickers JC.** Vaccination strategies for Alzheimer's disease: A new hope? Drugs Aging. 2007; 24(2):107-19.

***Woodhouse A, *Vickers JC, Adlard PA, *Dickson TC.** Dystrophic neurites in TgCRND8 and Tg2576 mice mimic human pathological brain aging. Neurobiol Aging. 2007 Oct 18 (E-published).

***Woods GM, *Kreiss A, Belov K, Siddle HV, Obendorf DL, Muller HK.** The Immune Response of the Tasmanian Devil (Sarcophilus harrissii) and Devil Facial Tumour Disease. EcoHealth 2007; 4: 338-345.

Xu J, Wang Y, Pan F, *Stankovich J, Ye D, Lian L, Zhang K, *Ding C. Association of ACE Gene Polymorphism with Genetic Susceptibility to Systemic Lupus Erythematosus in a Chinese Population: A Family-based Association Study. J Rheumatol. 2007 Dec; 34(12):2408–2411.

Zhai G, *Ding C, Cicuttini F, *Jones G. A longitudinal study of the association between knee alignment and change in cartilage volume and chondral defects in a largely non-osteoarthritic population. J Rheumatol. 2007 Jan; 34(1):181–6.

***Zochling J, Grill E, Alten R, Ernst J, Stucki G, Braun J.** Identification of relevant functional issues for the care of patients with acute arthritis by health professionals, using the ICF framework and a multi-disciplinary focus group approach. Clin Exp Rheumatol. 2007 May–Jun; 25(3):354–60.

Reviews

Effing T, Monninkhof EM, van der Valk PD, van der Palen J, van Herwaarden CL, Partidge MR, *Walters EH, Zielhuis GA. Self-management education for patients with chronic obstructive pulmonary disease. Cochrane Database Syst Rev. 2007 Oct 17; (4):CD002990.

***Gartlan J, *Nelson M, *Jones G.** Osteoarthritis management of the knee-treatment options post the NSAID cardiotoxicity controversy. Aust Fam Physician. 2007 Sep; 36(9):717-8.

***Holloway AF, *Oakford PC.** Targeting epigenetic modifiers in cancer. Curr Med Chem. 2007; 14(24):2540-7.

Norval M, *Malley RC, *Woods GM. What's new in photoimmunology? Photodermatol Photoimmunol Photomed. 2007 Aug; 23(4):148-51.

Norval M, *Malley RC, *Woods GM. Immune protection against photocarcinogenesis. Expert Review of Dermatology 2007; 254(5):581-590.

***Shaw K, *Zochling J, *Winzenberg T.** Nonpharmacological interventions for rheumatoid arthritis. Aust Fam Physician. 2007 Oct; 36(10):840-1.

Stankovic RK, *Chung RS, Penkowa M. Metallothioneins I and II: neuroprotective significance during CNS pathology. Int J Biochem Cell Biol. 2007; 39(3):484-9.

***Walters EH, *Reid DW, *Johns DP, Ward C.** Non-pharmacological and pharmacological interventions to prevent or reduce airway remodelling. Eur Respir J 2007 Sep; 30(3):574-588.

***Walters JAE, Howes FS, Buchbinder R.** Oral corticosteroids – their place in the management of adhesive capsulitis. Australian Family Physician 2007; 36(11):927-929.

***Zochling J, Baraliakos X, Hermann KG, Braun J.** Magnetic resonance imaging in ankylosing spondylitis. Curr Opin Rheumatol. 2007 Jul; 19(4):346-52.

***Zochling J, Braun J.** Assessments in ankylosing spondylitis. Best Pract Res Clin Rheumatol. 2007 Aug; 21(4):699-712. Review.

***Zochling J, Braun J.** Quality indicators, guidelines and outcome measures in ankylosing spondylitis. Clin Exp Rheumatol. 2007 Nov-Dec; 25(6 Suppl 47):147-52.

Presentations

Menzies' researchers attended a number of national and international medical research conferences in 2007. 190 oral and poster presentation were delivered.

Education and Training

STUDENT RESEARCH TEAM:

A/Prof Leigh Blizzard, Graduate Research Coordinator (Macquarie Street)

Dr Sue Pearson, Honours and Undergraduate Research Opportunity Program Coordinator

Dr Stephen Richards, Graduate Research Coordinator (Sandy Bay)

A/Prof Greg Woods, Graduate Research Coordinator (Clinical School)

Our Student Research Environment

One of the key goals of Menzies is to attract quality research students and early career postdoctoral researchers, and to train them to become future research leaders.

The number of research students at Menzies is continuing to grow. There were 51 Masters and PhD candidates enrolled in 2007. Another ten students completed an honours degree, and five undergraduate students were placed in the Undergraduate Research Opportunities Program (UROP) that was introduced in 2005.

Providing a stimulating and rewarding learning environment that is responsive to student needs has become an important focus of Menzies. Several new initiatives were taken in this regard in 2007.

A weekly program of teaching in statistics was introduced, together with weekly workshops to provide guidance in the use of the Stata statistical package. Monthly journal club meetings were introduced at Macquarie and Bathurst Street sites, to train students in the critical appraisal of scientific literature. Several members of academic staff led by Professor Simon Foote provided lectures in genetics and statistical genetics as part of an undergraduate curriculum at the University of Tasmania, with an open invitation to attend extended to Menzies' staff and research students.

In 2007, the annual Postdoctoral Fellow Training Day was for the first time, expanded to include our research students with 35 of them able to attend. The topics covered included:

- The road to a successful career in medical research (Professor Doug Hilton, Walter & Eliza Hall Institute);
- Research ethics in the genetics of populations (Professor Don Chalmers, University of Tasmania);
- Finding a salary to support your career (Dr Lisa Koutoulis, Menzies Research Institute);
- How to translate your discovery into a clinical outcome (Professor Simon Foote, Menzies Research Institute);
- Ten rules for the presentation and interpretation of data in publications (Professor Dave Vaux, La Trobe University).

The Childhood Determinants of Adult Health (CDAH) team continued their monthly analysis meetings at which students and postdoctoral fellows are given opportunities to present preliminary data, plan analyses and paper writing, discuss reviewers' comments on submitted papers, and address common data management and data analysis problems.

Postdoctoral Completions

There were six Doctor of Philosophy (PhD) completions in 2007.

Verity Cleland completed her PhD in *The importance of physical activity and fitness in maintaining a healthy weight from childhood into adulthood* with the Childhood Determinants of Adult Health (CDAH) study team, and was appointed as a postdoctoral research fellow at the Centre for Physical Activity and Nutrition at Deakin University.

Renee Dwyer (nee Ross) completed her PhD in *Exercise and insulin: muscle haemodynamics and metabolism* with the muscle research group. Renee was then offered a tenured lectureship at the University of Tasmania. She has responsibility for the Paramedicine course offered by the School of Medicine.

Liesel Fitzgerald completed her PhD in *The genetics of familial prostate cancer in Tasmania* with the genetics group, and has taken up a postdoctoral position at the Fred Hutchinson Cancer Research Center, Seattle, in the lab of Professor Janet Stanford.

Dr Julia Walters completed her PhD in *A mixed-methods investigation of attitudes to chronic obstructive pulmonary disease in general practice and the utility of spirometry for improving it*, with the respiratory research group, and was awarded an Australian Lung Foundation Boehringer Engelheim Postdoctoral Fellowship to continue her work at the Menzies Research Institute.

Dr Yudong Wen completed her PhD in *Smoking-related airway inflammation and corticosteroid responsiveness in smoking-related*

COPD with the respiratory research group. She has returned to Melbourne to complete her clinical training.

Kate Brettingham–Moore completed her PhD in *Investigating the molecular events in GM-CSF activation*, with the cancer and immunology research group, and since then has been working at the Murdoch Childrens Research Institute, Melbourne in a Postdoctoral research position.

Published Papers

Our graduate research students make a significant contribution to the research output of Menzies. Their research topics focus on some of the most important health-related conditions and diseases affecting the human and animal populations of Australia and worldwide.

Renee Dwyer (nee Ross) had two first-author paper publications in 2007, and a third paper E-published ahead of print. **Dr Julia Walters** and **Adele Woodhouse** each had two first-author publications that year.

Students who were first-author on a paper published in 2007 include **Catherine Blizzard, Michele Callisaya, Stella Foley, Helen Jordan, Anna King, Costan Magnussen, Deborah Scott, Jerome Staal** and **Adele Woodhouse**.

The paper by PhD candidate **Costan Magnussen** deserves special mention because of the resourceful collaborative skills that were required to bring it to fruition and the high standing of the journal in which it was published. It combines data from three large cohorts – the Childhood Determinants of Adult Health Study (Australia), the Cardiovascular Risk in Young Finns Study (Finland), and the Bogalusa Heart Study (Louisiana, USA) – to examine whether cut points defining elevated risk levels of cholesterol and triglycerides in adolescence were able to accurately classify those adolescents who would develop dyslipidaemia in adulthood.

Prizes, Awards and Honours

Judged on the scientific quality of their submitted abstracts, student bursaries were awarded to **Au Bich Thuy, Stella Foley** and **Charlotte McKercher** at the Joint Scientific Meetings of the Australasian Epidemiological Association and the International Epidemiological Association – Western Pacific Region in Hobart. In addition, **Peta Hitchens** and **Kylie Smith** received High Commendations for their abstracts.

Catherine Blizzard made an invited presentation to the Tasmanian Masonic Medical Research Foundation.

An abstract submitted by **Carol Bussey** to the European Association for the Study of Diabetes meeting in Amsterdam, reporting results of her research into adiponectin and diabetes, was chosen for oral presentation. Only 10 per cent of abstracts were invited for oral presentation. Carol was also runner-up in the poster competition conducted at the 2nd international conference on Frontiers in Vascular Medicine in Melbourne.

Nicholas Casey was the recipient of a David Collins Leukaemia Foundation Professional Development Award.

At the Australia & New Zealand Bone and Mineral Society Annual Conference in Queenstown, New Zealand, **Stella Foley** received the Young Investigator Award for best clinical oral presentation at the conference. Stella also received travel awards to attend the ANZBMS meeting in Queenstown and the American Society of Bone and Mineral Research meeting in Honolulu.

A student poster prize was awarded to **Robert Gasperini** at the International Brain Research Organization World Congress of Neuroscience. There were over 1300 poster presentations from students all over the world, and Rob's was one of only eight to be awarded a prize. The poster prize follows on from his success in the inaugural Australian Society of Medical Research Medical Research (ASMR) Week (Tasmania) Student Awards.

Anna King was a finalist in the ASMR Week (Tasmania) Student Awards. She received a Motor Neurone Disease Research Institute of Australia Conference Travel Award. Having submitted her PhD thesis

for examination in September 2007 (degree awarded 2008), Anna was awarded a Bill Gole Postdoctoral Fellowship for the period 2008–2010.

Building on his background in computing, **Tristan Ling** was awarded a CSIRO PhD Fellowship to conduct research involving the development of "intelligent" software to investigate patterns of lung function in health and disease. His PhD research will continue his BSc (Comp) honours year research with the respiratory research group in 2006 that was co-supervised by Associate Professor Byeong-Ho Kang of the School of Computing and Information Systems, UTAS.

Heather McGee was a semi-finalist in the Southern Cross Young Achiever Awards, Tasmania, in the Science and Technology division.

Roslyn Malley was awarded the HK Muller Award for the best presentation by an early career researcher at the Mutagenesis and Experimental Pathology Meeting of Australasia.

Philippa Oakford was awarded prizes for conference travel during the year by The Cancer Council Tasmania and the David Collins Leukaemia Foundation.

Adele Woodhouse was a finalist in the ASMR Week (Tasmania) Student Awards. She received a Society for Neuroscience/International Brain Research Organisation International Travel Grant, and made invited presentations to the Motor Neurone Disease Research Institute of Australia and the University Foundation Women's program.

Honours Students

Under the supervision of academic staff at Menzies, nine students successfully completed an honours degree in 2007.

Those who have gone on to postgraduate work at Menzies include **Dawn Dore,** who will extend her honours work to examine methodological issues in measuring knee subchondral bone density in the tibia. Dawn also had the opportunity to present her honours work at a number of conferences in 2007 including the ANZBMS conference in Queenstown, New Zealand, for which she received a travel award. Dawn has been awarded an Endeavour International Postgraduate Research Scholarship to continue her PhD studies.

Ruth Musgrove has continued her studies on the role of the protein alpha-synuclein in the development of Parkinson's disease in a PhD with Tracey Dickson of the neuroscience group.

Dino Premilovac has also commenced a PhD with the muscle diabetes research group using ultrasound techniques to examine how microscopic flow distribution changes control muscle insulin sensitivity.

Clare Smith will be continuing her work in the area of host-directed antimalarial therapies. During her honours year, Clare was awarded

the *Judges Choice Poster Prize* at the Sharing Excellence in Research UTAS Postgraduate Research Conference for her poster. This was an excellent effort because the majority of posters were presented by PhD students.

Shuying Wei will extend her honours work in the area of menstrual irregularity and cardiovascular disease. These students are supported by Menzies' Postgraduate scholarships. Ruth has additional funding from the Wicking Dementia Research and Education Centre.

The Dean's Citation for the Faculty of Science, Engineering and Technology for performance in honours year in 2007 was awarded to **Will Upcher** and to **Alison West**. Will was supported by a Menzies Honours scholarship and Alison completed her honour's year with the assistance of a Cancer Council Tasmania scholarship.

Other students successfully completing honours were **Andrew Herbert** and **Emma Eaton**. Emma is currently working as a research assistant with the neuroscience group.

Menzies' Undergraduate Research Opportunity Program

Each year Menzies offers a number of Undergraduate Research Opportunity Program (UROP) scholarships to students attending UTAS. Students receive $5,000 to work closely with a supervisor at Menzies to undertake a small project that will provide them with a research experience they may not otherwise receive during their undergraduate years.

In 2007 over 30 applications were received from students drawn from a range of different academic disciplines, and 11 students were successful in being awarded a scholarship. They will work full-time at Menzies over the summer of 2007–08 and part-time during the

2008 academic year. The project placements for these students have traversed a variety of theme areas in Menzies.

The students, their topics and supervisors are listed below:

- **Carli Armstrong**: *Is expression of Homer1 proteins a correlate of Alzheimer's Disease?* Supervisors: Prof David Small and Dr Lisa Foa.
- **Nicholas Blackburn:** *Development of Metallothionein-IIA alpha and beta subunit constructs and exploration of their individual neuroprotective and neuroregenerative roles in comparison with the entire MT-IIA protein*. Supervisors: A/Prof Adrian West and Dr Roger Chung.
- **Georgina Boon**: *An assessment of the relationship between cognitive function and physical activity in an older population.* Supervisors: Dr Velandai Srikanth and A/Prof Leigh Blizzard.
- **Heather Buchan**: *Exploring gender differences in the relationship between the personality factor "conscientiousness" and health-related behaviours associated with risk for cardiovascular disease*. Supervisor: Dr Sue Pearson.
- **Catherine Cash**: *Topics in applied biostatistics (cystic fibrosis mortality, RCT of management of adolescents with cystic fibrosis, smoking and lung function)*. Supervisor: A/Prof Leigh Blizzard.
- **Edward Doddridge**: *Genetic Evidence of Selection for Protection from Malaria*. Supervisor: Dr Russell Thompson.
- **Kathryn Hampton**: *Regulation of the Leukaemia Inhibitory Factor Receptor (LIFR) gene by the RUNX1 transcription factor.* Supervisors: Dr Adele Holloway and Dr Jo Dickenson.
- **Ella Hoban**: *Depression, anxiety and the serotonin transporter gene and Multiple Sclerosis*. Supervisor: Dr Brendan McMorran.
- **Laura Keith**: *The effect of a high-fat diet on exercise-mediated capillary recruitment in muscle*. Supervisor: Dr Michelle Keske.
- **Michael Thompson**: *The regulation of Calcium signaling in growth cone motility.* Supervisors: Dr Lisa Foa and Professor David Small.
- **Siddharth Trivedi**: *Relationship between childhood fitness and left ventricular mass in adulthood*. Supervisors: Assoc/Prof Alison Venn and Costan Magnussen.

Administration Team

STAFF:

Tim Albion, IT Systems Manager

Mark Bennett, General Manager

Jill Butterworth, Communications and Events Coordinator (to December 7)

Alistair Chilcott, IT Systems Administrator

Jenny Cochrane, Data Manager

Julia Garry, Research Officer

Melita Griffin, Development Manager

Furley Johnston, Receptionist

Dr Lisa Koutoulis, Research Manager

Dixie Prenter, Secretary to the Director (to December 7)

Emma Stubbs, Administrative Assistant

Susan Sussems, Development Officer

Kathryn Thomson, Administration Manager

Felicity Tracy, Administrative Assistant – Development (from September 3)

Stewart Wells, Administration Officer – Finance

Barbara Zimmerman, Development Coordinator (from April 23)

The Administration Team aims to provide efficient and effective support to the Director, Board and staff at Menzies. The Team supports Menzies' research activities across a number of areas, including administration and reception, human resource management, finance, grants management, information technology, development and communications.

Administration, Reception and Human Resources

Administration, reception and human resources staff played a significant role supporting the achievement of Menzies' core goal areas and its strategic direction. Menzies continued to grow during 2007 with staff and student numbers increasing by 72 per cent from 133 to 229. To accommodate our growth and to make room for our new building, our operations are now spread across six sites in Hobart.

Tim Albion, Mark Bennett, Ceri Flowers and Kathy Thomson view the new building plans

We are constructing a new building on the old Menzies' site in Liverpool Street to accommodate all of our operations. The building is scheduled for completion in late 2009. While the building will have space to house 290 Menzies staff and students, we anticipate that we will continue to grow to reach our optimum size of 500 people in 2013. This means that we are working hard to obtain additional funds to add an additional stage to the building to accommodate our future growth.

The Administration Team has played a key role in the new building process, including managing the consultation process to ensure that the building is suitable and adequately equipped to carry out our work.

Research Management

The Research Management Team supports researchers in the submission and maintenance of their grants. This includes assistance in the writing, checking and editing, interpretation of eligibility requirements, formatting, formulation of budgets, as well as the coordination, and compilation of large research initiatives. Once a grant is successful, the Research Management Team ensures compliance with research agreements including progress and financial reporting, and liaising between the funding bodies and the researchers to ensure the needs of both parties are met.

The Menzies Research Institute was successful in obtaining 55 grants commencing in 2007, this was an overall success rate of 56 per cent. Some of the funding highlights for this year were our involvement in two Australian Research Council (ARC) linkage projects, five National Health and Medical Research

Council (NHMRC) project grants, two NHMRC Training Fellowships and one NHMRC Practitioner Fellowship. Our researchers were also successful in gaining a grant from the JO & JR Wicking Trust, which is managed by ANZ Trustees for Dementia Research ($1.5 million) and an Australian Cancer Research Foundation grant for Cancer Research ($1.1 million). In addition, Menzies was involved in a successful National Collaborative Research Infrastructure Scheme (NCRIS) grant ($16 million).

In 2007, Menzies implemented a rigorous internal peer review process and centralised curriculum vitae database for the NHMRC Project Grant round. The results of this proved extremely successful. The grants to commence in 2008 have been announced, resulting in over $12 million in NHMRC funding to the Menzies, including a Program Grant, nine Project Grants and five Fellowships.

Finance

In 2007, Menzies received income of $12.1 million from a variety of funding sources, including $3.2 million from nationally competitive grants via the NHMRC and the ARC.

Menzies also received $2.8 million from the University of Tasmania (UTAS). The majority of these funds were performance based and were received in recognition of the level of research income obtained by Menzies, the number of scientific publications, and the number of completing and enrolled research higher degree students.

The Tasmanian Government continued to provide support in a number of areas including recognition of Menzies' status, achievements and place in the Tasmanian community by awarding funding under the Tasmanian Icons Program through the Department of Economic Development. The Department of Health and Human Services also provided funds, including the Tasmanian Cancer Registry which is managed by Menzies on behalf of the Tasmanian Government, to support our epidemiological research, and a postdoctoral fellowship – the Dick Buttfield Fellowship.

The Menzies Foundation was largely responsible for the formation of Menzies in 1988 and has supported the Institute since its inception. The Menzies Foundation continues to be an important stakeholder and has continued to enhance our standing and contribute to our development and strategic direction. The Foundation continued its financial support in 2007 providing $150,000 towards the activities of the Institute.

Menzies continued its strong relationship with international philanthropic organisation The Atlantic Philanthropies. In addition to the $7.5 million received to support the construction and basic fit-out of the new building in 2005 and 2006, The Atlantic Philanthropies provided $645,000 during 2007 as part of a $US2 million project over the period 2006 to 2010 that will see Menzies' researchers oversee the development of a national non-communicable disease surveillance system for Vietnam.

Menzies has developed excellent working relationships with a number of local and interstate organisations with common goals. During 2007, we were fortunate to receive significant funding from these organisations including:

- Royal Hobart Hospital Research Foundation – $355,000;
- ANZ Trustees Ltd (JO & JR Wicking Trust) – $300,000;
- Australian Cancer Research Foundation – $275,000;
- National Heart Foundation – $205,000;
- The Cancer Council Tasmania – $139,545;
- David Collins Leukaemia Foundation – $96,000;
- Alzheimer's Australia – $89,000;
- Australian Lung Foundation – $60,000;
- Multiple Sclerosis Society of Tasmania – $60,000;
- Ian Potter Foundation – $54,000; and
- Asthma Foundation of Tasmania – $50,000.

Menzies obtained a significant surplus in 2007 with an operating surplus of $1.3 million. A majority of the surplus relates to research project funding that has not been expensed, but will be expensed on those projects in future periods. The Financial Statements for the year ended 31 December 2007 are included in this report on pages 61–64.

Information Technology

Staff from Information Technology (IT) aim to provide reliable, effective, secure and innovative IT solutions to assist Menzies pursue its aspiration.

Menzies' IT systems are continually being maintained and improved to ensure the secure and confidential storage of data and the reliable and effective use of computers and software in the day to day running of Menzies.

The IT Team is also responsible for the in-house development of software applications which improve work efficiencies for Menzies' staff. Of particular interest in 2007 was the conversion of our Computer Aided Telephone Interview (CATI) system so that simple questionnaires can now be completed over the Internet.

Development

The Development team provides the link between the Tasmanian community and research undertaken at Menzies. It is our job to work closely with business, community

groups and individuals to raise awareness about our work, and the team is also responsible for all fundraising and marketing activities.

2007 was the first year of a five year strategic plan to increase fundraising income and community awareness of Menzies' research. Accordingly, the team has undertaken new fundraising practices and has built upon those that have been successful in the past. As a result, 2007 was a challenging but rewarding year.

Careful planning and coordination of four separate fundraising campaigns resulted in a significant increase in the number of donations from the community. With the support of Red Jelly and Southern Cross Television a community awareness advertisement for Menzies was produced and shown across the state. During 2007 we were privileged to receive 1,357 donations from individuals and organisations totalling $216,474.

The Society for the Future was developed and launched in 2007. The aim of this program is to enable Menzies to appropriately thank bequest donors, their families and solicitors. This program is growing at an encouraging rate with 19 new members in 2007.

In addition, we welcomed retired Magistrate Ian Matterson as the voluntary Chair of the Major Gifts Committee. We are grateful to Ian for his dedication and enthusiasm towards Menzies and looking forward to working with him in the coming year to further develop the area of Major Gifts.

The Menzies Golf Classic was held in March, and with the support of our corporate partners, $15,760 was raised for Honours Student Scholarships at Menzies. 130 golfers enjoyed the day and the company of celebrity caddies such as Jo Palmer, John X, Craig Wellington and Andrew Gee.

Collaboration with the Royal Hobart Hospital Research Foundation on the third Art of Christmas ensured that this event enjoyed increased support. Artworks donated by local artists such as Leigh Oats, Joan Humble and Michael Weitnauer were auctioned at a gala cocktail evening at the Cascade Visitors Centre, with six of the works being featured on greeting cards. The collection featured has been the most popular to date, and thanks to support from Print Applied Technology (formerly Print Authority Tasmania), Spicers Paper and Red Jelly, profit from sales has been very encouraging. More than $30,000 was raised from artwork and card sales.

In conjunction with Research Australia, Menzies co-hosted a successful Thank You Day at the Royal Tasmanian Botanical Gardens with 100 guests in attendance, including representatives from philanthropic organisations, corporate and service organisations and the University of Tasmania. We were also privileged to have individual supporters and volunteers in attendance.

Menzies was the beneficiary of fundraising efforts by community groups in 2007, including the Mowbray Ladies Golf Club Benevolent Day, ME Bank Staff Christmas Fundraising and various donations in lieu of birthday gifts.

At the end of 2006, twelve supporters donated on a monthly basis as part of the Every Day Angels program. In December 2007, this number had increased to 25 and we thank these new donors for their support.

Volunteers

The Volunteer Program is an important part of Menzies, with 53 volunteers making significant contributions to our research and administrative support functions across a variety of projects during 2007. Without the contributions made by our volunteers, Menzies would not be able to carry out our research to the level required.

Volunteers are introduced to Menzies through a variety of sources, including after participating in a study, visiting the Institute or learning about us through a community talk. Many offer their services because they feel they can contribute so much back to the community after retirement.

A number of our studies have a dedicated volunteer who becomes a part of the team and comes in once a week, where others like the casual

basis that volunteering offers. Tasks carried out by volunteers include data entry, filing and mailouts; and those with medical skills work in our clinics. Some volunteers enjoy working in the development and fundraising area, where they can become involved in special events.

Our volunteers allow Menzies to carry out work that may not otherwise be achievable, and their involvement is deeply appreciated by researchers and administration staff.

Menzies would like to thank the following volunteers for their commitment and dedication in 2007:

Davys Baldwin
Irma Baumeler
Brian Berwick
Denis Black
Richard Brodribb
Beverly Brown
Catherine Brown
David Bryce
Audrey Button
Von Calvert
Robyn Chapman
Judy Clark
Selina Claxton
Fay Cox
Ian Crouch
Wendy Davidson
Pam Elwell
Leslie Fletcher
Jeff Fung
Mozelle Gasperowicz
Colleen Hay
Barbara Hayes
Cheryl Hewitt
Keryl Houlgrave
Jean Keil
Ellen Kelly
Kathy Koukias
Mary Leon
Barbara Long
Sylvia Macleod
Marie Magill
John Mathewson
Dorothy Melross
Leon Morrell
Susan Morrell
Prue O'Halloran
Pauline Payne
Judy Pennicott
Rhona Puclin
Maree Steele
Roslyn Stoddart
Mary Stuart
Launa Turner
Samatha Twigg
Marylyn U'Ren
Robert U'Ren
Gerald Veldhuis
Margaret Vince
Vicki Wagstaff
Fay Wheeler
Jenny Wiggins
Janice Williams
Helen Wood

Thank you to our valued supporters

Community

Donations – Community Groups

Apex Club of Glenorchy
Bruny Island Community Health Centre Auxiliary
Burnie Bridge Club
Burnie Friendship Group
Burnie Senior Citizens Club Inc
Claremont RSL
Country Women's Association
Country Women's Association – North Bruny Branch
Eastern Shore Bridge Association
Hobart Chapter No.162 Order of the Eastern Star
Hobart Legacy Widows Club
Kingborough Sub-Branch RSLA
Latrobe High School
Lenah Valley Garden Club
Lindisfarne RSL
Lions Club of Burnie Emu Bay Inc
Lions Club of City of Launceston Inc
Lions Club of Devonport Mersey Inc
Lions Club of Forth Valley Inc
Lions Club of Hadspen South Esk Inc
Lions Club of Hobart Town Inc
Lions Club of Huon Inc
Lions Club of Kentish Inc
Lions Club of Kingborough Inc
Lions Club of Latrobe Inc
Lions Club of Orford Spring Bay Inc
Lions Club of Port Cygnet Inc
Lions Club of Queenstown Inc
Lions Club of Scottsdale Inc
Lions Club of St Helens Inc
Lions Club of Wynyard Inc
Masonic Centenary Medical Research Foundation
Mornington Plumbing Centre
Mount Lyell Lodge No 24 TC
Mowbray Golf Club Associates
National Seniors Australia (Hobart Branch)
Navy Club Ladies Auxiliary
Nugara Lodge
Porcelain Painters Association
Rotary Club of Queenstown
Rotary Club of Sorell
Rotary Club of Ulverstone
Soroptimists International of New Norfolk
Tasman Ex-Service Bowls Club
Thirlstane Golf Club Associates
U3A Cygnet Inc
UTAS Sport & Recreation
War Widows Guild of Tasmania
Wellbeing Club 13

Donations – Business Community

Aurora Energy
Blundstone Australia
Centrelink Call Centre – Hobart
DJ Motors Pty Ltd
Elders Brown and Banks
Eye Spy Signs Pty Ltd
Griffiths & Galloway Building Surveyors
LGAT ASSIST
Lindisfarne Newsagency
LJ Hooker Kingston
Mures Fish Centre
Parmic Fire Protection
Serve-Ag Pty Ltd
Strategic Financial Planning
Tasmanian Alkaloids Pty Ltd
Veolia Environmental Services
Westpac Banking Corporation

Menzies Golf Classic 2007

Veolia Environmental Services
Corporate Express Office Equipment
Eye Spy Signs Pty Ltd
Fosters
4Lunch

Art of Christmas 2007

Artery
Display Works
Foster's Group
Hank Petrusma
Joel Weinburgur
Print Applied Technology
Red Jelly
Sean Fennessy Photographer
Spicers Paper
The Mercury
Wood & Bailey

Artists:
Natalie Dowling
Joan Humble
Nigel Lazenby
Cathy McAuliffe
Robyn Miller
Rebecca Murdoch
Georgina Pajak
Michael Weitnauer

Everyday Angels

Anonymous (2)
Mr Stephen Bender
Dr David Boadle
Mrs Anita Clarkson
Mr Don Cornish AO
Mr Brendon Davidson
Miss Matty June Doering
Mr & Mrs Garth and Brenda Haas
Miss Emma Jackson
Mrs Margaret Keogh
Mrs Margaret Knight
Mr Ian McConnelly
Mr Sam Mollard
Mrs Wendy Noye
Ms Felicity Oakford
Kim Paterson
Mr & Mrs Bob and Frances Russon
Mrs Gwynneth Sperring
Ms Carmel Taylor
Mrs Cynthia Tennant
Mrs Pat Vallance
Mr & Mrs Walter and Robin Verth
Mrs Margaret Williams
Ms Barbara Zimmerman and Professor John Dickey

Donations – Trusts

Max Bruce Trust administered by Peter Worrall Lawyers
Matterson Family Trust on Behalf of the late Helene Elizabeth Matterson

Donations – Individuals

A

Anonymous (160)
Mrs Jocelyn Abbott
Miss Maureen Absolom
Mr Kevin Ackroyd
Mrs Barbara Adams
Mrs Christine Adams
The Hon Michael Aird MLC
Mr & Mrs Pat and Dorothea Albion
Mr & Mrs Wally and Kathleen Alexander
Ms Annette Alexander
Mrs Dulcie Allanby
Mrs Sheila Allwright
Mrs Ila Andrews
Ms Sheree Archer

B

Mr Brian Baker AFSM and Mrs Baker
Mrs Adrienne Baldock

Mr Davys Baldwin
Mr & Mrs A and S Bardenhagen
Mr Joseph Barta
Ms J Bassett
Mrs B Bateman
Mrs Beryl Bates
Mr Douglas Beath
Dr Timothy Begbie
Mr Stephen Bender
Ms Ursula Bennett
Dr Allan Beswick
Mr & Mrs John Birtwistle
Mr & Mrs Gustav and Doreen Bjorklund
Mr & Mrs R Blakesley
Mrs Rona Blyth
Dr David Boadle
Mr F Bolt
Mr T Bowden
Mrs Carmel Bowen
Miss J Bradley
Mrs Rosemary Breen
Mrs Gwen Briscoe
Dr Ross Brooker
Mrs D Brown
Mr Gordon Brown
Mr & Mrs Charles and Gwenneth Brown
Mrs Shirley Brown
Mrs Diana Brownell
Mr & Mrs Peter and Wenda Bruce
Mrs Elizabeth Bryant
Miss C Bulman
Mrs Patricia Burbury
Mrs Esme Burgess
Mrs Lola Burk
Mrs Dot Burleigh
Mr Ivan Burnac
Ms Ann Burnett
Mr & Mrs Trevor and Mavis Burridge
Mr Kenrick Burrows
Mrs Ruth Burrows
Mrs Jillian Butler
Mrs Susan Butterworth

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Mrs Rosemary Cavill
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Mrs B Clennett
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Mr & Mrs DC and GJ Copping
Mrs Thelma Coram
Mrs Shirley Cordell
Mrs Norma Cornford
Mr Don Cornish AO
Mrs Joan Cornwall
Mrs Joy Coton
Ms Michelle Coutts
Mrs Fay Cox
Mr & Mrs Lesley Cox
Mrs Johanna Coy
Ms Patricia Cramp
Mrs Nancy Crew
Mrs Jill Critchlow
Mr & Mrs Brian and Betty Croger
Mr & Mrs Ian and Beth Crowden
Mrs Norah Crowther
Mrs M Cummins
Mrs Elizabeth Curtis

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Mrs Helen Dalla-Fontana
Mr & Mrs Terence and Evelyn Daly
Ms Mary Dane
Mr Brendon Davidson
Mr & Mrs Ronald Davies
Mrs Cora Dean
Mr & Mrs Wayne and Lynette Denehey
Ms Adrienne Denholm
Mrs Jeannette Dennison
Mrs Gloria Dickson
Dr Changhai Ding
Mrs Barbara Ditcham
Ms Mary Dixon
Mr & Mrs Peter Dobson
Mrs Gladys Dodson
Miss Matty June Doering
Mr Gus Donnelly
Mrs R Doughty
Mrs June Dowd
Mrs Suzanne Downer
Mrs Yvonne Downie
Mr Kenneth Drake
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Mr Herbert Duncan
Mr Raymond Duncombe
Mr Geoffrey Duniam
Mr & Mrs Kevin and Mary Dunne

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Mr Charles Evans
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Mrs Evelyn Fenton
Mr D Flood
Mrs Susan Folder
Mr Douglas Ford
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Mrs P Foster
Mr Henry Foster
Mr Peter Fyfe

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Mrs Maria Gavallas
Mrs Beverley Geard
Mrs Beryl Gelling
Dr Jacob George
Mr & Mrs Mervyn and June George
Mrs M Gibbs
Mrs June Gibson
Ms Belinda Gibson
Mrs Lynn Giddings
Mr Thomas Godwin
Mrs Norma Gordon
Ms Robyn-Maree Gottschalk
Mrs W G Gough
Mr Trevor Grant
Mrs Judy Grant
Sir Guy Green AC KBE CVO
Ms Michelle Green
Mrs Lynette Green
Ms Melita Griffin
Mrs J Grimmond

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Mr P Haley
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Mr Philip Hand
Mr & Mrs John and Lindsay Hand
Ms Christine Handley
Mrs Joy Handyside
Mr & Mrs Greg and Marlene Hanlon
Mrs Nancy J Harding
Mrs Janet Harding
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Mrs Mooneen Hicks
Mrs Helen Hills
Mr Kevin B Hingston
Ms Barbara Hodder
Mrs Ellen Hodgetts
Mrs Brenda Hodgson
Mr Keith Hoey
Ms J Hofto
Ms Vicki Hogan
Mrs Betty Holden
Mrs Pam Holland
Mrs Renai Holland
Ms Moira Holt
Mrs E Hood
Miss Ann Hopkins
Mr Zdenko Houdek
Mrs Yvonne House
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Mr & Mrs G Hughes
Mrs Margaret Hughes
Mrs Ruth Huxley

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Miss Emma Jackson
Mrs Flora James
Mr Robert WS James
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Mrs Helen Jones
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Mrs Jean King
Ms Catherine King
Mrs Margaret Knight
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Mr & Mrs Laszlo and Joan Kocsis
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Mr Mark Koppelmann

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Miss Eileen Lees
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Ms A Lewis
Mr Murray Limbrick
Mr J Lincoln
Mrs Judith Linton
Mr Ralph Londesborough
Mrs Judith Longhurst
Mrs Elizabeth Loughlin
Ms Sue Loughran
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Mrs B Lowe
Mrs Zandra Lowe
Mr & Mrs P Lowry
Mr & Mrs Robert and June Lowry
Mr Reginald Lynd
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Miss Kerryn Macmillan
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Mrs Auriel Mahony
Mrs B Mann
Mr William Mansbridge
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Mr Ian Matterson
Mrs Claire Matthews
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Mr Ian McConnelly
Miss Mary McCulloch
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Mrs Cynthia McDougall
Mr Dugald McDougall
Mrs Judith McDougall
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Mrs McNeice
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Mr Don McShane
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Mr Andy Muirhead
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Mrs Ethel Nichols
Mr Colin Nichols
Mrs Wendy Noye

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Mrs Eileen O'Brien
Mr Michael O'Farrell
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Miss Mayumi Otsuka

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Mr Ferdinand Stein
Mr Stephen Stolp
Mrs Julie Stoneman
Mrs J Stringer
Ms Mary Stuart
Mr David Sugden AO

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Mr & Mrs Phillip and Diane Tompson
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Mr P Tracey
Ms Geraldine Trainor
Mrs Helen Travers Hawker
Ms Joanne Traynor
Mr Lloyd Trenham
Mrs Jean Trethewey OAM
Mrs Valerie Trickett
Mr Eugene Triffett
Mr & Mrs D Trotman
Mrs Jennifer Turnbull
Ms Marie Ann Turnbull
Ms Fiona Tustian
Mrs Bev Twibell OAM
Ms Samantha Twigg

V

Mrs Voula Vafakos
Mrs Pat Vallance
Mrs Rosemary Van Emmerik
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Mr & Mrs Walter and Robin Verth
Mr & Mrs Douglas and Wanda Viney
Mr & Mrs Robert and Katharine Von Bibra
Mr & Mrs Brian and Julie Von Bibra

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Mrs Margaret Wade
Mr Wallace Wagg
Ms Janette Wagner
Mrs Judith Wallace
Drs Alan and Hilary Wallace
Mrs Molly Walsh
Mrs Pamela Ward
Mrs Beverley Watson
Mr & Mrs James and Freda Watson
Mrs Bessie Webb
Ms Belinda Webster
Mrs Shirley Webster
Mr John Wedd
Mrs Nanette Werner
Mr Jim Wharton
Mrs Fay Wheeler
Mrs Judith Whelan
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Mrs Marjorie White
Mr Rob Whitehouse
Mrs Marion Whittle
Mrs R Williams
Mrs Margaret Williams
Mrs Nancy Williams
Mrs Joan Williamson
Ms P Willis
Mr & Mrs Ken and Jeanette Wills
Mr Rex Wilson
Ms Christine Wilson
Ms Beverley Wilson
The Hon Donald Wing MLC
Mr Ron Wisbey
Dr Felicity Wivell
The Hon R C Wood
Mrs D Woods
Mrs Joan Woolley
Mr Nigel Woolley
Mr Dave Wootton
Mr & Mrs Paul and Jill Worldon
Mrs Margaret Woudwyk
Mrs Caroline Wright

Y

Mr & Mrs Murray and Edna Yaxley
Mrs Diana Young

Z

Ms Barbara Zimmerman and Professor John Dickey

Bequests and Trusts

Anonymous (3)
M & WHC Boys Donation
Estate of the late Ronald Buss
Estate of the late Patricia Crabtree
Estate of the late Rosina Gostling
Estate of the late Christopher Warren Hallam
Estate of the late Gerald Harvey
Estate of the late Rita Hughes
Bessie Kable Trust
Estate of the late Margaret Annette Rose Mack
Estate of the late Brian Marks
Estate of the late Ruby Josephine Menzie
Estate of the late Arthur and Mary Paton
Estate of the late Elise Patricia Hilda Trevor
Estate of the late Ethel Marion Young

Society for the Future Members

Anonymous (18)
Mrs Susan Butterworth
Mr & Mrs Garth and Brenda Haas
Kim Paterson
Mr & Mrs Ken and Jeanette Wills

In Memorium

Mr Robert Burk
Mr Benjamin Chilcott
Mr Bruce Cooley
Mr Rodney Corbett
Mr Allan Curtiss
Mr Darrell 'Dasher' Eaton
Mr Mervyn Fraser
Mr Michael Gelling
Mrs Joan Graney
Mr Ron Green
Mr Leon Hemphill
Mrs Vera Houdek
Mr Brian Hoyle
Mrs Vonda Hughes
Mrs Irene Mavis Kaufman
Mrs Barbara Keogh
Mrs Hazel Limbrick
Mr Peter Markowicz
Mr Ron Mee
Mr William Milburn
Mr Robert Morrisby
Mrs Fran McKendrick
Mr Bruce Noonan
Mrs Mollie Onnes
Mrs Daphne Louisa Philpott
Mr Sydney Ploughman
Mr Robert Purden
Mr Karl-Heinz Ross
Mr Alan Scott
Mr Rodney Scott
Mr Stanley Shaw
Mr Graeme Squires
Mr Dennis Taberlay
Mrs Helena Tapson
Mr John Tomlinson
Mrs Ethel Turner
Mr Peter Whelan

Income Statement
for the year ended 31 December 2007

	31 Dec 07	31 Dec 06
	$	$
REVENUE		
Commonwealth Government grants	3,890,239	2,810,006
Tasmanian Government grants	958,969	759,909
University of Tasmania	2,757,612	807,780
Menzies Foundation	150,000	125,000
Atlantic Philanthropies (New building project)	–	6,500,000
Other contracts and agreements	3,432,102	1,653,529
Donations	216,474	141,937
Bequest and donation transfers from UTAS and UTAS Foundation	–	90,428
Bequests	67,556	3,703
Interest from trust investments	65,845	186,395
Interest from research accounts	61,542	26,838
Other income	471,031	335,365
Total Revenue	**12,071,370**	**13,440,890**
EXPENSES		
Salaries and on-costs	7,114,004	3,893,797
New building project contribution	–	6,500,000
General consultancy services	1,170,196	1,197,906
Scholarships	361,149	102,320
New appointment expenses	50,150	71,337
Staff development	99,729	67,133
Public relations and marketing	75,403	60,264
Administration and operating costs	1,145,512	361,021
General travel	350,670	198,569
Infrastructure charges and recoveries to University	9,966	7,249
Equipment purchases	91,851	75,800
Hire of facilities and equipment	74,967	100,018
Repairs and maintenance	74,319	30,425
Electricity	4,710	8,551
Depreciation plant and equipment	102,819	57,561
Total Expenses	**10,725,445**	**12,731,951**
Operating Result	**1,345,925**	**708,939**

Balance Sheet
as at 31 December 2007

	31 Dec 07 $	31 Dec 06 $
CURRENT ASSETS		
Funds Held by University of Tasmania	4,763,070	3,013,190
Receivables	359,427	348,298
Prepayments	3,680	47,661
Total Current Assets	**5,126,177**	**3,409,149**
NON-CURRENT ASSETS		
Plant and Equipment	1,381,146	742,311
Less Accumulated Depreciation	(441,849)	(332,494)
Total Non-Current Assets	**939,297**	**409,817**
Total Assets	**6,065,474**	**3,818,966**
CURRENT LIABILITIES		
Creditors and accruals	86,870	31,335
Provision for Annual Leave	92,863	89,055
Total Current Liabilities	**179,733**	**120,390**
Total Liabilities	**179,733**	**120,390**
Net Assets	**5,885,741**	**3,698,576**
EQUITY		
Opening Retained Surplus	3,698,576	2,989,637
Items transferred to Menzies 1 January 2007:		
Animal Services plant and equipment	92,513	–
Animal Services project balances	(14,301)	–
Health Sciences research projects	763,028	–
Add: Profit/(Loss) for the Period	1,345,925	708,939
Total Equity	**5,885,741**	**3,698,576**

Notes to the Financial Statements
for the year ended 31 December 2007

1. Summary of Significant Policies

The University of Tasmania prepares general purpose financial statements which are audited by the Tasmanian Auditor-General. A copy of the latest audited statements is available, upon request, from Financial Services.

These financial statements represent those transactions and balances specifically pertaining to the Menzies Research Institute. The statements do not include all disclosures required by Australian equivalents to International Financial Reporting Standards.

Relevant accounting policies which have been adopted in the preparation of the attached Income Statement and Balance Sheet of the Menzies Research Institute are:

a) Basis of Accounting

The financial statements have been prepared on the accrual basis of accounting using the historic cost convention unless otherwise stated.

b) Funds held by University of Tasmania

The funds held by the University of Tasmania comprise:

Research Projects	$3,584,338
Trust Funds	$553,102
Discretionary Funds	$380,241
Contingency Reserve	$200,000
Animal Services	$45,389
Total	**$4,763,070**

c) Trust Funds

The University of Tasmania holds a number of trust fund accounts on behalf of the Menzies Research Institute. Investment earnings in respect of these trust fund accounts is distributed to the Menzies Research Institute, however the trust fund account balances, totalling $915,170 at 31 December 2007, are not reflected in the attached Balance Sheet. During 2007, $39,801 from these trust fund accounts has been recognised as interest revenue to the Menzies Research Institute.

In addition, the Menzies Research Institute holds a number of trust accounts. The balance of the accounts totalling $553,102 at 31 December 2007 is reflected in the attached Balance Sheet.

d) Plant and Equipment

Plant and equipment is brought to account, and carried at cost, where the value is greater than ten thousand dollars.

Plant and equipment is depreciated on a straight line basis over its useful life commencing from the time the asset is held ready for use. Depreciation rates for plant and equipment applicable during 2005 are 10–33 per cent, and this is consistent with the prior year.

Gains and losses on disposals are determined by comparing proceeds with carrying amount. These are included in the income statement.

e) Creditors and accruals

These amounts represent liabilities for goods and services provided to the Menzies Research Institute prior to the end of the year which are unpaid. The amounts are unsecured and are normally settled within 30 days.

f) Employee entitlements

Wages and salaries, and sick leave

Liabilities for wages and salaries are recognised as payables in respect of employees' services up to the reporting date. Sick leave entitlements provided to the employees of the University are non-vesting and are based on a cumulative sick leave system. Liabilities for non-accumulating sick leave are recognised when the leave is taken.

Annual Leave

Liabilities for annual leave in respect to non-academic staff are recognised and measured as the amount unpaid at the reporting date at current pay rates in respect of employees' service up to that date. Related on-costs have been included in the provision. Annual leave for academic staff is deemed to be taken in the year in which it is accrued, hence no provision is made in respect of these employees.

Long Service Leave

The University charges a levy on the salaries of certain staff and has assumed the liability for long service leave.

g) Equity

In October 2006 a number of research staff from the Faculty of Health Science at the University of Tasmania joined Menzies as part of a significant growth strategy. From 1 January 2007, the research grants associated with these researchers were transferred from the Faculty of Health Science to Menzies. The balance of these grants at 31 December 2006, $763,028, was brought into the Menzies accounts in 2007.

From 1 January 2007, Menzies began to manage the University of Tasmania's Animal Services. The 31 December 2006 equity in Animal Services, -$14,301 was transferred to Menzies.

Statement of Certification

We certify that the financial statements reflect an accurate record of income and expenditure recorded through the University of Tasmania's financial system, together with assets and liabilities specific to the Menzies Research Institute.

Mark Bennett
General Manager
Menzies Research Institute

Bernard Lillis
Executive Director, Finance & Administration and Chief Financial Officer
University of Tasmania

DATE: 14 March 2008

University of Tasmania

The Menzies Research Institute is an institute of the University of Tasmania.

A Tasmanian Icon

The Tasmanian Government proudly supports the work of Menzies through the Icons Program. The Icons Program showcases the very best that Tasmania has to offer, nationally and internationally.

Menzies Foundation

The Menzies Foundation was largely responsible for the formation of the Menzies Research Institute and has generously supported the Menzies since its inception.

Australian Cancer Research Foundation

Proudly supported by the Australian Cancer Research Foundation

Menzies Research Institute

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