

## New insight into ALZHEIMER'S DISEASE



It is predicted nearly one million Australians will suffer dementia by 2050

Alzheimer's disease gradually steals not only your memories but also your quality of life. Anyone that knows someone suffering from the disease will know how heartbreaking it is to watch someone slip into the world of dementia.

Alzheimer's disease is a complex disease that is rapidly on the rise in Australia. Dementia affects more than 266,500 people in Australia, and this number is predicted to rise to over 942,600 by 2050. In Tasmania, there are around 6,700 individuals suffering dementia, and this is expected to increase to more than 20,600 by 2050. (Access Economics 2011)

Finding the key to unlocking the secrets of dementia has never been so important.

A recent discovery of new genes that may play a role in adding to the risk of developing Alzheimer's disease, is offering researchers greater insight into what causes the disease and advancing efforts to treat and prevent the disease.

The research was published in the prestigious international journal, *Nature Genetics*.

Researchers looked at genes that contribute to the size of the hippocampus, a part of the brain specifically responsible for our ability to store and retrieve memories. The hippocampus shrinks as we get older, but the shrinkage is believed to become more pronounced during the progression of Alzheimer's disease.

Researchers analysed data from more than 9000 people using advanced brain imaging and genetic analysis. Menzies Research Institute Tasmania's Honorary Research Fellow Associate Professor Velandai Srikanth and statisticians' Dr Jim Stankovich and Dr Russell Thompson were among the researchers involved in this study. Data from the Tasmanian Study of Cognition and Gait undertaken here at Menzies was used as part of this large international study.

"Our study makes a major contribution to the body of knowledge available and will stimulate further work in identifying disease mechanisms and potentially new treatments for the widespread of this disease," Associate Professor Srikanth said.

"We investigated what new genetic markers there might be to explain why the hippocampus shrinks and have discovered a set of new genes that are likely to be responsible.

"The functions related to these genes may indicate pathways that underlie the development of Alzheimer's disease in people up to 20 years before symptoms actually surface.

"Results suggest that the effect of having one copy of these 'risk' genes was that the hippocampus, on average, was as small as that of a person four to five years older."

We would like to take this opportunity to thank study participants of the Tasmanian Study of Gait and Cognition (TASCOG) for making this work possible.

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### Would you like to receive the Bulletin via email?

If you would be happy to receive the quarterly *Bulletin* newsletter via email rather than in hardcopy, please let us know by confirming your details with Phoebe via email at [phoebe.sargent@menzies.utas.edu.au](mailto:phoebe.sargent@menzies.utas.edu.au) or by phone on 6226 7707. Not only will it help us reduce our costs, it is the most environmentally friendly option.

# Director's message



Professor Alison Venn,  
Acting Director

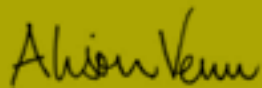
It is with great pleasure that I welcome you to the winter issue of the *Bulletin* newsletter, 2012.

Our winter edition will keep you up-to-date with our latest achievements in medical research including new findings relating to Alzheimer's disease, osteoporosis and the long-term effects of parental smoking on children. This edition of the *Bulletin* also tracks the progress of our building expansion project. With the project well ahead of schedule, staff and students will now be occupying the new building by the end of this year.

In May, we were delighted to hear that the National Health and Medical Research Council (NHMRC) funding had been saved from the budget knife. The 2012-2013 NHMRC budget allocation of \$760.5 million is comparable in real terms to the \$746 million allocation in 2011-2012. We are grateful for the government's ongoing commitment to medical research, in a budget the government acknowledged would be 'tough' for many. Government-funded medical research in this country has resulted in discoveries that have been of international importance. In recent years, Australia has been at the forefront of medical research and we need to make sure we remain so for the future health and prosperity of all Australians.

I would like to express my sincere thanks to all those who have contributed to making Menzies Research Institute Tasmania what it is today, and for helping to create a healthier world.

Yours sincerely,



Professor Alison Venn  
Acting Director

## Menzies researchers shine at Young Achiever Awards

**Three of Menzies brightest young researchers excelled at the Southern Cross Young Achievers Awards in April. Catherine Blizzard was named the overall winner of the TEMCO Science and Technology Award with Clare Smith and Dawn Doré selected as finalists.**

The Southern Cross Young Achiever Awards recognise, encourage and reward the achievements of young Tasmanians who excel in their area of expertise. Catherine, Clare and Dawn were publicly acknowledged on the night for their outstanding achievement in medical research and their contribution to the health of the community.

**Catherine Blizzard** graduated with a PhD in August 2011 and commenced a three-year postdoctoral fellowship from the Motor Neuron Disease (MND) Research Institute Australia at Menzies. Catherine's PhD thesis was on traumatic brain injury. Her research discovered that undamaged parts of the brain have the ability to rewire the brain after a traumatic brain injury. Catherine's scientific work has been recognised throughout her candidature. In 2008, she was named the Australian Society for Medical Research (Tasmania) Student of the Year. In 2009, Catherine won the prize for best student poster at the ASMR National Scientific conference, and a prize for best presentation in medical research at the Sharing Excellence in Research Conference. In 2010, she won the student prize for best oral presentation at the Dementia, Ageing and Neurodegenerative Diseases group conference in Sydney. In 2011, Catherine was also named the Menzies Research Institute Tasmania Student of the Year.

**Clare Smith** is currently working as a Junior Research Fellow at Menzies. She recently submitted her PhD thesis on investigating a novel host directed therapy against malaria. Clare's research identified a new antimalarial compound that is now being tested in human clinical trials and holds a provisional patent. Last year she received the Bede Morris Fellowship

and OzEMalar funding to work at the Pasteur Institute in Paris. Clare was additionally selected from 20,000 applications worldwide to attend the Nobel Laureates meeting in Lindau, Germany in 2011. She has received several grants and awards including the GlaxoSmithKline Australia postgraduate grant, the Australian Society for Medical Research Student Award (Tasmania) and the AusBiotech Student Excellence Award and several conference prizes.

**Dawn Doré** is a post-doctoral research fellow in the institute's musculoskeletal unit. Dawn is currently working on the trial of an osteoporosis drug that has shown promise in slowing down and reducing the pain of knee osteoarthritis. Last year Dawn completed a PhD in medical research examining early changes that occur in knee osteoarthritis. She has published 11 papers to date in high-profile international journals. Dawn has 12 first-author conference presentations (six international) including three international oral presentations and two invited speaker presentations. In 2010, she was named the winner of the Australian Society for Medical Research Postgraduate Student (Tasmania) Award. Dawn was recently awarded a competitive Osteoarthritis Research International Scholarship to support a three month visit to the University of California, San Francisco.

**We congratulate Catherine, Clare and Dawn on their outstanding achievements.**



Catherine Blizzard, Professor Alison Venn, Dr Dawn Doré and Clare Smith at the Southern Cross Young Achiever Awards held at Wrest Point Casino in April



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# Reducing cycling injuries and related costs

**Menzies is actively involved in promoting the health benefits of physical activity and informing policy development, with the aim of ensuring a healthier and happier environment for the community.**

A recent study that tracked cycling accidents on roads in Tasmania (1990-2010) found that while cyclists lodged fewer claims than other road users, the injuries sustained were often more severe and the cost imposed on third-party insurers was higher than other road users.

This study led by Professor Andrew Palmer and Dr Peta Hitchens, is the first to investigate the total costs of bicycle injuries involving a third-party insurance payer in Australia.

The data from this study will be invaluable in looking at prevention and reducing cycling incidents on our Tasmanian roads.

The high costs and severity of claims by cyclists compared to other road users demonstrates the high vulnerability of cyclists, and lends support to increasing separation of cyclists from motor vehicles," says Professor Palmer.



Cycling is enjoyed by many people of all ages in Tasmania

"The study will be helpful in informing decision-makers about cycling-related policies, including in relation to the development of cycling infrastructure and educational programs aimed at reducing the number of cycling related injuries and substantial costs resulting from those injuries.

"Numerous Australian studies, including this one, have found that the majority of injuries and cycling claims are by young male cyclists, between the ages of 10-19 years.

"Targeted cycling education programs within schools may help to reduce accidents and the high rates of claims and their associated costs in younger age groups.

"There are all sorts of reasons why people ride bikes, whether it's purely for enjoyment, to keep fit and healthy, get to work or school or to help the environment.

"It's important that we do our best to ensure our roads are safe for all users," says Professor Palmer.

# Long-term effects of parental smoke on kids

**Institute researchers have found children who are exposed to their parents' smoke may suffer an irreversible impact to their cardiovascular health later in life.**

We have previously known that passive smoke was harmful to children, but this is the first worldwide study to examine the long-term effects on blood vessel health.

Second-hand smoke kills more than 600,000 non-smokers worldwide every year, with 379,000 of these deaths caused by related heart disease. According to the World Health Organization (2009) about 40 per cent of all children are regularly exposed to second-hand smoke at home.

Data collected for the Young Finns Study in Finland and the Childhood Determinants of Adults Health study in Australia was analysed for this study. These two major



Second-hand smoke accounts for one in 10 tobacco-related deaths (World Health Organisation 2009)

population studies collected health-related data from participants during childhood who were then re-examined over 20 years later, when they were young adults.

For this present study, participants with data on parental smoking in childhood had their blood vessel health measured in young adulthood.

The results from this study provided data about the long-term effects of childhood exposure to tobacco smoke.

The findings show that parental smoking in youth is associated with less healthy blood vessels in young adulthood. Importantly, these associations were not explained by differences in classical cardiovascular risk factors.

This research suggests that passive exposure to cigarette smoking among children might cause irreversible damage to blood vessels and increase risk of cardiovascular disease.

Studies like this are important in helping policy-makers make well-informed decisions to ensure our children have the best opportunity to grow up leading healthy lives. With Tasmanian adult smoking rates currently well above the national average, this research is even more relevant for Tasmania.

# Thank you to our valued supporters

Thank you to all of our donors for your ongoing financial support and commitment to Menzies.  
Listed below are new individual and community supporters of Menzies for February - April 2012

## Individual donors

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## Family tree

Mr Clive Pearce

## Menzies healthy community fund

*Honours scholarship program*

Diabetes Tasmania

**Listed below are our Everyday Angels – our supporters who make regular gifts to Menzies.**

## Everyday angels

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Mr Bill Avery

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**The Menzies Research Institute Tasmania is deeply indebted to ALL our generous supporters who kindly donated in 2012.**

**A full list of all our supporters for 2012 is available on our website at**

**[www.menzies.utas.edu.au/about-us/supporters](http://www.menzies.utas.edu.au/about-us/supporters)**

**Thank you.**

## Discovery of genes underlying the risk of osteoporosis



1 in 2 women and 1 in 3 men over 60 years will have an osteoporotic fracture in Australia

Osteoporosis is a common and devastating age-related disease. It is referred to as the 'silent disease' as there are often no symptoms until bones fracture. 1 in 2 women and 1 in 3 men over 60 years will have an osteoporotic fracture in Australia. Fifty per cent of those who fracture their hip after age 80 will die within 12 months after the event.

Osteoporosis is strongly genetically determined, but until recently, the responsible genes have been largely unknown.

Pooling the results of over 50 studies from across Europe, North America, East Asia and Australia, including a Menzies study, researchers recently discovered 56 genes underlying the risk of osteoporosis. Fourteen of the 56 genes discovered were also found to increase the risk of bone fracture. This is the

first time such a large number of genes have been found associated with fracture risk.

Bone mineral density (BMD) measured using x-ray technology, is the most widely used measurement to diagnose osteoporosis and to assess the risk of fracture. This study examined the BMD of more than 80,000 individuals. It is the largest genetic study in osteoporosis to date.

Menzies' Professor Graeme Jones says that the study gives researchers a better understanding of the biology of skeletal health and fracture susceptibility.

"They (genes) may also contribute to identifying future drug targets for the treatment of osteoporosis."

# Researcher profile: Dr Adele Holloway

## 1. What is the current focus of your research?

My research aims to understand how our genes work. I work in a research field called epigenetics, in which we study the additional layer of information that is associated with DNA in the cell and controls the behaviour of our genes. Our research team is focused on understanding how changes to the epigenetic information contribute to the development and progression of immune diseases and cancer, particularly leukaemia and prostate cancer.

## 2. What are some of the recent findings from your work?

We recently identified genetic changes in a gene that are associated with increased prostate cancer risk. We have now shown that changes to the epigenetic signature of this gene also occur commonly in prostate cancer.

The idea of genes being altered by both genetic and epigenetic changes is emerging as a recurrent theme in cancer biology. This is exciting because the epigenetic changes are potentially reversible and there is currently considerable effort going in to developing 'epigenetic' drugs to reverse these kinds of changes.

## 3. What is the biggest challenge in your area of research?

Epigenetic signatures associated with genes are incredibly complex. The field of research is advancing at an alarming rate, but we are only just starting to scratch the surface as far as our understanding of these signatures.

The ultimate challenge is to understand all the different parts that make up these signatures, how they work together and with the DNA sequence to control our genes.



Dr Adele Holloway

## 4. What do you enjoy doing in your spare time?

I have two young boys so there is little 'spare' time in my life. When I'm not at work, I enjoy spending time with my family whether that is freezing on the sidelines at Under 7 soccer on a Saturday morning or reading the same Hairy MacLary book for the fifteenth time in one day.

# Pink party fundraiser for cancer

It is always wonderful to hear the remarkable stories that encircle our supporters' fundraising efforts. Recently, a group of friends from Wynyard decided to hold a party and raise funds for cancer research. One of the organisers of the event, Tania Johnstone, wrote a lovely email to us about why they decided to hold the event and the success of the night.

"The idea for the fundraiser came about because we wanted to hold a party to lift our spirits. I personally had lost a very dear friend in 2011 to bowel cancer, another friend to lung cancer and had yet another diagnosed with non-operable brain tumours. Also over the past few years, within our group one had beaten cervical cancer and another's husband treated for lymphoma, including having a bone marrow transplant. And just locally in Wynyard we had numerous friends amongst our group that were battling different forms of cancer. Therefore a party was organised," Tania says in her email.

"After a bit of discussion I suggested that we hold the event as a fundraiser and if we could make a little bit of money to support cancer research, then why not.

"We decided to charge a small cover charge to help with costs of the DJ and venue and any extra would be donated. We approached businesses and were overwhelmed with the generosity of the donations we received. We were able to hold major raffles, lucky door prizes, chocolate wheel spins, silent auctions, major auctions and received general donations and also provide supper for our guests.

"On the invitations we put that it was a dress up party with the theme being a pink night. We were overwhelmed with the response and had over 180 people attend. It was a room full of pink and everyone got in the spirit of the evening by dressing up and adding a touch of pink.

"As the evening rolled along, we counted the takings so we could keep our guests informed, and the total kept rising. At 2am I was sitting on my lounge room floor counting the money, which included 600 x \$2 coins, with the total at \$4,500. I could not believe it. During the next two weeks we continued to receive donations from people who could not attend, or who had just heard about our night and wanted to contribute.



The pink party was a huge success and enjoyed by everyone who attended

"The final total raised was \$5,000 with \$2,500 donated to Menzies Research Institute Tasmania and \$2,500 to the Cancer Council Tasmania in Burnie."

Menzies would like to thank Tania Johnstone, Keryn Swinden, Angela Williams, Merryn Wilson, Karen Allen, Lois Newman and Tracey Scoyer for organising such a successful fundraising event for cancer research.

**If this story has inspired you to hold your own fundraising event for Menzies, please contact Phoebe Sargent on 6226 7707 or phoebe.sargent@menzies.utas.edu.au for more information.**

# Improving management of hypertension in general practice

**Institute researchers recently undertook a focus group study with general practitioners to determine ways to improve blood pressure management in general practice.**

The study led by Dr Faline Howes, a PhD candidate at Menzies Research Institute Tasmania, conducted four focus groups comprised of 25 general practitioners and general practice registrars. Their most pressing needs were for the uncertainty surrounding blood pressure measurement technique and interpretation of blood pressure readings to be eliminated.

Four main themes were identified: uncertainty about blood pressure measurement, achieving consensus in practice, accommodating patient differences, and addressing systematic barriers.

The study found that general practitioners want a more standardised approach to measuring and interpreting blood pressure with consistent, valid readings taken on one device that accurately measures patient's blood pressure in the 'real world'.

Dr Faline Howes says the study further found that general practitioners wanted to be up skilled in specific areas related to hypertension management.

"This study has identified that sections of existing hypertension guidelines need to be reviewed and implemented to ensure general practitioners are able to deliver the best care to hypertensive patients.

"Existing studies demonstrate that the benefits of antihypertensive medication have not been translated into day-to-day blood pressure (BP) management, with BP goals attained in only 25–40 per cent of patients worldwide.

"Even small improvements in BP control can have a major public health impact, so it is important to determine the best way to improve hypertension management.

"Effectively and efficiently implementing this vital information and translating it into routine clinical care remains the great challenge," Dr Howes said. "Identifying knowledge gaps and other important contextual issues is an important first step."



## Entertainment Books on sale now



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The brand new Tasmanian 2012/2013 Entertainment Books have arrived at Menzies. Buy your copy today and save huge amounts of money on food and entertainment around Tasmania.

**At the same time, you'll be helping raise money for Menzies' research with \$12.00 from every sale directly supporting us. Books cost only \$60.00.**

To purchase a book please contact Menzies reception on (03) 6226 7700 or email: [reception.msp@utas.edu.au](mailto:reception.msp@utas.edu.au)

## Medical Science 2 update

**Construction continues to progress favourably on the Medical Science 2 building with the managing contractor several weeks ahead of its construction schedule.**

The structure is now complete and work on the installation of internal services (electrical, plumbing and ventilation), fit out (office walls) and finishes (painting and floor coverings) is well underway.

UTAS received occupation of some areas of the new basement level delivery area in early May, to allow the current MS1 delivery area to be redeveloped as part of the MS2 works.

Full building completion and occupation is now scheduled for the end of the year.

Approximately 150 people will soon be working on site to complete the MS2 building, plus many other supporting suppliers including off-site fabrication of components, transport of materials, and consultants.

UTAS will lodge the MS2 project details with the Green Building Council of Australia over the coming months for the Green Star assessment process. Green Star evaluates the environmental design and construction of the building. We should know by September if the MS2 building has received the targeted 5-star Green Star rating.



MS2 is now scheduled for completion and occupation by the end of the year

## Public lectures Cardiovascular disease research

**5.30pm, Wednesday 15 August**

**MS1 Lecture Theatre  
17 Liverpool Street, Hobart**

For further information please see [www.menzies.utas.edu.au/public-lectures](http://www.menzies.utas.edu.au/public-lectures)

All welcome to attend. Doors open at 5.00pm with light refreshments available. Enter building on corner of Liverpool and Campbell Street and report to main reception.

# More than Flowers



## In Memoriam February - April 2012

We gratefully acknowledge gifts made  
in honour of:

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Mr Eric William Adams

Mr Bob Allen

Mrs Margaret Rose  
Andrewartha

Mrs Jill Boyle

Mr Gordon Brown

Mr Trevor Burridge

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Mr Leslie Edward  
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Please send me information on remembering Menzies in my Will.

**Thank you for your support.**

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