The Official Newsletter of the Prince of Wales Medical Research Institute

Issue Number 36 Spring 2009

BrainWorks

BrainWorks ONLINE

If you would like to receive BRAINWORKS as an e-newsletter, please forward your email address to brainworks@powmri.edu.au

PETER SCHOFIELD

It was just six months ago that I wrote about the Institute's journey in a BrainWorks editorial 'from renovation to innovation'. So it is with great pride that, in June, we welcomed the Minister for Science and Medical Research and the Trustees of The Prince Henry Hospital Centenary Research Fund to officially open the new Prince Henry Wing as detailed in the accompanying lead story.

Comprising five clinical research laboratories and four research-participant interview rooms and associated offices, the Prince Henry Wing will substantially boost our capacity to undertake patient-focused research.

Further indication of our progress on the redevelopment is the important news that our application for the Neuroscience Research Precinct has been submitted to the Department of Planning. Having just completed its period of public exhibition, we eagerly await the outcome of the Department's review and the Minister's determination.

At last, we can see our vision for a purpose-built research facility starting to emerge.

The new Neuroscience Research Precinct building still has many challenges, not the least of which is securing the substantial funds for the fitout of several of the research floors. However, the development will provide crucial capacity for us to expand our clinical research and brain imaging facilities which will impact all of our research themes by facilitating studies on, for example, dementia, falls and schizophrenia.

We are confident of our ability to achieve this via our generous and committed donors and supporters. The $1 million gift from The Prince Henry Hospital Centenary Research Fund towards the construction of the Prince Henry Wing, and the final installment of a $1 million pledge from a generous Sydney family who have supported the Institute from its inception, provide clear examples. While these gifts have headlined our fundraising efforts to date, many others, including several of our current and former Directors, have made regular and very generous donations.

We are so indebted to all our supporters who have seen the value of our work and continued their generosity – even in these tight financial times. This issue, we feature Ms Laurie Cowled and the postgraduate scholarship that she has established which supports young women from rural and regional Australia being given the opportunity to take future national leadership roles.

We have talented researchers who will use the new research laboratories and facilities as they seek to understand the causes of the brain diseases that afflict us and try to develop better ways of diagnosing and treating illnesses. Dr Jane Butler, winner of the AMGEN Award for excellence in medical research is but one of these talented individuals who has been recognised for her achievements in improving the lives of those with spinal cord injury.

With tangible evidence of the successful implementation of our strategic objectives now apparent, the Institute is going from strength to strength. With your help, the likelihood of major advances to better treat the many diseases of the brain will become a reality.

Professor Peter R Schofield *PhD DSc*
Executive Director and Chief Executive Officer

Cover Photograph: The Hon Jodi McKay, Minister for Science and Medical Research and Prof Peter Schofield

Please Note

If you do not wish to receive further copies of BRAINWORKS, please call 02 9399 1125 to have your details removed from our data base.

PRINCE HENRY WING OPENS

From left to right
Paul Pearce MLA, Capt Mick Costelloe AM, Pat Williams, Minister Jodi McKay, Prof Peter Schofield, The Hon Bryan Vaughan and John Walton AM

The significance of the now-closed Prince Henry Hospital in advancing the frontiers of medicine is prominently reflected in the history of medical care and research in Australia.

To mark the hospital's centenary in 1981, and to recognise its growing clinical research profile, The Prince Henry Hospital Centenary Research Fund (PHHCRF) was established to provide financial support to a range of projects.

Since the Prince of Wales Medical Research Institute's inception, it has been the recipient of significant grants from the Fund's Trustees and, in 2008, received its largest-ever gift of $1 million to assist with the expansion of its facilities.

Recently, the new $3 million 'Prince Henry Wing' was officially opened by the NSW Minister for Science and Medical Research, Jodi McKay. Focusing on studies of dementia, falls in the elderly, spinal injury, schizophrenia and motor neurone disease, the Prince Henry Wing will accommodate some of the world's leading clinical researchers into major brain disorders that afflict more than three million Australians each year.

The Institute's Executive Director, Prof Peter Schofield, said the new wing was named in recognition of the PHHCRF's support for medical research, and the historical importance of The Prince Henry Hospital in the establishment of the Institute.

"Medical research has always relied on philanthropic support and, in the current environment, many organisations are under real financial pressure," Prof Schofield said. "The generosity and foresight of the PHHCRF to continue to support the Institute through its $1 million donation has helped make this new wing a reality."

The PHHCRH's Trustees, Capt Mick Costelloe AM (Chairman), John Walton AM, Pat Williams and The Hon Bryan Vaughan joined special guests and scientists to celebrate the naming of the new wing.

"The Prince Henry Wing, which is also supported by a grant from the Australian Government, is strategically critical to our work. We urgently need the space that the new wing will provide to manage our growth and needs for our current research projects," said Prof Schofield.

PLAYING TO WIN

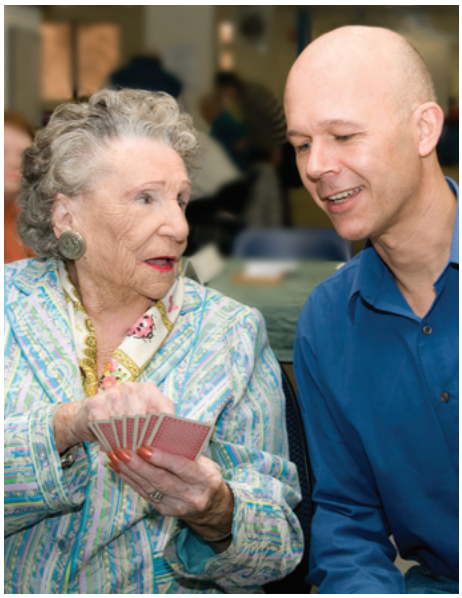
Marion Rice explains the finer points of Bridge to Dr Olivier Piguet

Highest Percentage Score
by a pair overall
Evans & Thompson
Leeton Soldiers Bridge Club
(percentage 73.228)

Highest Percentage Score
by a pair over the age of 75 years
White & Morris
Newcastle Bridge Club
(percentage 69.381)

Highest Club Fundraiser
NSW Bridge Club Association

Highest Individual Fundraiser
Elizabeth Fanos
NSW Bridge Association



Sprightly centenarian Bridge player, Marion Rice plays a mean hand and she'll happily tell you it's Bridge that keeps her "sharp". Nothing excites her more than outwitting her opponents. Marion was just one of more than 3,000 players across Australia who took part in the 6th Annual Bridge for Brain Research Challenge to raise funds for research into dementia.

The launch of the Challenge coincided with the announcement of new research findings which reversed the thinking about which part of the brain deteriorates faster with age.

"We have now discovered that the ageing process is far greater in the white matter of the brain, not the grey matter," said the Institute's Dr Olivier Piguet, "and clearly there is a need for greater emphasis on maintaining an active brain in old age."

"The brain is composed of an outer layer, the grey matter, and an inner layer, the white matter," explained Dr Piguet. The nerve cells in the grey matter allow us to think, reason, learn, feel and coordinate movements. In contrast, the white matter consists of connecting fibres which carry nerve impulses across different brain regions and down the spinal cord.

"These findings indicate that the source of 'brain power' is present throughout life in healthy adults and that decline tends to happen because of lost connections in the brain. This underlines the importance of using our brain capacity throughout life to maintain and create new connections."

The Institute's Executive Director, Prof Peter Schofield, said the research was important as it reversed current thinking about the ageing process. "Finding that nerve connections are vulnerable during ageing is an important outcome as it re-emphasises the need for people to remain mentally and physically active – whether it's playing a musical instrument, Bridge, chess or reading," he said.

More than 57,000 Australians will be diagnosed with some form of dementia over the next 12 months – around 1,000 a week. The annual community cost of managing dementia is estimated at $6.6 billion.

Thank you to all players and sponsors for the tremendous support. In particular, the Australian Bridge Federation, State Presidents and Secretaries, Keiran Crowe-Mai, Valerie Cummings, John Delaney, Richard Grenside, Ron Klinger, Keith McDonald, Matthew McManus and Jane Rasmussen. The Challenge is proudly supported by Mirvac Hotels and Resorts, The Bridge Shop, Penguin Group, BridgeClimb Sydney, Vibe Hotels and Leading Edge Telecoms.

If your Bridge Club is interested in participating in the 2010 Challenge, please contact Suzy Randjelovic on 02 9399 1075 or s.randjelovic@powmri.edu.au.


Dr Tim Karl

Model Behaviour

Genetically modified mice have become powerful tools that are helping to accelerate research into schizophrenia, offering a glimpse of breakthroughs to come.

One in 100 Australians will develop schizophrenia, yet the disorder remains a medical mystery. Scientists don't know precisely what causes some brains to produce hallucinations, delusions and disordered thinking.

Dr Tim Karl, an NHMRC Fellow and NARSAD Young Investigator, focuses on the neuro-behavioural characterisation of genetic and environmental risk factors leading to the development of schizophrenia.

"My team has a particular interest in answering the question as to how an organism genetically predisposed to schizophrenia responds to potential environmental risk factors such as prenatal viral infection or cannabis abuse. We believe that a combination of both genetic and environmental factors is necessary to trigger the development of this mental disorder."

Although laboratory models can help scientists understand how such an interaction between genes and environment is possible, these models are limited in their relevance to schizophrenia as they capture only aspects of this complex human illness.

"Our work focuses completely on the use of mice and rats, some of these genetically modified. Naturally, we are interested in providing these animals with the best possible environment to not only increase their well-being but to also improve the relevance of experimental research for humans - a healthy, happy mouse responds more naturally than one which shows signs of deprivation and stress caused by improper housing."

"We are currently investigating the effects of cannabis on the development of schizophrenia. Despite being the focus of considerable interest, controversy remains over the link between cannabis abuse and the development of psychosis," he said.

"The Institute has been crucial in providing us with the necessary infrastructure for our type of research and within an environment where we can work side by side with colleagues who focus on human schizophrenia research," Dr Karl added.

Kate's legs are long enough to bend comfortably over the front edge of the seat, and the lap belt safely sits low on her hips and upper thighs (red arrow). Her torso is tall enough that the shoulder belt sits safely on her shoulder (yellow arrow).

Mark slides forward in the seat to bend his legs over the front edge of the seat, leaving a gap behind his lower back, and the lap belt rides up over his abdomen (red arrow). The shoulder belt sits across his neck (yellow arrow). This places him at risk of neck and lower spine injuries in a crash.

RETHINK SEAT SAFETY

A recent study by Institute researchers, Assoc Prof Lynne Bilston and Dr Julie Brown, has shown that, children up to age 12 travelling in cars, have an increased risk of spinal injury compared to children 13 and older.

By examining spinal injuries in children aged up to 16 years in car crashes in New South Wales for the last five years, the researchers have shown that the risk of serious spinal injury for children travelling in cars persists for much longer than previously thought.

To explain their findings, they compared the size of children with the shape and size of the rear seats of Australian vehicles. This increased risk of serious spinal injury occurs because children under 12 are too small to get the maximum protection from an adult seat belt. They are also too small to sit comfortably in most vehicle seats and tend to "slouch" forward so they can bend their legs over the front of the seat.

"This allows the lap belt to slide up over their abdomen instead of sitting low across the hip bones," Dr Brown explains, "and the shoulder belt to sit across their neck, instead of across the middle of the shoulder."

Dr Brown added that many children who find the belt uncomfortable also tend to put the shoulder belt under their arm or behind their back. "This further increases their risk of lower spine injury as their upper body is thrown forward in a crash. They can also sustain serious head injuries if their head strikes the vehicle interior or another object," she said.

Solutions to this problem include encouraging children to use booster seats for longer, and redesigning the rear seats of cars to fit the shorter legs and bodies of children too big for booster seats. This would not only reduce the risk of serious spinal injury, but would also help to protect children from other types of injury too. Children make up approximately 60 percent of rear seat occupants, while the rear seats of cars are designed to fit the size of a typical adult.

Assoc Prof Bilston and Dr Brown hope their research will encourage vehicle manufacturers to take a closer look at how well the rear seats of their vehicles suit the occupants who are using them.

WIN A VW GOLF

ASX Reuters Charity Foundation Art Union Tickets on sale now!

Don't miss the chance to go into the draw to win fabulous prizes with a top prize of a brand new Volkswagen Golf 118TSI. Tickets are $20 each or a book of 6 for $100 with all proceeds going towards the Institute's clinical research.

For tickets, email s.randjelovic@powmri.edu.au or phone 02 9399 1075.

ART & INNOVATION

Under a swathed marquee bathed in contemporary lighting, elegant canapés and fine wines combined to provide a welcoming environment for guests on a winter's evening – the perfect ambience for The Brains Trust Art Auction.

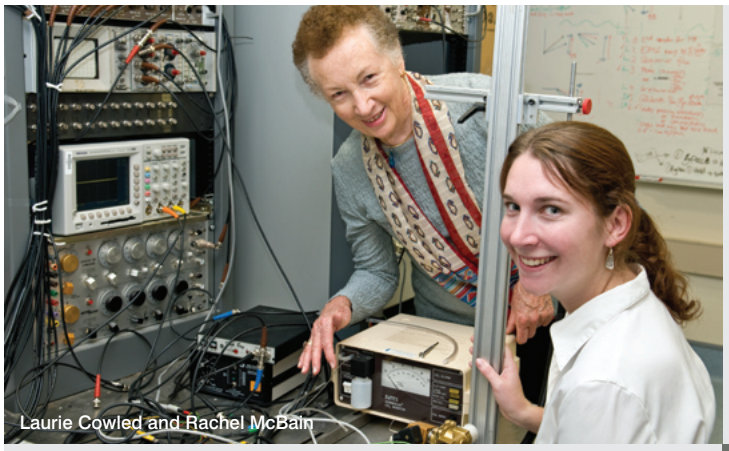
Works by 12 of Australia's leading artists including Peter Alwast, Marion Borgelt, Fiona Hall, Bill Henson, Janet Laurence, Tracey Moffatt, Gloria Petyarre, Kate Shaw, Richard Stanford, Dick Watkins, Guan Wei and Regina Pilawuk Wilson were auctioned by Georgina Pemberton, Director and Head of Australian Paintings at Sotheby's.

The selection of works was negotiated by the Institute's Art Ambassador, Annette Larkin from Annette Larkin Fine Art and formerly Associate Director and Head of Contemporary Art at Christie's Australia.

"The evening raised funds to support research and celebrated the final on-site event before major works commence on the Neuroscience Research Precinct," said Prof Peter Schofield. "Displays from platinum sponsors Cox Architects and Fugen Constructions reflected the vision for the new building and acknowledged the changing face of the Institute."

Thank you to event sponsors, gallery supporters, individual donors and guests for making the evening a great success.

EXCELLENCE IN SPINAL INJURY RESEACH



Laurie Cowled and Rachel McBain

The Cowled Postgraduate Scholarship in Brain Research

Rachel McBain has been awarded The Cowled Postgraduate Scholarship in Brain Research. Rachel commenced her PhD studies after working as a Research Assistant at the Institute for the past three years. Rachel's project is investigating the control of the muscles that regulate breathing in individuals with spinal cord injury.

Founder of the Scholarship, Laurie Cowled, established the Cowled Foundation to foster the careers of young women from rural Australia who will make an outstanding difference to the future of the nation.

2009 Amgen Award for excellence

Research aimed at improving breathing control in patients with spinal cord injury has won Institute researcher, Dr Jane Butler, one of Australia's most prestigious medical awards.

Dr Butler was awarded the 2009 Amgen Medical Researcher Award for excellence in medical research from the Australian Society for Medical Research (ASMR).

One of her most significant achievements has been to discover a way of allowing spinal injury patients to activate abdominal muscles and be able to cough and clear their airways, particularly when suffering pneumonia.

Dr Jane Butler

Focus on Multifocals

"Many older people report that they have trouble judging the height of the kerb when wearing multifocal glasses outdoors, and some even report that it might be a reason why they fall," said Dr Jasmine Menant, a researcher in Prof Stephen Lord's Falls and Balance Group at the Institute.

Dr Menant's research has attempted to shed some light on this problem by investigating how multifocal glasses – bifocal and progressive lenses – as opposed to single lens glasses affected the ability of older adults to negotiate an obstacle course while their attention was distracted.

In the study, a group of 30 older people performed walking trials during which they were required to avoid contacting ground floor obstacles while reading letters on a computer screen positioned in front of them at eye level.

"This walking task was designed to simulate a distracting every-day environment where older people might have to walk on a rough footpath while trying to read a sign or a bus number," said Dr Menant. Obstacle contacts, reading errors, plus the movement and position of the participants' eyes and the head were recorded during the trials.

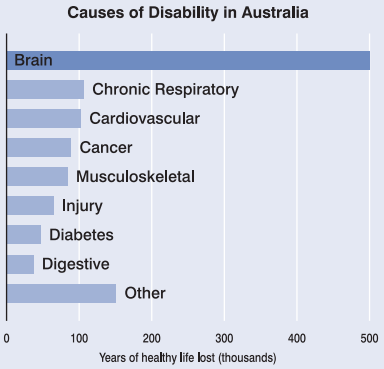
Dr Menant's results revealed that participants contacted more obstacles when wearing their multifocal glasses compared to their single lens glasses. "This was likely due to participants not bending their head down enough and thus viewing the ground obstacles through the blurred reading segment of their multifocal glasses," she said.

These findings imply that older people may increase their risk of falling if they wear multifocal glasses when walking in unfamiliar environments, particularly outside the home. This study is due to be published in the Journal of the American Geriatrics Society later this year.

Dr Jasmine Menant simulates the walking task given to participants in the study

We need your help!

More than ever before, Australians are facing the anguish of caring for family members living with diseases that affect their mind and their mobility. The solutions will only be found through medical research.



In any one year, over 3 million Australians struggle with major brain disorders. This poses the largest economic, health and social capital burden to Australia. Currently there are no known cures.

The Institute's Foundation has been established to fund the research undertaken at the Prince of Wales Medical Research Institute. It enhances the vital brain research programs through a progressive fundraising strategy and plays a key role in underpinning ambitious research goals developed by the Institute.

By financially supporting the Foundation, you will provide researchers with a critical resource for moving closer to discoveries that will lead to cures. Monetary and in-kind donations are essential, and multi-year commitments that empower researchers to pursue their passion for cures are encouraged.

You can help by making donations to:

- Where best needed
- Specific disease research projects
- Fellowships and Scholarships to support internationally-recognised researchers
- Leading edge equipment to ensure scientists remain at the forefront of global research
- Seed funding to grow the work of innovative young researchers

YOUR SUPPORT IS NEEDED

There are many ways you can help our scientists in their quest to combat disease and reduce the tragic human toll in Australia and around the world. Through discussion, we can help you make the best-informed decisions about giving.

Please contact:
Leonie Harle
Phone 02 9399 1125, or email
l.harle@powmri.edu.au

Yes! I want to help fund medical research

You can make a tax-deductible donation by:

- **Mail: complete your details below and send your gift to POWMRI, PO Box 82, St Pauls NSW 2031**
- **Phone: 1300 888 019**
- **Fax: 02 9399 1082**
- **Online: www.powmri.edu.au**

Title:
First Name:
Surname:
Address:
Postcode:
Phone:
Mobile:
Email:

Please accept my donation of
☐ **$50** ☐ **$100** ☐ **$200** ☐ **$500** **or $**

Cheque or money order
(payable to the Prince of Wales Medical Research Institute)

Credit Card
☐ **Visa** ☐ **MasterCard** ☐ **American Express** ☐ **Diners**

Card No:
Expiry Date:
Cardholder's Name:
Cardholder's Signature:

If you would like information on making regular donations by direct debit or credit card, please phone 02 9399 1262.

☐ **Please send me information about leaving a bequest in my will**

☐ **Please send me an Annual Report**

Your gift is tax-deductible. Thank you sincerely.
ABN 94 050 110 346 – CFN14966

PRINCE OF WALES
MEDICAL RESEARCH INSTITUTE