Flinders UNIVERSITY

research pulse

FACULTY OF HEALTH SCIENCES

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The Real Cost of Gambling in SA

A new Centre for Gambling Research at Flinders will focus on all current and novel forms of gambling, particularly electronic gaming machines ('pokies') and on-line gambling, which pose huge potential problems for the community.

The Centre's Director, Professor Malcolm Battersby, said the aim is to provide a better grasp of the gambling habits and their effects on South Australians, thereby helping to head off the associated health, social and economic problems.

The Flinders Centre for Gambling Research was launched at Flinders University Victoria Square by the State Minister for Families and Communities, the Hon Jennifer Rankine, on Tuesday 25th May 2010.

The Centre is based within the Southgate Institute for Health, Society and Equity which is led by Professor Fran Baum. It will bring together research expertise from social work, public health, sociology and geography, to investigate and address the wider social and economic aspects of gambling.

Professor Battersby said that Flinders already has an established role in the treatment of gambling addiction through the Statewide Gambling Therapy Service run by staff from the Department of Psychiatry.

'We already undertake research into treatment outcomes, but there is an urgent need to quantify and define the extent and nature of broader gambling-related issues in our society,' Professor Battersby said.

A client is supported to overcome her gambling addiction by therapist Ben Riley. Photo: Lynton Emerson

'The Centre will be part of the national research response, enabling us to devise a preventative approach at a population and public health level to the problems gambling can create.'

The Centre's research will help to create an informed basis for future policy developments and industry standards, and will support the key objectives of the National Framework on Problem Gambling.

Professor Battersby said that problem gamblers represent 30-40% of regular gamblers and the consequences of addiction often take a severe toll on partners, families and ultimately on the community at large.

'Collateral damage from problem gambling can lead to relationship breakdown, broken families and economic hardship that can include the loss of the family home. For those affected, mental health problems, especially depression, and even suicide can ensue,' he said.

The Centre's research will focus on the disadvantage caused by gambling and the socio-economic costs and consequences, such as domestic violence and homelessness. The upstream focus will be on policies to prevent gambling addiction including gaming machine design, geographic location of machines and harm minimisation strategies. An immediate focus will be the impact of gambling on Aboriginal communities and identifying appropriate treatments for individuals and preventative approaches for these communities.

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(Adapted from original article in Flinders News)

From the Executive Dean

The research capacity of the Faculty of Health Sciences continues to grow. Over the past few months several new research centres have been established, including the Flinders University Research Centre for Disaster Resilience and Health and the two new Poche Centres for Indigenous Health based in Adelaide and Alice Springs.

We recently had the official launch of the new Flinders University Centre for Gambling Research, which is based within the Southgate Institute for Health, Society and Equity.

The Primary Health Care Research and Information Service (PHC RIS), based at Flinders University, is a major national initiative for primary health care research which has recently secured significant additional funding from the Australian Government to continue its landmark work over the coming years. I congratulate the PHC RIS team on this recognition and acknowledge the wonderful contribution of Director, Associate Professor Libby Kalucy, who has recently announced her retirement.

In addition to acknowledging the achievements of some of the large research groups within our Faculty, I would also like to recognise the many individual researchers and smaller research teams which have achieved success over the past months. In particular, I congratulate the recipients of the Vice Chancellor's Near Miss Awards for Australian Research Council and National Health and Medical Research Council grant rounds. This funding is designed to assist these researchers to continue their research and attain success in the next funding rounds of nationally competitive grants.

In July the University will farewell Ion Wallace, the General Manager of the Faculty of Health Sciences. Ion is retiring after leading the administration of our Faculty since its inception in 1991. I thank Ion for his extraordinary contribution and the support and leadership he has provided for so many years. We wish Ion well in his retirement and welcome the new General Manager of our Faculty, Bruce Whitby.

Professor Michael Kidd AM

Executive Dean

Faculty of Health Sciences

Flinders University

Vice Chancellor Funding for Colorectal Cancer Research

Dr Ying Hu was recently named as a recipient of the Vice Chancellor's Near Miss Awards, receiving funds to continue her research exploring dietary agents involved in the regulation of cancer development. Here she provides an account of her latest research project…

Colorectal Cancer (CRC) is a major public health problem in Australia and a leading cause of cancer death. Although some types of CRC are hereditary, it has been estimated that 95% of CRC is sporadic and can be attributed to environmental factors, diet and lifestyle. For example, the exposure to environmental carcinogens in food and tobacco can cause DNA damage in epithelial cells, which may lead to CRC.

On the other hand, a variety of natural foods and their bioactive components appear to play a role in reducing cancer risk. There has been interest in natural products for cancer prevention owing to their various health benefits and noticeable lack of toxicity and side effects.

My research, conducted with Professor Graeme Young, Dr Richard Le Leu, Dr Laura Nyskohus and PhD student Jean Winter, has shown that certain dietary factors stimulate cellular processes that repair DNA damage. This beneficial effect has been noted with certain types of dietary fibre, curry components, green tea and dietary selenium. Our recent data further suggested the combination of dietary agents with different modes of action might enhance the effect and be potentially useful in CRC prevention.

Our current research project will determine whether dietary agents can prevent CRC by regulating early molecular/cellular events. If this proves to be true from animal studies, we will be able to focus on human intervention studies. Prevention of human CRC by such a strategy appears to be feasible because the potentially useful agents are safe and manageable in the context of dietary lifestyle or food technology developments. Indeed, CRC is an ideal candidate disease for such strategies because it is characterised by a relatively slow rate of oncogenesis such that even a modest slowing in the development of cancer could result in a substantial reduction in the community burden of the disease.

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This is your Captain speaking…

Hypoxia is a condition in which normal brain functioning rapidly deteriorates due to a lack of oxygen. Hypoxia may affect mountain climbers at high altitudes or may occur in an aeroplane due to a sudden loss of cabin pressure. Hypoxia affects the functioning of specific areas in the brain resulting in cognitive impairments, including speech and language impairments affecting the ability to communicate effectively. Typically, speech becomes slow, slurred and hesitant.

Any condition which impairs effective communication among pilots in an aeroplane and air traffic controllers poses a significant risk to aviation safety. There has been at least one plane crash where acute hypoxia and the inability of the bilingual aircrew to communicate effectively in their second language (English, the language used in air traffic control) have been identified as significant factors in the crash and the loss of many lives. However, to date the effects of hypoxia on effective communication in a second language have not been investigated.

Dr Adrian Smith, PhD candidate, will be investigating the effects of acute hypoxia on second and first language abilities in a group of late bilingual individuals. The study will be supervised by Dr Willem van Steenbrugge, Senior Lecturer in Speech Pathology, and is funded by a seeding grant from the Faculty of Health Sciences.

Late bilingual individuals learned their second language after puberty. It is hypothesised that acute hypoxia will have a greater effect on effective communication in the second language than in the first or native language of late bilingual individuals.

Studying the effects of hypoxia on second language ability is particularly important because the future growth in air traffic will mainly be in regions such as India and Africa where pilots are unlikely to be native speakers of English.

If as predicted, hypoxia will have a greater effect on the ability of late bilingual aircrew to speak and understand English, their second language and the language used in air traffic control, then risks of impaired communication during loss of cabin pressure and its implications for aviation safety may need to be addressed.

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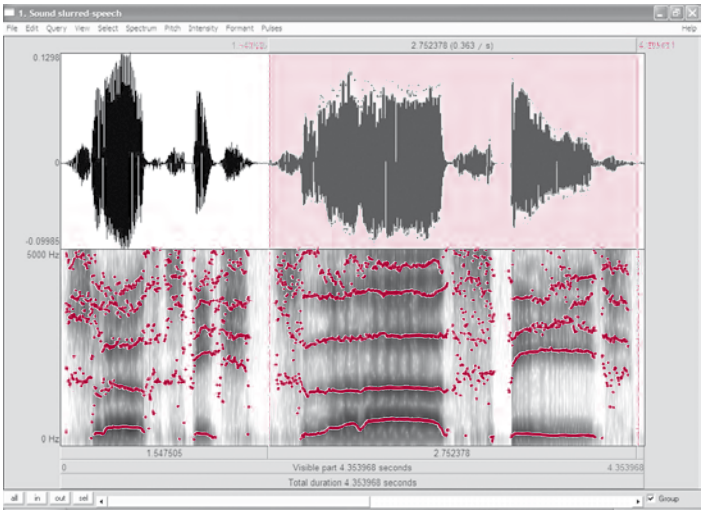

The acoustic waveform (top) and spectrogram (bottom) of the same two words, once spoken normally (left) and once slurred (right/pink area) showing prolongation of all sounds

Welcome Bruce Whitby

Mr Bruce Whitby

Mr Bruce Whitby has been appointed as the new Faculty of Health Sciences General Manager and will take up his appointment on 21st June 2010.

Trained as a medical scientist, graduating from the Queensland Institute of Technology in 1980, Bruce has worked in Queensland, Victoria and South Australia in various scientific and managerial roles. He also gained a Graduate Diploma of Management from Deakin University in 1998. He joins the Faculty from SA Health, where he managed health reform agendas that impacted on the acute care primary care interface, including the GP Plus Services Fund, the Australian Better Health Initiative, and primary health care initiatives under the Indigenous National Partnership: Closing the Gap.

Bruce managed portfolio areas including chronic disease, child health development and protection, and oral health; and has interests in health literacy, self management support, health economics and Aboriginal and Torres Strait Islander health.

He has led the development of various South Australian chronic disease action plans and held a number of roles on National and Jurisdictional working committees. From 2007-2008 he was the National Co-chair for the COAG Type 2 Diabetes Action Plan Working Group that developed lifestyle modification program standards, accreditation processes and the AUSDRISK type 2 diabetes risk assessment tool.

PHC RIS does it again!

In the past six months, the Primary Health Care Research and Information Service (PHC RIS) has been awarded two major contracts from the Australian Government Department of Health and Ageing (DoHA), totalling over $8.5 million.

PHC RIS will emphasise greater relevance of research to the health reform agenda and improve the translation of evidence, knowledge and specialised expertise, to inform decision making regarding primary health care systems and services.

This will be achieved through:

- Collecting, synthesising and communicating knowledge and evidence about primary health care (PHC) and PHC research for use by decision makers
- Responding to information needs of policy makers
- Supporting communication and engagement between researchers and decision makers
- Managing and coordinating PHC research networking opportunities
- Collecting and analysing data and information on the quantity, quality and relevance of PHC research.

In addition, PHC RIS will build on a previous contract to further maintain and develop the Divisions of General Practice (Divisions) Online Reporting System, through which Divisions and State Based Organisations (SBOs) submit annual plans and budgets, and report on performance.

PHC RIS will also manage the analysis of performance information submitted through this system.

This program aims to provide support and services to general practice through their networks to achieve health outcomes for the community that would not otherwise be achieved on an individual general practitioner basis.

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Systematic and transparent use of research in policy

The Primary Health Care Research and Information Service (PHC RIS) was proud to host a visit to Flinders University by Professor John Lavis, Canada Research Chair in Knowledge Transfer and Exchange, who is the Director of the McMaster Health Forum and Professor in both the Department of Clinical Epidemiology and Biostatistics and the Department of Political Science at McMaster University.

Professor Lavis' visit was supported by the Australian Government Department of Health and Ageing. During his time at Flinders University on May 13th and 14th he developed a collaborative project with PHC RIS to adapt the tools and processes used by the McMaster Health Forum for use in Australia. These tools were developed to find and use research to inform policy decision making in primary health care. The McMaster Health Forum produce Policy Briefs – systematic and transparent summaries of the best available evidence on an area of policy interest. They also convene day long Policy Dialogues with key stakeholders to discuss the problem, options to address it, implementation issues, and next steps. With pre-reading provided, those attending Policy Dialogues are not subjected to presentations. Indeed they are seen as both part of the problem and part of the solution – a level playing field.

Members of the PHC RIS team were able to observe Professor Lavis facilitating a very successful Masterclass for the Department of Health and Ageing in Canberra on how to use these tools, the aim being for PHC RIS to conduct further such Masterclasses in the future.

During his visit to Flinders University, Professor Lavis also presented a public seminar *Towards Evidence Informed Health Systems*. The video recording is available on the PHC RIS website www.phcris.org.au

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Professor John Lavis with Associate Professor Libby Kalucy at his seminar 'Towards Evidence Informed Health Systems' at Flinders University.

Saving lives with sleep research

A new international study aims to reduce the incidence of heart attack, stroke or heart failure for people with obstructive sleep apnoea.

Obstructive sleep apnoea is a condition where relaxation of the throat muscles causes a person to stop breathing for several seconds at a time during sleep. The condition often causes loud snoring and can cause sleepiness and poor concentration. About 10 percent of middle-aged men and four percent of middle-aged women have sleep apnoea, causing them to wake up about 15 times or more an hour.

Research indicates sleep apnoea can lead to high blood pressure and increase the risk of heart attack and stroke. A current treatment for sleep apnoea, called continuous positive airway pressure (CPAP) treatment, involves the use of a small mask over the nose and mouth which gently pushes air into the lungs and allows people to breathe during sleep.

Professor Doug McEvoy, Director of the Adelaide Institute for Sleep Health at Repatriation General Hospital (RGH) and Professor of Medicine at Flinders University, said CPAP has been shown to reduce snoring, daytime sleepiness and blood pressure.

The new international study is known as the Sleep Apnoea Cardiovascular Endpoints, or 'SAVE' study and is being led by medical researchers at RGH in South Australia in collaboration with The George Institute for International Health, Sydney.

The study currently involves 550 patients across fifteen recruitment sites (hospitals) in Australia and New Zealand and forty sites in China. There are plans to expand the network into India and Latin America in 2010 and the United Kingdom in 2011. The study will ultimately be conducted across one hundred sites and include 5000 patients.

'We will investigate whether CPAP treatment can reduce the likelihood of heart attack, stroke, heart failure or the factors which can increase the risk of these occurring,' Professor McEvoy said.

A sub-study will investigate the effects of the CPAP treatment on known markers for heart disease, including blood sugar and cholesterol levels and a hormone released into the blood by the heart called BNP.

The information from these tests will be used with other blood pressure and electrocardiogram (ECG) information to determine if CPAP treatment has a beneficial effect for the cardiovascular system.

Professor McEvoy said the study would provide important new insights into how CPAP therapy can benefit the heart and circulatory system of sleep apnoea patients.

'This information will be used to better understand the causes of heart attacks and strokes so safer and more effective treatments can be developed in the future' he said.

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(Adapted from original article in Southern Health News)

Professor Doug McEvoy instructs sleep apnoea patient Bruce Butler how to use the CPAP treatment

Your 2009 research achievements

Professor Michael Kidd, Executive Dean of the Faculty of Health Sciences, is requesting all researchers in the Faculty to provide information about their best 2009 research publication.

An online database has been developed to capture this information and you will shortly receive an email with your user name and password to access this system.

Responses are requested by Friday 16th July 2010. The data entry should take no more than 5 minutes of your time.

The database is available at: http://www.flinders.edu.au/health-sciences/research/achievements.cfm

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Improving outcomes after breast cancer treatment

It is estimated that 10-40% of women undergoing surgery for breast cancer will develop breast oedema (swelling) or lymphoedema (swelling caused by accumulation of lymphatic fluid). While these conditions could be considered side-effects of surgery and radiotherapy, researchers at the Lymphoedema Assessment Clinic believe there might be other contributing factors.

Professor Neil Piller, together with Dr Amanda Moseley, Beverley Heidenreich, Jan Rice and Jan Douglass have completed phase one of a study to determine if the oedema/ lymphoedema is really caused by the cancer treatments or if it is caused, or exacerbated by, the bra a woman wears.

In this study, post-operative women were allocated to wear either an 'off the shelf' bra or a 'custom made' bra. The team measured changes in fluid in the breasts using bio-impedance spectroscopy, breast hardness using tissue Tonometry and breast volume using 3D laser over a 12 month period.

Although these measures do fluctuate with time, the 'custom made' bra wearers experienced fewer adverse changes in the breast, particularly with fibrotic induration (hardening). After 12 months, these women showed an improvement (or no change) in all symptoms.

In contrast, there was significantly increased hardening in the 'off the shelf' bra group. These participants reported a worsening of their symptoms (or no change), with the exception of the perceived hardness of the breast, which did improve after six months.

There was a strong trend to reduced breast fluid in the 'custom made' bra group, possibly as a result of better lymphatic drainage and less build up of fibrotic tissue. In the longer term this may also reduce the risk of subsequent cellulitis and improve patient comfort.

An image of bra pressure areas from a booklet provided to women attending the Lymphoedema Assessment Clinic.

Professor Piller and his team propose that reducing the pressure on the surviving lymphatics, by wearing a 'custom made' bra, results in reduced levels of inflammatory mediators and a reduction in inflammation.

Other studies have shown that patients with lymphoedema have a lower than average maximal lymphatic pumping pressure. They are now questioning whether those who develop breast oedema/ lymphoedema have poor lymphatic pumping ability. This would be of significant importance to women who wear bras which exert large pressures on their remaining superficial lymphatic collectors at key areas on the shoulder, side and front of the chest after breast cancer treatment. The higher pressures observed in the 'off the shelf' bra group, combined with the possible lymphatic pump weakness may predispose these patients to breast oedema and later breast lymphoedema.

Professor Piller also recognises the wider implications of these findings… 'It's a problem for women with breast cancer treatment but one can imagine the pressure of our underwear and pants may be an even more significant issue for those men and women who have had treatment for prostate, bowel, reproductive cancers or melanomas involving lymph nodes of the groin.'

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Perspective, empathy and mental health

Congratulations are in order for Dr Adam Gerace who is a Postdoctoral Research Fellow (Mental Health) in the School of Nursing and Midwifery. Recently Adam was awarded the Tony Winefield PhD Thesis Prize in Psychology by the University of South Australia.

Adam's thesis, *The influence of past experience on the process of perspective taking,* examined how people take the psychological point of view of others and experience empathy.

Adam is currently working in the School of Nursing and Midwifery's Mental Health Research Team led by Professor Eimear Muir-Cochrane, conducting research on psychiatric risk assessment and patient absconding. The Team will also begin work on empathy in mental health care, building on Adam's doctoral work.

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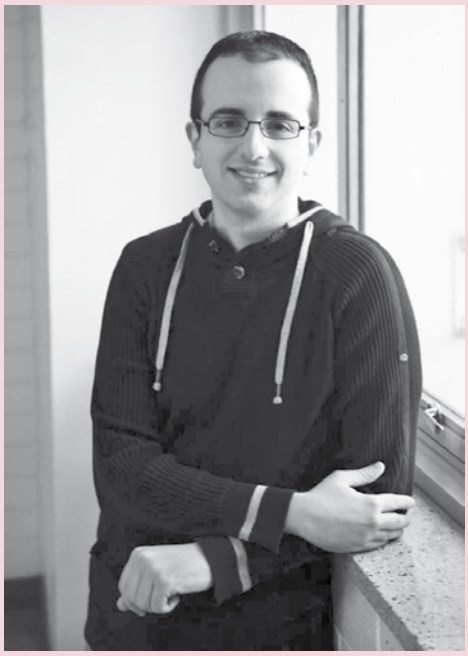

Adam Gerace

Celebrating Success in the Faculty

The Faculty of Health Sciences congratulates members who have recently received research grants, awards or honours. The following list shows Chief Investigators who received grants from 15/3/2010 to 27/5/2010, as advised by the Research Services Office.

Local Palliative Care Grants Program

- Agar, Meera: Improving the welfare and end of life experience for residents, families and staff: A case conferencing approach for older people living with advanced dementia or mental illness, $509,495.

Diabetes Australia Research Trust General Research Grant

- Burt, Morton: Acute and chronic effects of glucocorticoids on carbohydrate metabolism in elderly subjects, $59,872.

Vice Chancellor's Near Miss

- Barritt, Greg: Protective strategies in liver ischemia reperfusion injury, $30,000.
- Craig, Jamie: Economical genome-wide association studies using blood pooling, $30,000.
- Crotty, Maria: Hip fracture rehabilitation in nursing homes: a randomised controlled trial, $30,000.
- Grist, Scott: Double strand break repair deficiency in somatic cells as an index for inherited breast cancer and ovarian cancer risk, $30,000.
- Gordon, David: Characterisation of early virus-cellular interactions in human metapneumovirus infection, $30,000.
- Hu, Ying: Defining biomarkers of colorectal cancer prevention by dietary or chemopreventive agents and translation to human intervention studies, $30,000.
- Mackenzie, Peter: Characterization of the novel UDP glycosyltransferase 3A family, $30,000.
- Ratcliffe, Julie: Health state values and Quality Adjusted Life Years in Adolescence. "Nothing about Us without Us!" $30,000.
- Zhou, Xin-Fu: Molecular mechanisms of endocytosis of brain derived neurotrophic factor (BDNF) and its receptors, $30,000.

Research Pulse welcomes information regarding grants, awards and honours for publication in future issues.

PRISM news

With the first semester of 2010 already underway I thought I would inform all staff and students of our Post Graduate Research Students in the School of Medicine (PRISM) society. PRISM was originally established to promote social and academic communication between postgraduate research students within the School of Medicine (SOM) at Flinders University, but is now open to all postgraduate students in the Faculty of Health Sciences.

In 2009 we introduced our highly successful Faculty of Health Science Research Prize Day. Postgraduate students presented their research work to a panel of judges and a scientific audience. Twenty abstracts were submitted and prizes were donated by the SOM, School of Nursing and Midwifery and Unibooks.

Jean Winter

This year we also continued our popular PRISM seminar series held once a month in the Michael Berry Seminar Room on level 6. Seminars cover a wide range of topics in the general area of health, medicine and science, with free drinks and nibbles for all who attend. Our most recent seminar featured Women in Science with a full house listening to three presenters from the SOM: Professor Kathie Knights, Professor Lynne Cobiac and Associate Professor Pam Sykes.

PRISM encourages socialising amongst postgraduate students in our PRISM room on level 5 of Flinders Medical Centre, BBQs, movie nights and pub crawls. PRISM is a not for profit organisation and provides interaction, support and encouragement of fellow post-grad students in a friendly environment. All staff and students of Flinders University and Flinders Medical Centre are welcome and encouraged to become members of PRISM. Contact us at *prismfmc@gmail.com* or visit our web page *www.flinders.edu.au/medicine/sites/prism*.

We look forward to hearing from you soon!

Jean Winter

PRISM Chairperson and PhD Candidate

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Building value through collaboration with industry

Flinders Partners provides commercial expertise to complement the research capabilities of the University. For the first time, Flinders Partners has a dedicated team to serve the Faculty of Health Sciences.

Ben Olsen, Principal at Flinders Partners highlights that 'we're determined to assist the Faculty increase research income and also to commercialise more outcomes of research.'

Services provided by Flinders Partners include:

- Market Research,
- Partner Identification & Negotiation,
- Intellectual Property advice,
- Contract review, and;
- Commercialisation of research outcomes (assignments, licensing and creation of spin out entities).

Flinders Partners will engage industry to participate in research projects and contract research and development. If researchers are already engaged and negotiating with industry, Flinders Partners can provide advice to assist the researcher secure a position which achieves value and mitigates risk for the University.

Flinders Partners will provide most of these services under a set fee arrangement with the Faculty, so there is typically no charge to the researcher when engaging Flinders Partners.

Flinders Partners are seeking to hear from researchers with projects which may be suitable for industry funding or are nearing an outcome from their research which might be ready for commercialisation.

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Ben Olsen, Principal

Mentoring research and publication skills

An innovative mentoring project in the School of Nursing and Midwifery is generating greater student interest in scholarship and further research studies. Since its inception in 2004, the mentoring project has had a powerful impact on the undergraduate nursing and midwifery students. The boost in students' research skills and confidence has led to significant increases in Honours and PhD enrolments, conference presentations and co-authoring of publications in peer reviewed journals.

This innovative, multi-award winning teaching and learning project was developed by Dr Lindy King assisted by a team of academics from the School. The mentoring project now exists as a separate final-semester topic available to Bachelor of Nursing and Bachelor of Midwifery students who hold an overall distinction average grade or higher in their studies and have an interest in research.

Along with attending eight weeks of tutorials, each student works with an academic and a clinical mentor for the semester. Assessment requires students, under the guidance of their mentors, to complete two assignments. The first is an extensive literature review for potential publication in a peer-reviewed journal. The second assignment is to make a professional poster based on the literature review for potential display in practice settings and/or for conference presentations.

At the end of each year after assignment marking is completed a poster presentation and celebration is held in the school in recognition of the students' achievements. A judging panel of senior personnel from health industry organisations awards prizes of $200 each to students' posters considered to have 'cutting edge' research findings to inform the health field. In 2009, the two poster prizes were awarded to students Robert Pannell and Charmaine Caballero.

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(Sources: School of Nursing and Midwifery website and Research Hub blog)

Dr Lindy King

research pulse *is an initiative of the Faculty of Health Sciences at Flinders University. Comments and suggestions for future articles are welcome.*

Also available online: www.flinders.edu.au/health-sciences/research/pulse

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