



New publication showcases influential research

A new publication showcasing some of the most influential research projects now underway or recently completed in the School of Nursing and Midwifery has been launched.

It celebrates the diversity of our nursing and midwifery research and shows the value of its impact. The featured research is informing policy, clinical practice, nurse and community education and health service delivery.

Informing Better Health Care: Research Snapshots, was officially launched by Professor Michael Barber, in February, this year.

Highlighted projects in the magazine demonstrate the School's ability to conduct collaborative research. The publication offers many examples of successful working relationships forged with industry, government and non-government organisations.

Through these collaborations, researchers are addressing complex issues such as culturally safe healthcare across the ages, changing clinical policy for improved care in mental health, and building trust in the food industry.

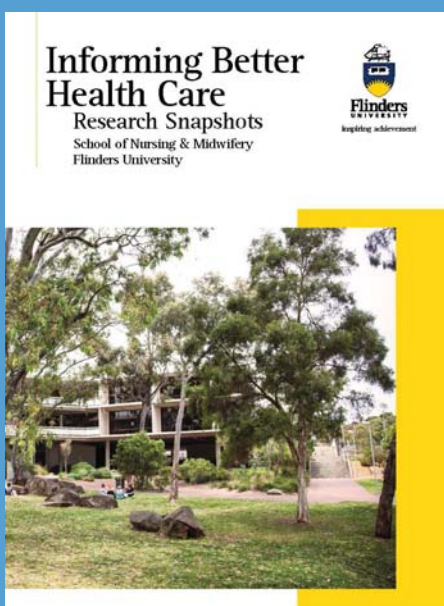
Cross-disciplinary research in the School of Nursing and Midwifery is also highlighted. School researchers

are conducting investigations of the social impacts of diabetes self-management, consideration of the moral, legal and community values in decisions about humans and developing theory and predictive models for audience behaviour at mass gatherings.

External organisations interested in working with the School of Nursing and Midwifery, to explore issues of mutual interest through research or professional consultancy, can contact the School Research Manager, Ms Pam Smith, for more information.

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Informing Better Health Care: Research Snapshots is available at:
www.flinders.edu.au/nursing/research/sonm-research-publication.cfm



Dr Alison Hutton and Dr Steve Brown are featured in the new publication



From the Executive Dean



March is a busy month in our Faculty's research calendar. The concerted efforts of our academic and professional staff in the early months of this year have seen a significant increase in the number of applications prepared for major external grant rounds and ensured that our new students have received a warm welcome to our Faculty.

In this edition of *Research Pulse* we congratulate and welcome five world-class research leaders who have accepted strategic professorships within the Faculty of Health Sciences. We wish our new researchers well in your endeavours here at Flinders University and we look forward to following your progress over the coming years.

We extend congratulations to Emeritus Professor Ian Maddocks AM whose tireless work as a leader in palliative care medicine, and as a respected advocate for world peace, has earned him the award of Senior Australian of the Year for 2013. This is wonderful recognition of Ian's many great contributions to our nation.

Our congratulations are also extended to the many chief investigators who have secured recent funding to continue their important health and medical research. These researchers, and details of their successful grants, are listed on pages four and five of this edition.

I hope you enjoy reading about the many achievements of members of our Faculty.

Professor Michael Kidd AM
Executive Dean
Faculty of Health Sciences
Flinders University

Welcoming our Strategic Professors

Over the past two years Flinders University has offered a small number of Strategic Professorial appointments to sharpen the University's research profile and build strength in key areas of research interest, including: cancer, eye and vision, pharmacology and medical education.

To date, the Faculty of Health Sciences has welcomed five researchers through this process, namely; Professors Pam Sykes, Ross McKinnon, Justine Smith, Lambert Schuwirth and Arduino Mangoni.

Research Pulse will showcase the research being undertaken by these Strategic Professors throughout the year. In the meantime, here's a brief introduction to their background and research interests:

Professor Arduino Mangoni Strategic Professor of Clinical Pharmacology

Professor Mangoni trained in Clinical Pharmacology, Cardiology and Internal Medicine in Milan, Boston and London. He has returned to the Faculty of Health Sciences after spending the past few years as the Chair in Medicine of Old Age at the University of Aberdeen in the United Kingdom. His research interests include arginine metabolism and vascular pharmacology, cardiovascular safety of NSAIDs, and adverse effects of anticholinergics in older patients. Professor Mangoni is Editor-in-chief of *Therapeutic Advances in Drug Safety* and Associate Editor of the *British Journal of Clinical Pharmacology* and *Age and Ageing*. He has published over 100 papers and co-edited the book *Prescribing in elderly patients*.

Professor Justine Smith Strategic Professor of Eye and Vision

Professor Smith is an Ophthalmologist specialising in the prevention and treatment of uveitis, ie inflammation within the eye. After completing her PhD at Flinders University, she moved to the USA working with the Casey Eye Institute at Oregon Health and Science University. Here Professor Smith secured National Institutes of Health funding for her translational research group and undertook extensive international collaborative research. With 120 peer-reviewed journal articles, and as President-Elect of the Association for Research in Vision & Ophthalmology (ARVO), Professor Smith is leading and contributing to significant advances in the fields of ocular inflammation and vascular eye diseases.

Professor Ross McKinnon Strategic Professor of Cancer Research and Foundation Director of the Flinders Centre for Innovation in Cancer, SAHMRI Beat Cancer Professorial Fellow

Following postdoctoral studies in pharmacogenetics at the University of Cincinnati, Professor McKinnon established a molecular pharmacology laboratory at the University of South Australia and won NHMRC Program Grant funding with Flinders colleagues to investigate the molecular determinants of drug and chemical response. He has also established a start-up company, *PharmaQest*, to commercially develop a topical drug formulation for skin cancer prevention. Professor McKinnon was inaugural director of the Sansom Institute and was appointed the National Facilitator for the Federal Government's *Translating Health Discovery into Clinical Applications* Super Science project. His research is focussed on optimising drug development and utilisation. Current projects include facilitating personalised medicine uptake in oncology, the development of new medicines guided by indigenous knowledge and minimising drug toxicity. He is Vice-President of the International Pharmaceutical Federation which represents three million pharmaceutical professionals worldwide.

Professor Lambert Schuwirth Strategic Professor of Medical Education

Trained as a Doctor of Medicine (MD) in the Netherlands, Professor Lambert Schuwirth has joined the Faculty of Health Sciences from Maastricht University where he worked in the Department of Educational Development and Research for more than twenty years. Specialising in the assessment of medical competence and performance, in both undergraduate and postgraduate training settings, Professor Schuwirth is committed to the continual improvement of the quality of health profession educational for health professionals. At Flinders, he is tasked with the establishment of an internationally recognised research group in health professional education research, working in close collaboration with teachers and health professionals. He is recognised as a world expert in his field and has published widely. He is currently investigating 'innovative assessment' - assessment *for* learning, as opposed to assessment *of* learning.

Research Australia's peak appointment



Professor Paul Ward (Discipline of Public Health) has recently been appointed as a Director of Research Australia, which is the peak body for Health and Medical Research in Australia. Paul is the only Director based in South Australia.

Research Australia has 170 member and supporter organisations (including Flinders University), and conducts Australia's leading "whole of community" program to raise the profile of health and medical research. Independent of

government and not-for-profit, Research Australia's activities are funded by its members, donors and supporters from leading research organisations, academic institutions, philanthropy, community special interest groups, peak industry bodies, biotechnology and pharmaceutical companies, small businesses and corporate Australia. The key mission of Research Australia is to "To make health and medical research a higher priority for the nation".

In the current policy intense environment, Research Australia is working with the university, institute, industry and services sector to highlight the importance of research in generating solutions to health care and systems. Increasingly Research Australia is focused on Australia in the nationally competitive research environment. Our challenge is to secure a continued commitment to research to contribute to improvements in both national and global health, and to meet the challenges of the globalised, competitive research and innovation environment.

Research Australia was established in December 2000. It was formed as a result of recommendations in the Australian Government's Strategic Review into Health and Medical Research, headed by Peter Wills AC (Deputy Chair of the Board, Research Australia). A major outcome of the Wills Review was the

doubling of the National Health and Medical Research Council budget for the five years 1999-2004. However, Australia still ranks well below the OECD average for expenditure on health and medical research. Consequently strengthening of the research sector is critical for Australia's economic position in the global market place.

Research Australia's vision is a world where government, industry, philanthropy and the research sector work together to improve quality of life for all Australians. The goals of Research Australia are:

- A society that is well informed and values the benefits of health and medical research;
- Greater investment in health and medical research from government, industry and philanthropy;
- To ensure Australia captures the benefits of health and medical research;
- To optimise Australia's global position in health and medical research.

Given Professor Ward's role in such an important national peak body, he is very happy to talk with individuals or groups who want to advocate for changes to State and/or Federal policies or strategies around health and medical research.

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Professor Pam Sykes

Strategic Professor of Preventive Cancer Biology

Professor Pam Sykes has a PhD in Genetics and has worked in the area of molecular genetics in Australia and the USA over the past 25 years. Based at the Flinders Centre for Innovation in Cancer, Professor Sykes heads a research group of staff and post-graduate students studying the biological effects of low doses of ionising radiation. Her research has been largely funded over the last 10 years by the United States Department of Energy Low Dose Radiation Program and is focussed on studying the protective role of low dose radiation. She has collaborative low dose radio-biology projects underway in Canada, UK and Italy. Professor Sykes holds membership on state and national committees for radiation protection and is an Associate Editor for the *Radiation Research* journal.

Article compiled by Denise Caretti

Australia Day Honours



Emeritus Professor Ian Maddocks AM, the first Chair of Palliative Care at Flinders University, has been named The Senior Australian of the Year for 2013.

During his time at Flinders, Professor Maddocks has pursued a rigorous and innovative teaching and research program, while also caring for patients. He succeeded in improving care for the dying, but admits there is more work to be done to promote palliative care as a part of medicine practice.

Professor Maddocks has also been recognised for his work in tropical and preventative medicine and for his strong advocacy for peace. (He met with Mikhail Gorbachev in 1985 to convey the risks of nuclear war.)

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Celebrating success in the Faculty

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

Faculty of Health Sciences' researchers are shown here in **bold**.

ARC Discovery Project

Damien Keating: Identification of the molecular mechanisms controlling peripheral 5-HT secretion. \$448,000.

NHMRC Equipment Grants

Timothy Chataway, Keryn Williams, Tom Gordon, Damien Keating, Shiwani Sharma, Neil Sims: Thermo Q Exactive Mass Spectrometer and Dionex chromatography system, \$61,255.

Catherine Abbott, Melissa Brown, Kathleen Soole, Ian Menz, Kathy Schuller, James Stangoulis, Peter Anderson, Jim Mitchell, Sophie Leterme, Amanda Ellis, **Barbara Sanderson, Fiona Young:** Luminescent upgrade to the BMG LABTECH FLUOstar Omega, \$5,000.

Department of Innovation, Industry, Science and Research - Australia-China Science and Research Fund

Chris Franco: Flinders University Group Mission to Strengthen Multi-Faceted Research Collaborations with Hunan University and Central South University, Changsha, China, \$45,000.

Department of Water Environment and Natural Resources

Wei Zhang: Scoping study in mapping and matching hotspots of biodiversity, biochemical and bioactivity diversity for advanced Marine Park policy in South Australia, \$15,028.

Department of Health and Ageing

Ellen McIntyre: Rapid Review of Allied Health Video Consultation Services, \$36,018.

Department for Communities and Social Inclusion

Peter Harvey: ATSI/CALD Specific Problem Gambling Services, \$89,000.

SA Health

Evie Leslie: Flinders Copal (Childhood Obesity Prevention and Lifestyle) Evaluation, \$255,500.

Motor Neurone Disease Research Institute of Australia: Grants-in-aid

Mary-Louise Rogers, Robert Rush: Biomarker for Determining Outcomes of Motor Neurone Disease Treatments in Animal Trials, \$100,000.

Southern Junction Community Services Inc

Fran Baum, Matt Fisher: Southern Regional Alliance Conference - Connecting in the Urban Village, \$4,678.

Arthritis Australia Research Grants

Malcolm Smith, Mihir Wechalekar: Identification of synovial membrane biomarkers predictive of treatment response and remission in a homogenous cohort of patients with Early Rheumatoid Arthritis, \$20,000.

Historical Society of South Australia Grants Scheme

Mayumi Kako: Historical study of the role of nurses during the Spanish Influenza between 1918-19 in South Australia, \$480.

Flinders University DVC-R Near Miss Award

John Coveney, Paul Ward, Julie Henderson, Samantha Meyer, Anthony Elliott, Rachel Ankeny: Regulating food and nutrition: How far will the public go? \$25,000.

Malcolm Battersby, Robert Ladouceur, Max Abbott, Peter Harvey, Richard Woodman, David Smith, Rene Pols: A randomised controlled trial of cognitive therapy, behaviour therapy, cognitive-behaviour therapy and supportive listening interventions, \$25,000.

Malcolm Battersby, Philip Aylward, Sharon Lawn, Richard Reed, Steve Quinn, Tarun Bastiampillai: Comprehensive care coordination & self-management support for improved cardiovascular outcomes in serious mental illness: a randomised controlled trial, \$25,000.

Nicholas Antic, Simon Carney, Ronald McEvoy, Edward Weaver, Peter Catchside, Ching Li Chai-Coetzer, Peter Cistulli: Clinical outcomes, safety and incremental cost effectiveness of multi-level airway surgery in patients with moderate-severe Obstructive Sleep Apnea, \$25,000.

Sonja Klebe, Keryn Williams, Douglas Henderson: Novel treatment strategies for malignant mesothelioma, \$25,000.

Flinders Centre for Innovation in Cancer (FCIC) Grants

Amanda Hutchinson, Carlene Wilson, Ivanka Prichard: Expectations of cognitive side effects from cancer treatment: Do they affect patient outcomes? \$14,000.

Benjamin Lewis: Old therapies used in innovative ways: A P450-based gene directed prodrug therapy model for targeted cancer treatment, \$15,000.

Bogda Koczwara, Fiona Young: A prospective clinical trial investigating utility of antimullerian hormone (AMH) as a predictor of chemotherapy induced menopause, \$14,000.

Carlene Wilson, Ivanka Prichard, Amanda Hutchinson: Utilising social media and social networks to change acceptability of sun exposure in young women, \$14,000.

Dong Gui Hu, Peter Mackenzie: Androgen receptor splice variants in breast cancer and their potential role in mediating resistance to anti-androgen therapy in Triple Negative Breast Cancer, \$14,000.

Greg Barritt, Robert Padbury: Molecular mechanisms of rapamycin action on the liver, \$14,500.

Jonathan Gleadle, Michael Michael: Novel biomarkers of hypoxic tumours in breast cancer and their role in tumour progression, \$15,000.

Melanie Hayes, Bryone Kuss, Peta Macardle: Image-based cytometry for the detection of chromosomal abnormalities in chronic lymphocytic leukaemia: impact on prognosis and therapeutic resistance, \$15,000.

Michael Michael: MicroRNA-18: a tumour suppressor in colorectal cells, \$15,000.

Pamela Sykes, Rebecca Ormsby: Parthenolide in the treatment and prevention of prostate cancer, \$15,000.

Peter Mackenzie: Regulation of UDP Glucuronosyltransferase Expression by microRNAs in Cancer, \$15,000.

Rebecca Ormsby: A longitudinal study of epigenetic changes in ageing mice following low dose X-irradiation, \$13,000.

Robyn Meech: Analysis of breast cancer stem cell heterogeneity, \$14,500.

Samantha Meyer, Paul Ward, Carlene Wilson: A qualitative study investigating cancer patient's trust in multi-disciplinary healthcare professionals, \$14,000.

Sonja Klebe, Keryn Williams: Combined blockade of Aquaporin 1 and VEGF-A to inhibit growth of malignant mesothelioma, \$15,000.

Ying Hu: Does dysregulation of DNA methyltransferases and alteration in histone acetylation occur in inflammatory colorectal cancer model of AOM/DSS? \$13,000.

Research Higher Degree Graduations

The Faculty of Health Sciences congratulates the Research Higher Degree students who graduated in December 2012. We wish you all the very best in your future endeavours.

DOCTOR OF PHILOSOPHY

- Sotoodeh Abhary
- Julia Anaf
- Natalie Bolton
- Ching Li Chai-Coetzer
- Jessica Hall
- Benjaporn Homkajorn
- Sabitra Kaphle
- Kate King
- Kate Laver
- Kimberly Mackenzie
- Kirsty Prior
- Bartek Rajkowski
- Mark Slee
- Cameron Smith
- Michael Taylor

DOCTOR OF PHILOSOPHY

- Melinda Tea
- Chelsea Todd
- Jing Jing Wang
- Fitri Widiyanti
- Annabelle Wilson
- Nualnong Wongtongkam

DOCTOR OF PUBLIC HEALTH

- Andrea Begley
- Michael Bentley

MASTER OF SCIENCE

- Sandra Bradley

Standout student publication

The Executive Dean's PhD Research Student Publication Award recognises the most outstanding publication by a Research Higher Degree student in the Faculty of Health Sciences each year.

The 2012 Award has been presented to **Ms Simona Carbone** for her publication entitled *Loss of responsiveness of circular smooth muscle cells from the guinea pig ileum is associated with changes in gap junction coupling*. This journal article, co-authored by Professor David Wattchow, Associate Professor Nick Spencer and Professor Simon Brookes, was published in the *American Journal of Physiology - Gastrointestinal and Liver Physiology* and has earned Ms Carbone \$1000 in prize money.

After recently completing her PhD under the supervision of Professors Brookes and Wattchow and Associate Professor Spencer in Human Physiology, Ms Carbone took the time to explain the research behind her award-winning publication...

"For over a century, physiologists have studied the contractions of small, isolated pieces of intestine. From the very first studies, a strange phenomenon was noticed. In the first half hour, smooth muscle cells never contract, even to high

concentrations of drugs or strong electrical stimulation. Researchers have to allow a "warm-up" period - time to get a leisurely cup of coffee.

After an hour or longer, the preparations start to behave properly, with stable, repeatable responses to drugs and stimulation. We investigated what causes this initial loss of responses. We showed that electrical responses of smooth muscle to nerve stimulation are initially absent, but spontaneously recover over 30-120 minutes.

Smooth muscle cells are normally coupled to each other. We showed that injected dye can diffuse between coupled smooth muscle cells but during the first 30 minutes, dye coupling was absent. Drugs which disrupt this coupling convert active smooth muscle to inactive. Thus the "warm-up" period is probably due to a temporary loss of coupling between smooth muscle cells.

Now we understand why investigators can have a cup of coffee before beginning their recordings. More importantly, we have identified a novel mechanism that can entirely shut down gut activity and which could represent a potent influence on gut motility."



The full text journal article is available online and can be accessed at: <http://0-ajpgi.physiology.org.library.pcc.edu/content/302/12/G1434>

The Faculty of Health Sciences wishes Ms Carbone all the very best for her research career in the future.

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Minimising 'missed care'

Faculty of Health Sciences researchers have partnered with visiting academic Professor Patti Hamilton, from the Midwestern State University in Texas, to examine 'missed' nursing care and the potential risk this poses to patients.

With support from a Faculty seeding grant, the research team - lead by **Associate Professor Eileen Willis** and including **Dr Julie Henderson, Dr Ian Blackman, Ms Claire Verrall** (Flinders School of Nursing and Midwifery), **Ms Liz Abery** (Flinders School of Medicine), Dr Clare Harvey (Eastern Institute of Technology, NZ) and Dr Luisa Toffoli (University of SA) - are investigating relationships between 'missed care', or errors of omission, and the work environments of nurses and midwives.

'After hours' work accounts for sixty-four percent of all nursing shifts and is a particular focus of the study. The research team are examining the specific challenges encountered by nurses and midwives providing care outside of standard working hours. These challenges relate to fewer nursing staff and reduced availability of ancillary, administrative and medical support.

Following extensive literature reviews and with support from the Australian Nursing and Midwifery Federation (ANMF), the research team has created and disseminated a detailed survey to members of the ANMF. Three hundred and fifty-four respondents from a variety of clinical and community settings across

both metropolitan and rural South Australia provided salient data relating to common nursing tasks, working environments and other factors that might play a significant role in 'missed care'.

Other research methods include the examination of publications using citation mapping and an Institutional Ethnography framework in order to understand the ways in which ideas gleaned from the literature and other means have been used.

Preliminary research findings indicate that commonly expressed reasons for 'missed care' include issues with resource provision along with changes in the predictability and intensity of nursing work.

Comprehensive interviews with thirty nurses and midwives are currently

underway, enabling the research team to further examine and understand the many facets of 'missed care'.

Future research will examine missed care in aged care and rural sectors, identify all of the barriers to care and explore ways to overcome these and ensure patients receive the care that they require.

This productive research partnership also lends itself to exciting opportunities for international networking and ongoing research with the aim of increasing nursing efficiency and productivity and decreasing the number of occasions when care may be missed.

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L-R: Ms Liz Abery, Professor Patti Hamilton, Ms Claire Verrall, Dr Luisa Toffoli, Associate Professor Eileen Willis, Dr Julie Henderson Absent: Dr Ian Blackman, Dr Clare Harvey

End of an ERA

The Australian Research Council (ARC) published the eagerly anticipated *Excellence in Research for Australia 2012 National Report* at the end of last year. This report marks the end of the second comprehensive review of research at Australian Universities and highlights specific research strengths at national, University and discipline levels.

- The outcome was excellent for the Faculty of Health Sciences with 9 of the 10 assessed disciplines rated "at world standard" (rating category 3) or above;
- Two disciplines, *Cardiovascular Medicine and Haematology* and *Ophthalmology and Optometry* were rated at the top level, rating category 5, for producing research outputs that were "well above world standard";

- *'Pharmacology and Pharmaceutical Sciences'* received a rating of 4, for research outputs "above world standard".

Academic and professional staff are encouraged to read the full ERA National report which is available at: www.arc.gov.au/era/era_2012/outcomes_2012.htm

For those interested in learning more about the evaluation process, the *ERA 2012 Evaluation and Peer Reviewer Handbooks* are now also available at: www.arc.gov.au/era/era_2012/key_documents_2012.htm

The ARC has announced that the next round of ERA will be conducted in 2015. The reference periods and census date are yet to be advised.

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New hope for early diagnosis and treatment of Parkinson's

Dr Wei-Ping Gai from Human Physiology has discovered that a protein in the brain may play a role in the development of Parkinson's disease – a common degenerative neurological disorder which affects the control of body movements.

The protein, known as VAMP2, is critical in communicating messages between brain cells, however Dr Gai says that it has also been found to induce cell death, possibly by aggregating inside brain cells.

The exact mechanisms by which the protein causes cell death is now being investigated by Dr Gai as part of a \$15,000 research project funded through the FMC Foundation.

"VAMP2 is involved in neurotransmission but we recently discovered that it could be also involved in Parkinson's disease, we

just don't know how it causes it or to what extent it's involved," Dr Gai, a research fellow and senior lecturer, said.

"In Parkinson's disease brain cells die and we think that dying process comes as a result of the protein aggregating inside these brain cells for some reason, leading to toxicity and, eventually, cell death," he said.

Using mass spectrometry, an analytical technique that determines the chemical structure of molecules, Dr Gai hopes to find out why the protein aggregates in brain cells, thereby paving the way for early diagnosis and targeted treatments for the debilitating disorder.

"At the moment there's no cure for Parkinson's disease because we only know brain cells die, we don't know

exactly how they die or why the proteins aggregate," Dr Gai said.

"So if we can find out what causes these proteins to group together we might be able to find a cure or use the protein as a biomarker so that the disease can be detected much earlier than it currently is.

"Parkinson's is a terrible disease and it's often not detected until a late stage when the patient is already suffering many adverse consequences of the disorder, including tremors, muscle stiffness and impaired mobility.

"It's the second most common neurodegenerative disorder in older populations and it's extremely prevalent in countries like Australia, which is why it must be a research priority."

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The future of primary health care in Australia

In November 2012, the **South Australian Community Health Research Unit**, Flinders University, and Central Australian Aboriginal Congress co-hosted the symposium "The future of primary health care in Australia: opportunities and constraints" in Alice Springs. This was the second research symposium for the NHMRC-funded project "Evaluating the effectiveness of comprehensive primary health care in local communities".

Knowledge exchange is central to the project, and the symposium engaged policy makers, primary health care managers, executives, practitioners, policy-makers, and academics in discussion about the current landscape of primary health care in Australia. Members of the research team also presented emerging findings from the NHMRC research on primary health care models.

Engaging key note presentations were delivered by eminent international speakers including Professor Ron Labonté, Canada Research Chair in Globalization and Health Equity, University of Ottawa; Professor David Sanders, Emeritus Prof and Founding Director of the School of Public Health, University of the Western Cape, South Africa; and Jack McCarthy, Executive Director of the Somerset West Community Health Centre, Ottawa, Canada. The program and presentations are available at: <http://bit.ly/cphcsymposium2012>.

The symposium was very successful in providing a space to reflect on the opportunities and challenges facing primary health care, due in large part to the experience, wisdom, and participation of attendees as well as the invited speakers.

Key messages from the symposium included the need to recognise and celebrate the Aboriginal community controlled sector as leaders in comprehensive primary health care; the need to consider the type and style of primary health care and health promotion in the changing national context; and the

continued need for a social movement to reinvigorate and revalorise primary health care and health promotion.

The project team will continue working with the six partner services throughout 2013 to generate evidence for current practice in primary health care in Australia, and are planning further knowledge exchange activities for 2014.

For more information, contact project manager toby.freeman@flinders.edu.au.



L-R: Ms Donna Ah Chee, Central Australian Aboriginal Congress, Ms Pat Anderson, Lowitja Institute, Professor Michael Kidd AM and Professor Fran Baum, Flinders University. Photo credit: Justin Brierty.

Precision X-rays enable precise research

Mention the word 'radiation', and most people will usually have a negative response. However, the use of radiation is not only integral to many forms of medical treatments (such as diagnostic X-rays and radiotherapy), it's also utilised in numerous areas of medical research. Therefore, the recent acquisition by Flinders Centre for Innovation in Cancer and the School of Medicine of a new research-dedicated X-ray machine, the *Precision XRAD 320*, represents a significant benefit for the research interests of many scientists at Flinders University.

A unique aspect to this instrument is its capacity to deliver both high and low doses of radiation, a feature which will enable it to be used for a range of different types of studies. These include research into understanding the mechanisms behind tumour resistance to radiotherapy, the development of a test for breast and ovarian cancer risk, analysis of changes in gene expression following low-level radiation exposure, the effect of oestrogens on radiotherapy for oesophageal cancer, and the preparation of animal models for cell/tissue transplantation experiments. All of these research programs are aimed at

the generation of new diagnostics, cancer prevention and treatment strategies, and many will be applicable for a number of other diseases.

Funding for the machine (\$320,000) has been won from a number of sources, including the Ramaciotti Foundation, FMC Foundation, and Beat Cancer Project and Faculty of Health Sciences Infrastructure grants. **Professor Pam Sykes**, the driving force behind this acquisition and a Strategic Professor in the Flinders

Centre for Innovation in Cancer, says "The research which is now possible with this X-ray machine has the potential to change cancer treatment regimens, reduce side effects, and improve quality of life".

The machine will be housed in the School of Medicine Animal Facility and will be available for use by all researchers from April 2013.

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Article by Dr Karen Lower



Professor Pam Sykes

Recognition for Early Career Researcher



Dr Ching Li Chai-Coetzer with a patient

The Vice-Chancellor's Awards for Early Career Researchers are presented annually to recognise, reward and promote individuals who have made an outstanding contribution to research at Flinders University since finishing their PhD.

Dr Ching Li Chai-Coetzer, a Sleep and Respiratory Physician in the Faculty of Health Sciences, is among the most recent recipients. She will shortly be presented with a certificate and a cash prize of \$2,500 to enhance her research networks.

Dr Chai-Coetzer, who was also awarded the Executive Dean's PhD Research Student Publication Award in 2011, is

undertaking clinical trials to develop and validate a simplified model of care for patients with obstructive sleep apnoea (OSA). In a trial funded by the NHMRC and Flinders Medical Foundation, Dr Chai-Coetzer and her colleagues have shown that patients treated for OSA in primary care by their General Practitioner and a community-based nurse achieve similar outcomes to patients receiving more specialist care in a sleep centre. These findings demonstrate potential for significant cost savings and more convenient treatment for patients with OSA.

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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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