



Funding boost for Health Science research

Funding from the National Health and Medical Research Council (NHMRC) and the Australian Research Council (ARC) is highly regarded and eagerly pursued. The Faculty of Health Sciences at Flinders University has fared well in the recent announcements of this funding, securing over \$8.8 million in grant income with a further \$1.5 million awarded through various research Fellowships. (A full list of grant recipients commences on page 4.)

The Deputy Vice-Chancellor (Research), Professor David Day congratulated the recipients and said the range of funded projects demonstrates the scope of medical research at Flinders University. "Some of the projects will yield results relatively soon; others will progress knowledge and understanding about diseases and their treatment. All, however, are making a vital, invaluable contribution to improving our health" he said.

One such project is being led by **Associate Professor Peter Catcheside**. He is comparing the effectiveness of a new obstructive sleep apnoea (OSA) therapy with constant positive airway pressure, the current best practice treatment.

"OSA is a condition which has significant adverse effects on health and quality of life, and has major community costs associated with accidents and productivity losses from severely disturbed sleep," Associate Professor Catcheside said.

"A third of OSA patients and many heavy snorers could be effectively treated by simply avoiding sleeping on their back (called the supine position). However, traditional supine-avoidance approaches are inherently uncomfortable and typically not well tolerated and so can't be recommended as long-term therapy," he said.

"Our group helped develop and has tested a simple vibration alarm device to monitor and record sleep posture and discourage supine sleep with minimum discomfort and sleep disturbance. In a short term trial we have already shown the device accurately and reliably records body position, almost completely abolishes the supine posture and substantially improves OSA. This trial will look at longer-term effectiveness and tolerance. If our hypotheses are supported, simple low cost supine avoidance would become a viable treatment option for a substantial group of clinic patients."

Professor Fran Baum is also leading two new projects, one funded by the ARC and one by the NHMRC. The NHMRC study will evaluate complex policy initiatives for health and well being which operate across government departments. The ARC Grant will examine why, despite good evidence, health departments often do not act on the social determinants of health.

"Many agencies are calling for action on the social determinants of health inequity yet there is limited action to address these determinants, and most health promotion has relied on the provision of health

services and measures to encourage lifestyle change" Professor Baum said.

"The ARC-funded research aims to improve understanding of why governments don't act on the evidence on social determinants."

Professor Baum and her team will also examine the theory of policy making and implementation through the NHMRC-funded case study of the South Australian Government 'Health in All Policies' approach, which is encouraging government departments to develop policies that build a healthier population and reduce health inequities.

"Our examination of the interplay between problems, policies and politics in public health will be of critical theoretical interest. We will examine these factors ... and offer an evidence base for governments and international agencies on how to act on social determinants of health inequity" Professor Baum said.

Peter.Catcheside@flinders.edu.au
Fran.Baum@flinders.edu.au



Professor Doug McEvoy & Associate Professor Peter Catcheside in the sleep laboratory



From the Executive Dean

We are ending this year on a high note with the success of many of our researchers in the recent National Health and Medical Research Council (NHMRC) and Australian Research Council (ARC) grant rounds. I congratulate all our successful researchers and recognise the achievements of Professor Xin-Fu Zhou, Dr Feng Guo, Dr Andrew Vakulin, Dr Jia Liu and Mr Cameron Phillips who were all awarded NHMRC Fellowships. As 2011 draws to a close it is pleasing to reflect on the many achievements of our staff and students over the past twelve months. This edition of Research Pulse again showcases the breadth and depth of our Faculty's research activity.

The coming year will present opportunities and challenges. Our major annual grant writing period will coincide with the ARC's assessment of research quality through the second round of the 'Excellence in Research for Australia' (ERA) initiative. The Faculty staff will support our researchers during this busy time.

I extend thanks to all members and supporters of our Faculty for your dedication and commitment over the past year. I wish you and your family members a happy and relaxing holiday period and look forward to our work together in the new year.

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

The Editorial Team would like to thank Ms Kristy Manual in the Faculty Office for her valuable contribution to the *Research Pulse* newsletter during 2010 and 2011. Kristy's efforts saw the implementation of the new style for the newsletter and a more user-friendly online format. Kristy is continuing in the Faculty Office in an Academic administration role.

Australian voices: a matter of record

AusTalk is a collaborative project between eleven universities, involving over thirty speech researchers from around Australia. Funded by an ARC Linkage Infrastructure, Equipment and Facilities grant, they are recording the accents of 1000 speakers from seventeen locations in all states and territories, creating the largest-ever database of Australian speech – and the first to be recorded in both audio and video.

Andy Butcher, Professor of Communication Disorders in the School of Medicine, with the assistance of colleagues at Charles Darwin University, is responsible for recordings in the Northern Territory. David Powers, Professor of Computer Science in the School of Computer Science, Engineering and Mathematics, heads up the South Australian arm of the study. As the only university to host two AusTalk teams, Flinders is responsible for almost twenty percent of the data gathering.

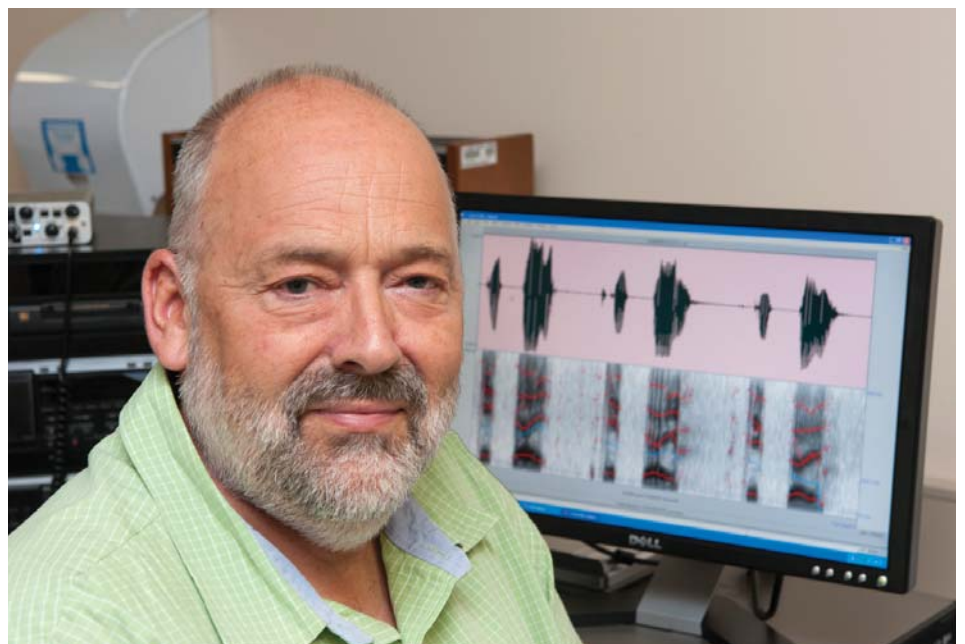
Both groups are about to begin recording their first speakers, using identical portable studios enabling recordings to be made with unprecedented fidelity and consistency. Participants will be recorded on three separate occasions, engaged in a range of scripted and spontaneous speech tasks.

The resulting digital repository of Australian English will be an enduring cultural resource, but will also support basic speech research, as well as a range of speech technology applications including enhanced telephone-based speech recognition systems, forensic voice comparison, hearing aid and cochlear implant improvements and better computer aids for speech- and language-impaired children.

"Any machine for recognising speech needs to be 'trained' using a large data base that includes all the possible accents it's likely to encounter," says Professor Butcher. "That includes Aboriginal English, which is my particular interest, and it also includes all the varieties of so-called 'ethnic' accents."

Anyone educated in Australia from the start of primary school who speaks English as a first language is eligible to take part. More information can be found at: <https://austalk.edu.au>.

Andy.Butcher@flinders.edu.au



Professor Andy Butcher



Empathy in mental health settings

Empathy – the ability to take another’s perspective and to experience emotional and sympathetic reactions to another’s situation – is a core process in building therapeutic relationships between mental health professionals and consumers. However, the ways in which mental health nurses experience empathy and utilise their skills in providing care in an inpatient setting, as well as the ways consumers experience empathy from their carer, has been under investigated.

Research being conducted by **Dr Adam Gerace, Mrs Deb O’Kane, Ms Carly Hayman, Professor Eimear Muir-Cochrane** (School of Nursing & Midwifery) and **Associate Professor John McMillan** (School of Medicine) is currently investigating how empathy operates in situations where there is disagreement or discord between staff and consumers. These situations may be disagreements over activities or treatment, or involving issues such as where a clinician believes a seclusion or restraint is needed.

Mental health nurses working within Adelaide Health Service and people who have experienced a hospitalisation, recruited through the Mental Illness

Fellowship of South Australia and other organisations, have been invited to participate in interviews with the research team. Participants are invited to discuss emotional responses they have experienced in an acute care setting, such as sympathy, distress and compassion; perceptions of nurse empathy, such as when a consumer felt understood; and the ways in which empathy contributes to positive consumer outcomes.

The study draws on research in nursing, psychology, and medicine, in particular bridging these disciplines’ understanding of

this core human process. From this study, the research team wants to generate new knowledge about empathy processes in conflict situations, identify challenges involved in maintaining therapeutic empathy relationships, and direct training and development needs for staff. The team is looking to develop a measure of nurse-consumer empathic relationships in acute care mental health settings, in particular taking account of the unique perspectives of consumers and mental health professionals.

Adam.Gerace@flinders.edu.au



Mrs Deb O’Kane, Dr Adam Gerace and Professor Eimear Muir-Cochrane

Vision-Specific Quality of Life

Sight-threatening eye diseases are common and carry serious economic consequences for society. Accordingly, much clinical research is directed at treatments to prevent sight loss. For new treatments to be of the greatest benefit they need to be assessed in terms of their entire impact on the person. The way in which diseases and their treatments impact people can be assessed by measuring health-related quality of life (QoL).

The research team of the Discipline of Optometry and Vision Science, led by **Professor Konrad Pesudovs**, has been working on the development of high quality measures of QoL for a number of years; particularly in terms of applying statistical models to questionnaire data to improve the measurement properties.

The team have applied Rasch analysis to the revision or development of a number of questionnaires. Previous research into the quality of life impact of refractive correction has led to a number of international awards.

Now the team has been awarded a \$799,472 NHMRC Project Grant to develop ‘A system for measurement of vision-specific quality of life using item banking and computer adaptive testing (ViSBank)’. The purpose of this project is to improve the measurement of vision-specific QoL by taking a new approach called item banking and computer adaptive testing. An item bank is a very large number of questions that are calibrated to optimise measurement properties. Instead of a person answering all questions in the bank, questions are chosen via a computer

algorithm to match the person’s ability level. This leads to very rapid and precise measurement.

This new system will be developed for the comprehensive measurement of vision-specific QoL across all major blinding eye diseases. The team now has a lot of work ahead of them in qualitative research to identify new questions, and then data collection with pilot and final questionnaires. This work will commence in Australia and extend to include a series of international collaborators. Eventually this will lead to an internet-based testing system to allow real-time testing of vision-specific QoL worldwide.

Konrad.Pesudovs@flinders.edu.au

Celebrating success in the Faculty

ARC Discovery Grants

Marcello Costa, Philip Dinning, Nick Spencer, Simon Brookes, John Arkwright, Gregory O'Grady, Andrew Pullan, Paul Cleary: Unified framework of intestinal motility, \$310,000.

Fran Baum, Colin MacDougall, **Lareen Newman, Dennis McDermott**, Jennie Popay, Michael Marmot: Theorising and understanding how policy processes affect uptake of evidence on social determinants of health and equity in Australian health policy, \$300,000.

ARC Linkage Projects

John Coveney, Paul Ward, Julie Henderson, Anthony Elliott, **Samantha Meyer**, Martin Caraher, Trevor Webb, Michael Calnan: Trust makers, breakers and brokers: building trust in the Australian food system, \$80,000.

Megan Warin, Vivienne Moore, **Paul Ward**, Michelle Jones: An ethnographic study of obesity risk in a disadvantaged community, \$162,885. (*University of Adelaide*)

ARC Future Fellowships

Robyn Meech: Ageing and the muscle stem cell niche. \$695,028.

Kathy Arthurson: Reconceptualising urban planning and the built form: comparative international policies and evidence to reduce health inequities and social exclusion. \$591,408.

NHMRC Project Grants

Fran Baum, Elizabeth Harris, Ilona Kickbusch, **Colin MacDougall, Dennis McDermott, Angela Lawless**: Does a Health in All Policies approach improve health, well-being and equity? \$968,325.

Peter Catchside, Nick Antic, Doug McEvoy, Maree Barnes, **Stephen Quinn**, Jeremy Mercer: The clinical effectiveness of a simple new treatment for supine-dependent obstructive sleep apnoea, \$512,776.

Peter Mackenzie: Regulation of drug detoxifying UDP glucuronosyltransferases, \$571,010.

Xin-Fu Zhou, Yanjiang Wang: Use of the p75NTR extracellular domain as a therapeutic target for the treatment of Alzheimer's disease, \$690,340.

Julie Ratcliffe, Michael Sawyer, Terry Flynn, John Brazier, Katherine Stevens: Adolescent population health: application of Best-Worst Scaling Discrete Choice Experiments to value health states for use in economic evaluation, \$174,312.

David Watson, Dorothy Keefe, Joanne Bowen, **Damian Hussey**, Anna Tsykin, Sarah Thompson, **Christos Karapetis**: Identification of biomarkers of response and toxicity to chemoradiotherapy for oesophageal tumours, \$481,175.

David Watson, Glyn Jamieson, Peter Devitt, Sarah Thompson: Long term follow-up of randomised controlled trials for laparoscopic antireflux surgery, \$712,100.

Maria Crotty, Julie Ratcliffe, John Brazier, Ian Cameron, Doungkamol Sindhusake, **Michelle Miller**, Susan Kurrle, **Craig Whitehead**: Is hip fracture rehabilitation cost effective in residential care? A Randomised Controlled Trial of Hip Fractures, \$522,039.

Derek Chew, John Beltrame, Matthew Worthley, Christopher Zeitz, **Philip Aylward, Stephen Quinn, Carolyn Astley**: A randomized comparison evaluating the value of high-sensitivity troponin in the efficient management of chest pain patients across the spectrum of risk for an acute coronary syndrome, \$496,904.

Nicholas Spencer: Imaging the activation of sensory nerve endings that detect pain in the colorectum, \$551,010.

Neil Sims, Hakan Muyderman: Glial reactivity during the post-acute phase of stroke: a target for promoting functional recovery, \$528,675.

Jamie Craig, Shiwani Sharma, John Wood, Glyn Chidlow, Maurizio Ronci, **Tim Chataway**: Functional analysis of recently identified novel glaucoma genes, \$502,302.

Jamie Craig, Stuart Macgregor, Alex Hewitt, **Kathryn Burdon**, Peter McCluskey: Genome-wide association studies to identify major genetic determinants of 5 blinding eye diseases using pooled DNA, \$546,315.

Konrad Pesudovs, Ecosse Lamoureux: A system for measurement of vision-specific quality of life using item banking and computer adaptive testing (ViSBank), \$799,472.

Belinda Gabbe, Ronan Lyons, **James Harrison**, Fred Rivara, Shanthi Ameratunga, Damien Jolley, Suzanne Polinder, Sarah Derrett: Improving the measurement of non-fatal injury burden - Validating the Global Burden of Disease (GBD) project through synthesis and analysis of the six leading injury outcome cohort studies from around the world. \$151,755. (*Monash University*)



Professor David Watson, recipient of two 2012 NHMRC Project Grants

Faculty of Health Sciences' researchers are noted in bold. External lead institutions are italicised.

NHMRC Project Grants (cont.)

Lynne Daniels, **Anthea Magarey**, Jan Nicholson, Diana Battistutta, Karen Thorpe, Geraldine Naughton, Jordana Bayer: Promoting protective feeding practices to prevent childhood obesity: follow up of a successful obesity prevention program commencing in infancy. \$820,558. (*Queensland University of Technology*)

Lisa Askie, Louise Baur, Karen Campbell, Lynne Daniels, Barry Taylor, Li Ming Wen, Kylie Hesketh, **Anthea Magarey**, Rachael Taylor, Andrew Martin: Generating evidence of reduced rates of overweight/obesity in children: value adding to four established Australasian early intervention trials, \$187,018. (*University of Sydney*)

Deborah Turnbull, **Carlene Wilson**, Ingrid Flight, Ian Zajac: Optimising men's uptake of FIT screening for bowel cancer: a population based randomised controlled trial. \$539,990. (*University of Adelaide*)

John de Wit, Limin Mao, David Wilson, **Michael Kidd**, Sean Slavin, Edwina Wright, Jeffrey Post: Improving antiretroviral treatment (ART) initiation for people living with HIV in Australia: a realistic and feasible approach? \$419,896. (*University of NSW*)

NHMRC Research Fellowship

Xin-Fu Zhou: \$641,855.

NHMRC Early Career Fellowships

Feng Guo: Which one is more toxic to neurons? α -synuclein or its metabolite, \$227,106.

Andrew Vakulin: Novel biomarker of performance impairment in sleep apnoea, \$294,892.

Jia Liu: Roles of sortilin/APP/BACE complex in Alzheimer's disease, \$204,906.

NHMRC Translating Research into Practice Fellowship

Cameron Phillips: \$126,232.

Australian Kelp Products

Wei Zhang, Marina Delpin, **Raymond Tham**: FCMB2 Pilot Project with Australian Kelp Products, \$25,778.

Australian National University

Dean Carson: Mapping the patchwork economy in Australia - how employment in industry sectors play out across regions, \$9,900.

Australian Primary Health Care Research Institute

James Dunbar: International Visiting Fellowships - Dr Brian Mittman, \$24,560.

Australian Seafood CRC

Wei Zhang, **Shan He**: Research Travel Grant: Implementation of PhD research to industry partner, \$7,687.

Country Health SA

Jeff Fuller, **Julie Henderson**, **Maria Crotty**: Older Persons mental Health Service Evaluation, \$110,000.

Channel 7 Children's Research Foundation of SA

Martin Caon, Gobert Lee, Mariusz Bajger & Murk Bottema: Paediatric Anatomy Modelling and Radiation Dose Calculation for Minimizing Radiation Dose to Children from CT Examinations. \$75,000.

Bryone Kuss, **Nico Voelcker**: Development of Localised Drug Delivery Vehicles for Human Brain Tumors, \$75,000.

Diabetes Australia Research Trust

Elke Sokoya: Novel mechanisms underlying cerebral vascular dysfunction in metabolic syndrome, \$39,770.

Morton Burt: Effect of therapeutic glucocorticoids on insulin sensitivity, cardiovascular risk and energy metabolism in patients with inflammatory arthritis, \$39,770.

Drug and Alcohol Services Council of South Australia

Ann Roche: Evaluation of voluntary smoking restrictions in outdoor hospitality venues, \$156,800.

Fonterra Co-Operative Group

Wei Zhang: Process simulation and financial costing of bioprocesses, \$18,750.

Nurses' Memorial Foundation of SA Incorporated

Linda Starr, **Sheryl De Lacey**: Between a rock and a hard place: factors that contribute to the vulnerability of nurses and midwives in practice, \$25,000.

Ophthalmic Research Institute of Australia

Shiwani Sharma, **Kathryn Burdon**, **Jozef Gecz**: Identification of the genetic causes of congenital cataract through massively parallel DNA sequencing, \$50,000.

The Lowitja Institute, incorporating the CRC for Aboriginal and Torres Strait Islander Health

Judith Dwyer, **Angelita Martini**: Funding, accountability and results for Aboriginal Health Services, \$540,000.

Managing Two Worlds Together

The *Managing Two Worlds Together* project is improving our understanding of what works well and what needs improvement in the system of care for Aboriginal patients from rural and remote areas of South Australia. While the poor health status and high levels of admissions to hospital of Aboriginal people are well known, this project (undertaken by **Judith Dwyer, Janet Kelly, Eileen Willis, John Glover, Tamara Mackean, Brita Pekarsky and Malcolm Battersby**) is the first in Australia to examine the experiences of both staff and country Aboriginal patients.

Stage One of the project focussed on understanding the problems affecting those on both sides of the treating relationship in order to identify real opportunities for improvement. This involved examination of data from 2700 admissions of country Aboriginal patients, interviews with sixty staff and more than twenty patients, and mapping of a small number of patient journeys. We found many examples of good practice, based on creative responses to the needs and circumstances of country Aboriginal patients and strong relationships between Aboriginal patients and their health care professionals. Unfortunately, these

'good practice' strategies and protocols are not systematically implemented. Both staff and patients were concerned about communication across language, experience and geographic boundaries, and reported serious consequences of communication breakdown. They also spoke about the skills and knowledge that helped them to avoid those problems.

We suggest that the key to entrenching good practice throughout the hospital system is to base responses on the complexity principle. The capacity

to predict and respond to common complexities, including access to, and the expense of, transport and accommodation, is needed.

At the recent launch of Stage Two of this project, the research team began working with industry partners and stakeholders to identify priorities for improvements in quality of care and the integrity of the patient journey.

Janet.Kelly@flinders.edu.au
Judith.Dwyer@flinders.edu.au



L-R: Mary Anne Clements, Sharon Perkins, Elder Auntie Josie Agius, Peter Burgoyne and Vanessa Harris

Influencing diabetes health care of Aboriginal people

Type Two Diabetes Mellitus has become a significant health problem for Indigenous Australians with prevalence estimated at two to four times higher than the non-Indigenous population. Morbidity and mortality from Type Two Diabetes amongst Indigenous people is at epidemic proportions with men and women dying seventeen to nineteen years earlier than their non-Indigenous counterparts.

In 1998 Flinders University opened their accredited Australian Diabetes Educators Association (ADEA) course to Aboriginal Health Workers (AHWs). This decision was significant as for the first time in Australia AHWs were admitted to a diabetes course developed primarily for

registered nurses (RNs) and allied health professionals with undergraduate tertiary qualifications. Graduates from accredited ADEA courses were equipped with the knowledge and skills to care for people with diabetes. Since 1998, over fifty AHWs (from South Australia, New South Wales, Victoria and Northern Territory) have undertaken the course now established as a Graduate Certificate in Health: Diabetes Management and Education.

In 2008, **Dr Meri King, Dr Lindy King, Associate Professor Eileen Willis, Ms Rebecca Munt** and Ms Frith Semmens (NSW Health Service) were awarded a \$50,000 School of Nursing and Midwifery Partnership Grant to explore AHWs and

RNs perspectives on specialist diabetes education and identify strategies that could be used to help consolidate the diabetes expertise of the AHWs and RNs in practice. The study was located in the Far Western Region of New South Wales and involved nine mainstream or Aboriginal health services that employed AHWs and RNs who had undertaken the diabetes course over the last ten years. Nine RNs, six AHWs and two managers were interviewed. The findings of this study are being presented at a series of conferences and through publication.

Lindy.King@flinders.edu.au

Students succeed on world stage

A group of Graduate Entry Medical Program students undertaking the 'Lymphatics in Health and Disease' elective have received international recognition for their research achievements.

Seven students from the elective were invited to present their research findings at the recent International Congress for Lymphology in Malmo, Sweden. **Lachlan McFetridge, Hani Saeed (with Matt Samarin), Kyra Sierkowski, Rachel Dawson, Simon Merritt, Trevor Day and Lil Meddings Blaskett** will also have their summary presentation published in the International Journal of Lymphology and the full presentation in the Journal of Lymphoedema.

Rachel Dawson's research project won her an International Society of Lymphology Presidential Prize (one of three in the world) to help defray accommodation costs. She also had her poster on diet and breast cancer-related lymphoedema presented at the Third International Lymphoedema Framework Meeting in Toronto earlier in the year and had the detailed presentation published in the Journal of Lymphology.

Lil Meddings Blaskett and Cam Galbreith also won a prize for the best presentation for their paper entitled Extracellular fluid movement in elevated lymphoedematous and healthy limbs.

The topic coordinator, Professor Neil Piller, is understandably very proud of this group. "It's really incredible that so many students from one country have been invited to speak internationally. It's a sign of the great research being done here at Flinders University and of our students' potential for great research, even in their early years" he said.

Neil.Piller@flinders.edu.au

Scientists in Schools

'Scientists in Schools' (SIS) is a national program established by the CSIRO. The program provides a valuable opportunity for scientists, including postgraduate students, to engage with school students and teachers and promote science as a career. **Dr Helena Ward**, from Health Professional Education in the Faculty of Health Sciences, and Ms Lyn Jaensch, from Faith Lutheran School in Tanunda, have agreed to share their experiences with the program and encourage others to become involved.

"It has been a positive and enjoyable experience" Dr Ward reflected. "Lyn and I worked together so we could plan activities that would match my research background and the science curriculum for the students. As my PhD is in Microbiology and much of my post-doctoral research has been in Microbiology and Molecular Biology we decided to plan experiments on mould growth.

Lyn asked me to visit her class to meet the students and speak briefly about my career. The students were very enthusiastic and asked a lot of questions about what a scientist does. When I returned, we planned and performed an experiment to see what factors influence mould growth on bread. The students wrote up their results and Lyn and I led a class discussion on how scientific experiments are recorded. I was also invited to speak to senior students at the School Assembly.

My involvement in the SIS program has been very rewarding and I have appreciated the energy of the students and the warm welcome from the Faith Lutheran School community. I will be continuing my partnership with this school and look forward to working with the students and staff in the future."

The partnership was mutually beneficial with Ms Jaensch saying "...it was great having a 'real scientist' helping out. Helena's visits were welcomed with enthusiasm by our year 8 students. They found her life story and involvement in science interesting and inspiring! We were all caught up in her enthusiasm for science as she spoke and we viewed her slides. Our mould experiments were fun and the students gained experience in working through the scientific process with planning their investigation, conducting the experiment and preparing a report."

The program provides support for scientists and teachers, including resources and workshops. For more information or to become involved, please visit the SIS website (www.scientistsinschools.edu.au) or contact the SA Project Officer Dr Rebecca Anderson (sis.sa@csiro.au).

Helena.Ward@flinders.edu.au



Faith Lutheran College Year 8 students with Dr Helena Ward

Improving live birth rates for women undergoing IVF

In a collaborative project funded by the NHMRC, Associate Professor Caroline Smith (University of Western Sydney), **Associate Professor Sheryl de Lacey** (School of Nursing and Midwifery, Flinders University), **Professor Julie Ratcliffe** (Flinders Clinical Effectiveness, Flinders University) and Professor Michael Chapman (IVF Australia) are investigating whether the use of acupuncture with in vitro fertilisation (IVF) impacts live birth rate, psychosocial experience and public expenditure.



IVF treatment is a costly option for women, their partners and the public. It can also cause considerable stress for those involved and may invoke anxiety, feelings of diminished self control and self worth, grief and depression. This may impact treatment outcome, leading to a cascade of repeated treatments, rising costs, diminishing outcomes and withdrawal from treatment without a live birth. It is highly desirable, both psychosocially and economically that women use less IVF treatments *and* achieve a live birth.

The use of acupuncture by women is increasing due largely to its discussion in infertility chat rooms and websites as a positive adjunct to IVF. Clinical studies suggest that acupuncture around the time of embryo transfer has an effect on treatment outcome but robust randomised control trials (RCTs) are rare.

Small qualitative studies suggest that the use of acupuncture impacts feelings of self worth, self confidence and control, and the ability to cope.

The study, funded until 2014, involves three components:

- a RCT involving 1399 women recruited from at least five IVF treatment centres across Australia and New Zealand;
- a qualitative study interviewing fifty women about IVF treatment, how they perceive acupuncture, their experience of it and its impact to their wellbeing, sense of control, sense of self, stress and coping, and psychological resilience; and
- an economic analysis of the cost per live birth measured through analysis of data on the frequency and duration of hospital out-patient visits and in-patient admissions obtained from medical records and Medicare data.

Results from this study will contribute to understanding the role acupuncture can play in improving live birth rates for women undergoing IVF.

Sheryl.deLacey@flinders.edu.au

National accolades for fibre-optic innovation

Dr Phil Dinning from Human Physiology has won a prestigious Eureka Prize for taking fibre-optics technology to a place it has never been before – the human gut.

Dr Dinning and his CSIRO colleague Dr John Arkwright received the \$10,000 Australian Museum Eureka Prize for Innovative Use of Technology for their development of a pressure-sensing catheter that provides unprecedented and intricate detail of muscular contractions deep within the human colon.

Gastric disorders are a major health issue that have a significant impact on quality of life and affect twenty percent of the population, but have proved hard to diagnose and cure because of a lack of understanding and accuracy around what exactly is happening inside the gut.

By adapting fibre-optics – the flexible, small-diameter technology more usually associated with telecommunications – the researchers have been able to monitor the gastrointestinal tract with high resolution over extended lengths of time while the patient is awake and mobile.

Their studies have revealed that the previous best catheter technology may have missed or mislabelled up to ninety percent of backward and forty percent of forward propagating pressure waves. The research has major implications for the treatment of conditions such as constipation and incontinence.

While designed specifically for gastrointestinal use, the technology is not limited to this field, and already interest is growing in areas such as urology and cardiology. It also has

potential applications outside medicine in infrastructure and hazardous environment monitoring.

Phil.Dinning@flinders.edu.au

(Article adapted from *Flinders News*)



Dr John Arkwright & Dr Phil Dinning

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

Contact: Denise.Caretti@flinders.edu.au | **Editorial Team:** Mrs Denise Caretti, Ms Pat Barkway & Dr Karen Lower