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Flinders
UNIVERSITY



inspiring achievement

FACULTY OF health sciences research profile



ON THE COVER

REBECCA ANDERSON

As anyone knows there are many different types of pain. There are different sensory neurons that detect the different types of painful, or noxious stimuli. The endings of these sensory neurons are found in a specialised area of the spinal cord called the dorsal horn. This is where the sensory information is first processed before messages are sent up to the brain. Therefore, understanding how the different nerve pathways are connected within the spinal cord is absolutely vital if new analgesic drugs are to be developed to act at this spinal level. Our current research uses a combination of sophisticated neuronal tracing techniques, electrophysiology, and multiple-labelling 3D confocal microscopy to study the synaptic organisation of different types of nerve fibres that respond to noxious stimuli. This research combines the knowledge and skills I gained while working overseas, with the world-class immunohistochemical and confocal microscopy facilities that are available here at Flinders University.

Rebecca Anderson completed her PhD at Flinders University in 2001 and was then awarded an NHMRC CJ Martin Postdoctoral Fellowship and a Fulbright Postdoctoral Award, which enabled her to continue research both here and at Columbia University, New York. She is now employed at Flinders University in the Department of Anatomy and Histology where she balances her research work, as a job share post-doc with looking after her two children.

OTHER PHOTOS: John Miners, Chris Franco, Fran Baum, Graeme Young, Doug Coster, Jan Paterson



PICTURED ABOVE

PAUL BENNETT

Paul has been undertaking research in the areas of service delivery, exercise and nutrition, to improve the plight of people with kidney disease. He has developed and tested a nutritional tool that identifies nutritionally at risk dialysis patients. This tool has been translated into six different languages. Paul also led a team that developed an exercise machine that can be used by patients while on dialysis. Paul's research has seen him win the prestigious South Australian Premier's Research Award (2006) and the Renal Society of Australasia's Federal and State Awards (2005/2006).

Paul is the Chief Editor of the peer-reviewed Renal Society of Australasia Journal and has been teaching at Flinders University in the areas of renal nursing, ethics, leadership and clinical teaching. His current PhD work explores the perceptions of quality of haemodialysis care and will be submitted in December 2008.

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our faculty

The Faculty of Health Sciences has a proud record of research achievement across a broad range of disciplines and multi-disciplinary clusters, reaching back to the earliest days of its foundation. This new publication which provides a brief overview of the current research agenda of the Faculty, provides a lens through which our colleagues and key stakeholders, including current and prospective research students, can focus and find points of contact with our research leaders.

This *Faculty Research Profile* is only a snapshot in time of a dynamic and ever expanding and evolving set of research initiatives and programs, developed to effectively deliver world class research outcomes in a rapidly changing world. We have recognised the need to focus our energy and resources in critical areas for which the Faculty can genuinely claim local, national and international leadership. In so doing, we are actively inviting the attention and interest of prospective new students, postdoctoral candidates and staff in joining this progressive, energetic and internationally competitive research family.

This document in hardcopy will be backed up by a profile document that can be accessed on our web site at:
<http://www.flinders.edu.au/healthsc/>
This electronic document will be changed and expanded over time, as will the print copy, to reflect critical changes in our research profile.

The future of the Faculty of Health Sciences remains extremely positive and this is due in no small part to the fact that our research continues to be vibrant, contemporary, responsive to changing conditions and thus highly competitive on the world stage. I welcome your interest and active participation in our programs.

Professor Roy G Goldie PhD
Executive Dean
Faculty of Health Sciences

about the two schools



SCHOOL OF NURSING AND MIDWIFERY

The School of Nursing & Midwifery is internationally recognised for its high quality programs in nurse and midwifery education, clinical practice and research.

Our programs address health issues, midwifery and nursing care practice across the life span, in the home, community and institutional settings.

We carry out quality research in nursing and midwifery to promote excellence in practice. Our aim is to connect research, practice and teaching so that each informs the other. We are proud of the range of academic opportunities we provide our students, including research activity at honours, masters and PhD levels under the supervision of highly qualified and experienced research-active nurse academics and through our international collaborations with leading academic and health services organisations.

Our staff come from diverse backgrounds with many years of experience and expertise in a range of clinical specialties, sciences, humanities and law. We are committed to enabling students to achieve their full potential as future leaders in nursing and midwifery.

Assoc Professor Linda Saunders

Dean
School of Nursing and Midwifery

SCHOOL OF MEDICINE

When I think of our research, I see people. People in our School who are passionate about discovery and committed to making a difference to the society we serve. People in our community who are so thankful for the impact of our research on their lives. People who have chosen to study at Flinders to learn from our faculty and become the next generation of research and clinical leaders.

By linking our university faculty with clinicians and leaders in our health institutional partners, we have created research teams that are solving problems that really matter.

From the broad environmental and social determinants of health to the minute molecular basis of cancer prevention, from clinicians leading change in our health service delivery to scientists imaging critical neuronal pathways, and from integrated tertiary care centres to rural, remote and Indigenous communities, you will find that our researchers inform international policy and practice, and yet are still very much grounded in making an impact locally.

Please enjoy reading about our people, and, if you want, contact us with your ideas and passion. Let's make a difference together.

Professor Paul Worley

Dean
School of Medicine



faculty snap shot

HIGHLIGHTS IN THE LAST YEAR:

Awards

Professor Fran Baum awarded 2008 ARC Federation Fellowship

Professor Graeme Young awarded South Australian of the Year – Health

Major grants

\$1.82 million in combined funding from the SA Department of Health Strategic Health SA Grants scheme for five Faculty projects.

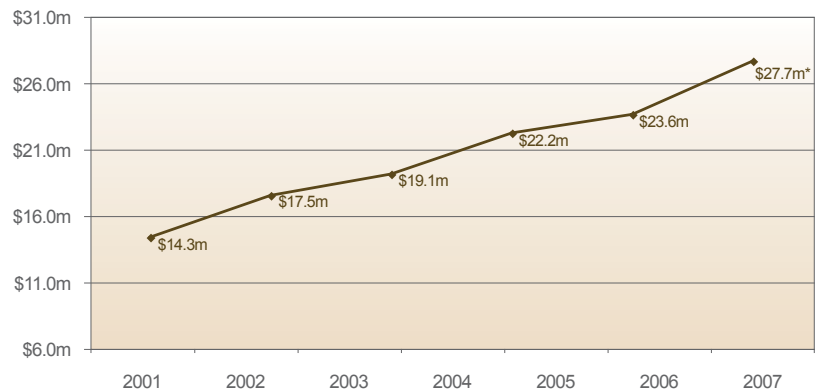
Professor Lynne Cobiac and team awarded \$1.25 million for the *National Healthy Schools Canteen Project*.

\$5.1 million in NHMRC Project Grant funding for 10 Faculty projects.

ARC Discovery Grants worth \$1.14 million for the Faculty.

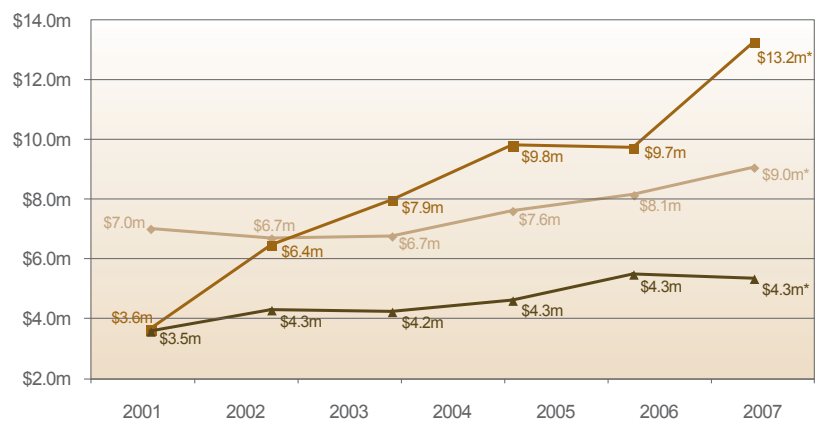
Professor David Currow and his team given the lead role in the \$8.9 million three-year *Palliative Care Clinical Studies Collaborative* (PaCCSC) program.

TOTAL FACULTY RESEARCH INCOME



*preliminary data, research income for 2007 is not finalised

FACULTY PERFORMANCE ACROSS RESEARCH INCOME



*preliminary data, research income for 2007 is not finalised

- Category 1: National Competitive Grants
- Category 2: Government contract research
- Category 3: Industry contract research

RESEARCH STRENGTHS

- Long standing national and international research success in neuroscience, pharmacology, cancer, sleep health, palliative care, Aboriginal health, aged care and mental health, as well as playing a key role in putting public health, equity and the social determinants of health at the forefront of the political arena.
- Productive partnerships between researchers, government, community and industry partners, resulting in viable practice, policy or commercial outcomes.
- Excellent facilities through co-location of the University with Flinders Medical Centre and Repatriation General Hospital, as well as affiliations with metro hospitals such as Southern Area Health Service and 13 rural clinical teaching hospitals in SA, NT, WA and VIC.
- Strong Faculty based research support through internal grant opportunities, resources and research student maintenance.
- Extensive multi-disciplinary collaborations across the University, with Faculty staff across almost all of the University's 17 Areas of Research Focus, including ones hosted by other Faculties.

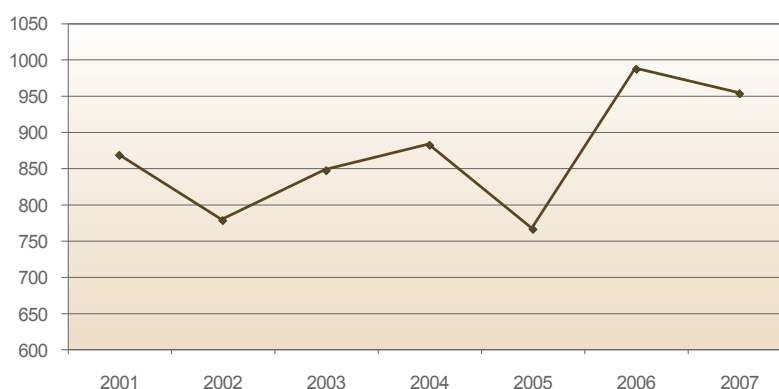
FACULTY STAFF (EMPLOYED)

Total staff	650
Academic (research and teaching)	219
Academic (research only)	116
General (research only)	72
General	243

ACADEMIC STATUS HOLDERS

Total	769
Full academic status	439
Adjunct academic status	330

FACULTY OF HEALTH SCIENCES - TOTAL PUBLICATIONS



research activity

The Faculty of Health Sciences has many established leading edge researchers working in dynamic groups within the university. They attract considerable research funding, publish widely and collaborate extensively within Flinders and with external academic, government and industry partners. The major research groups are as follows:

health professional education

The Health Professional Education Research group have made contributions to policy and practice of health professional education in Australia and internationally. The research focus has been the development of innovative health professional curricula, including models of education in rural, regional, remote and community settings; the outcomes of the use of information technology and simulation in clinical education; and professional education after graduation, particularly junior doctor training and continuing professional development.

Key achievements and outcomes

- Grants from Dept of Health and Ageing, Australian College of Rural and Remote Medicine
- Flinders educational model adopted in two Australian and two international medical schools
- Parallel Rural Community Curriculum being adopted in most Australian Rural Clinical Schools and medical schools in Canada, UK and New Zealand

Key collaborations within Flinders and externally

- Medical education; general practice; public health; Flinders Medical Devices and Technologies; Flinders rural clinical schools, including 2 metropolitan & 13 rural teaching hospitals and St Georges (UK), Limerick (Ireland), Griffith (Aust) and Deakin (Aust) medical schools.

Focus areas	Researcher
sybiotic models of clinical teaching and learning; models of curriculum design and evaluation; outcomes of innovation in medical education; models of decision-making in new or changing medical schools	David Prideaux david.prideaux@flinders.edu.au
community based medical education; rural medical education	Paul Worley paul.worley@flinders.edu.au
health services; change management; integration; aged care; mental health; complexity theory in health	Jennene Greenhill jennene.greenhill@flinders.edu.au
rural medical education and clinical training; rural medical students	Lucie Walters lucie.walters@flinders.edu.au
clinical education and models; peer physical examination; patients' views on medical students	Anna Vnuk anna.vnuk@flinders.edu.au



David Prideaux



Jennene Greenhill



Paul Worley

rural and remote health

Flinders rural and remote health research thrives through partnerships with health services, Aboriginal organisations and policy makers, and through strong links with rural and remote education programs. The Greater Green Triangle University Department of Rural Health (GGT UDRH) is a partnership between Deakin and Flinders Universities, specialising in health services, public health and workforce research in lower south-east South Australia and western Victoria. The Centre for Remote Health is a partnership between Charles Darwin and Flinders Universities, with strengths in remote health services research, service planning and evaluation and remote health education. Its catchment includes the Northern Territory (campuses in Alice Springs, Darwin, Katherine) and cross-border areas of South Australia and Western Australia. The Northern Territory Clinical School has campuses in Darwin, Alice Springs, Katherine and Nhulunby - one of the most remote clinical school campuses in Australia.



James Dunbar

Key achievements and outcomes

- Grants from ARC, Department of Health and Ageing, National Heart Foundation, NT Government, Victorian Department of Human Services, *beyondblue* and Australian Primary Health Care Research Institute
- Influencing national policy regarding rural and remote health and chronic disease management
- Building regional intellectual capital across multiple locations

Key collaborations within Flinders and externally

- All Flinders Rural Clinical schools and teaching hospitals across SA, NT, WA & VIC
- Professional groups, eg Council of Remote Area Nurses of Australia, Australian College of Rural and Remote Medicine, health services and Aboriginal organisations



John Wakeman

Focus areas	Researcher
remote health services research; remote health management education; remote public health; advocacy for rural and remote health	John Wakeman (Centre for Remote Health) john.wakeman@flinders.edu.au
national rollout of diabetes prevention; risk factors for chronic diseases; clinical pathways for co-morbid depression, heart disease and diabetes	James Dunbar (GGT UDRH) director@greaterhealth.org
Central Australian Aboriginal health, including rate of absencing themselves during hospitalisation and approaches to the treatment of Hepatitis B	Lloyd Einsiedel (NT Rural Clinical School) lloyd.einsiedel@nt.gov.au
health services research; rural mental health services; prevention of co-morbid depression, diabetes and heart disease	Prasuna Reddy (GGT UDRH) director.hsr@greaterhealth.org
remote health services research; community-based rehabilitation	Pim Kuipers (Centre for Remote Health) pim.kuipers@flinders.edu.au
remote health education; remote nurse practitioner preparation; Aboriginal primary health care; national advocacy	Sabina Knight (Centre for Remote Health) sabina.knight@flinders.edu.au
workforce development research - national rollout of a continuing professional development program for allied health	Adrian Schoo (GGT UDRH) adrian.schoo@greaterhealth.org

nutrition and dietetics

Food and nutrition is important across the whole lifecycle for health, well-being, mental and physical performance and for social and cultural interactions. Research informs our knowledge of the specific role of food and nutrition as determinants of our health and performance and provides the evidence we need for effective interventions in clinical, community, public health nutrition and dietetic practice.

The group is keen to strengthen existing collaborations and in parallel, develop new collaborations with a wide range of health professionals, academics, industry and researchers.

The Nutrition and Dietetics group accesses excellent clinical and laboratory research facilities and manages the state of the art Dual Energy X-Ray Absorptiometry (DEXA) Research Facility for its collaborators.

The group is currently active in the following areas of research:

- Obesity and weight status
- Childhood and infant nutrition, including the 2007 National Children's Nutrition and Physical Activity Survey
- Healthy school canteens, food marketing to children
- Healthy ageing and prevention of chronic disease, especially the role of nutrient-gene interactions in modifying colorectal cancer risk
- Nutritional intakes, validation, monitoring and surveillance
- Rehabilitation, aged care, clinical nutrition, allied health workforce issues
- Australian seafood and intergenerational health

Key achievements and outcomes

- Grants from NHMRC and ARC, funding from SA Health and various national food and nutrition industries
- Commonwealth Department of Health and Ageing: Healthy School Canteens Research Project awarded April 2008
- Foundation research theme leader in SA's Centre for Intergenerational Health

Key collaborations within Flinders and externally

- Gastroenterology, public health, health sciences, psychology, Centre for Ageing Studies, rehabilitation and aged care, Flinders Medical Centre, Flinders Centre for Cancer Prevention and Control, Clinical Change, Health and Society, Repatriation General Hospital
- Queensland University of Technology, University of South Australia, Adelaide University, CSIRO Preventative Health National Research Flagship, Australian Seafood CRC, Sydney University, SA Health

Focus areas	Researcher
nutrigenomics; nutrition and cancer prevention; obesity, childhood nutrition; ageing	Lynne Cobiac lynne.cobiac@flinders.edu.au
public health nutrition; infant feeding	Jane Scott jane.scott@flinders.edu.au
prevention and management of overweight and obesity in children; dietary intake methodology	Anthea Magarey anthea.magarey@flinders.edu.au
rehabilitation and aged care in relation to nutrition and dietetics; clinical nutrition	Michelle Miller michelle.miller@flinders.edu.au
food marketing to children; food advertising; childhood obesity	Kaye Mehta kaye.mehta@flinders.edu.au



Lynne Cobiac



Jane Scott



Anthea Magarey



Michelle Miller



Graeme Young



David Watson



Pam Sykes

cancer prevention and control

The Flinders Centre for Cancer Prevention and Control (FCCPC) is a network of scientists, clinicians and other practitioners whose shared vision is to reduce the impact and burden of cancer on the Australian community through excellence in cancer research and the translation of research into practice.

The FCCPC's focus is on control of cancer through all available means but especially prevention and early detection. Our multidisciplinary research programs are tackling the problem of cancer at many stages including:

- Understanding the modifiable risk factors for cancer and translating this knowledge into effective behavioural strategies
- Identifying dietary and lifestyle factors that may help protect against cancer
- Developing improved methods for detecting pre-cancerous cells before they progress to cancer so as to aid screening
- Understanding the interaction between genetic background and exposure to potential cancer-causing agents, such as chemicals and radiation
- Understanding the molecular changes associated with cancer development and progression
- Developing novel cancer therapies and improving the effectiveness of cancer treatments
- Improving treatments for disability due to cancer and support for those affected by cancer

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, Cancer Australia, Australian Cancer Research Foundation, Cancer Council South Australia and international organisations such as National Institute of Health and US Department of Energy
- Joint venture with Flinders Medical Centre and FMC Foundation to develop the \$23mil Flinders Centre for Innovation in Cancer due for construction in 2009
- Biorepository and database of patients at high risk of oesophageal or colorectal cancer, forming a unique cohort of patients for future studies and new treatments.
- Research has led to the National Bowel Cancer Screening Program

Key collaborations within Flinders and externally

- Surgery; gastroenterology; haematology; nutrition and dietetics; clinical pharmacology; Flinders Medical Centre; Repatriation General Hospital
- SA Pathology; CSIRO Preventative-Health Flagship; FMC Foundation, Cancer Council SA

Focus areas	Researcher
colorectal cancer; cancer screening; dietary intervention for cancer prevention; bioactive foods; biomarkers; health data linkage	Graeme Young graeme.young@flinders.edu.au
Barrett's oesophagus; gastric and oesophageal cancer; health data linkage; biomarkers and biospecimens	David Watson david.watson@flinders.edu.au
low dose radiation; DNA damage and repair; novel approaches to radiation protection	Pam Sykes pam.sykes@flinders.edu.au
behavioural influences on cancer risk and cancer screening participation; primary and secondary prevention strategies	Carlene Wilson carlene.wilson@flinders.edu.au
molecular changes associated with cancer, especially epigenetic changes; microRNA-regulated gene expression	Michael Michael michael.michael@flinders.edu.au
molecular characterisation of early reflux pathology, Barrett's oesophagus; gastric and oesophageal cancer; biomarker discovery for screening purposes	Damian Hussey damian.hussey@flinders.edu.au
effects of carbohydrates including resistant starch and probiotics on bowel health and colorectal cancer	Richard LeLeu richard.leleu@flinders.edu.au
dietary agents involved in regulation of cancer development; DNA damage, mutation load and repair mechanisms	Ying Hu ying.hu@flinders.edu.au

immune strategies

The Immune Strategies research group at Flinders University conducts research across the spectrum from basic immunology to vaccine design and clinical trials. Its members have expertise across infectious disease, immunology, vaccines, autoimmunity, inflammatory eye disease, allergy, diabetes, vascular disease, neuroscience, nanotechnology, and pharmacology. The group has a strong focus on development of immunotherapies, particularly vaccines. Group members have successfully trialled novel vaccines against influenza, hepatitis B and allergy, amongst others.

Key achievements and outcomes

- Grants and funding from NHMRC, ARC, National Institute of Health, Vaxine Pty Ltd
- Completion of first successful dose-sparing seasonal influenza vaccine clinical trial

Key collaborations within Flinders and externally

- Microbiology & infectious diseases; immunology; endocrinology; respiratory; cardiology; renal; rheumatology; nanotechnology; proteomics; immunology, allergy and arthritis
- Monash University, Australian National University, Queensland Institute of Technology, Adelaide University, Kitasato Institute - Japan, Butantan Institute – Brazil, Protein Sciences Corporation - USA



Nikolai Petrovsky



David Gordon

Focus areas	Researcher
vaccine development and production, including Hepatitis B; Shigella; Japanese encephalitis; influenza; rabies; pneumococcus	Nikolai Petrovsky nikolai.petrovsky@flinders.edu.au
pandemic influenza; complement pathways	David Gordon d.gordon@flinders.edu.au
autoimmune diseases; Sjögren's syndrome; scleroderma; neonatal lupus syndrome	Tom Gordon t.gordon@flinders.edu.au
respiratory vaccines	Dimitar Sajkov dimitar.sajkov@health.sa.gov.au
sting allergy	Bob Heddle bob.heddle@health.sa.gov.au
paediatric vaccines	Brian Coppin brian.coppin@health.sa.gov.au
vaccination strategies for individuals with kidney diseases	Jeff Barbara jeff.barbara@flinders.edu.au
flow cytometry/immune cell phenotyping	Peter Macardle peter.macardle@flinders.edu.au



Doug Coster



Keryn Williams



Jamie Craig

eye and vision

Blindness exerts major physical, emotional and economic constraints upon the sufferer. The Flinders Eye and Vision Group's long-term goal is to improve outcomes for patients disabled by eye diseases that are common in our community. Our approaches include programs in basic biomedical science, applied research, clinical research, translational research and health services management research.

The Eye and Vision Group is engaged in a broad range of research activities in ophthalmology, including:

- Improving corneal graft survival through gene therapy approach
- Understanding genetic determinants of retinopathy of prematurity
- Identifying genes for common eye diseases with simple and complex inheritance such as congenital cataract, corneal dystrophies, glaucoma and diabetic retinopathy
- Understanding the function of genes causing eye diseases and the disease mechanism for developing improved diagnosis, prevention and therapeutic strategies
- Monitoring treatment outcomes and quality of life of patients with eye diseases, and
- Developing novel implantable devices for monitoring and treating eye pressure

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, Diabetes Australia, RANZCO Eye Foundation; Ophthalmic Research Institute of Australia
- Australian Corneal Graft Registry
- NHMRC Centre for Clinical Research Excellence (CCRE) in Ophthalmology Research Outcomes
- Eye Bank of South Australia
- Australia and New Zealand Glaucoma Registry
- Evidence-Based Ophthalmology workshops

Key collaborations within Flinders and externally

- Biochemistry; microbiology; anatomy and histology; pathology; haematology; immunology; physiology; endocrinology; allergy and arthritis; chemistry
- Numerous researchers in South Australia, other Australian states and in the USA

Focus areas	Researcher
eye disease intervention registers; corneal transplantation; corneal graft registry; new methods for delivery of eye care	Doug Coster doug.coster@flinders.edu.au
corneal transplantation; corneal graft rejection; corneal graft registry; antibody fragments to treat eye disease; gene therapy	Keryn Williams keryn.williams@flinders.edu.au
genetics of eye diseases, including gene identification, genetic screening, diagnosis and treatment	Jamie Craig jamie.craig@flinders.edu.au
ophthalmology outcomes research; quality of life and other latent traits using Rasch analysis	Konrad Pesudovs konrad.pesudovs@flinders.edu.au

clinical pharmacology

Drug therapy underpins the treatment of most human diseases. As a consequence, drug use is extensive and the cost of drug therapy is high. With an ageing population and an increasing reliance on drug therapy, a research base that supports the availability of better medicines and the safe and efficacious use of drugs contributes to the social and economic wellbeing of Australians, and indeed people worldwide. The research activities of this group represent important steps in the drug therapy continuum, from the pre-clinical development of newly discovered drugs through to the optimisation of treatment regimens in patients. The overarching goal of this group is to develop improved therapies and therapeutic approaches to a range of conditions.

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, High Blood Pressure Research Council of Australia
- Recognised and contracted internationally as a leading team in the field of drug metabolism
- Pivotal role in developing *in vitro* approaches for predicting drug metabolism in humans

Key collaborations within Flinders

- Medicine; chemical and physical sciences; Flinders Medical Centre



John Miners



Peter Mackenzie



Kathie Knights

Focus areas	Researcher
sources of variability in drug elimination and its therapeutic consequences; development of <i>in vitro</i> models to predict drug metabolism parameters in humans; drug metabolising enzymes	John Miners john.miners@flinders.edu.au
regulation of enzymes that detoxify drugs and other chemicals, including the impact of genetic differences	Peter Mackenzie peter.mackenzie@flinders.edu.au
renal metabolism of non-steroidal anti-inflammatory drugs and mechanisms of drug-induced nephrotoxicity; interrelationship of drug and chemical metabolism with endogenous biosynthetic pathways	Kathie Knights kathie.knights@flinders.edu.au
effects of pharmacological and non-pharmacological interventions on cardiovascular function; optimisation of drug treatment and prevention of adverse drug reactions	Arduino Mangoni arduino.mangoni@flinders.edu.au
drug-drug interactions, especially mechanism based inhibition and their clinical implications; pharmacokinetic-pharmacodynamic modelling	Tom Polasek tom.polasek@flinders.edu.au
clinical pharmacokinetics; the clinical pharmacology of steroid hormones; quality use of medicines	Matt Doogue matt.doogue@flinders.edu.au

medical biotechnology

With the aspiration of becoming a centre of excellence in drug discovery and bioprocessing, research themes of this group focus on:

- The application of novel actinobacteria associated with plants and marine sponges for pharmaceutical and agricultural use, including discovery of new lead compounds
- The development of bioprocesses for large-scale production of biofuels, nutraceuticals and medicinal compounds by microbial fermentation, plant cell culture and purification from plants and marine organisms - improving current processes to commercially viable production levels
- Mammalian cell toxicology and genotoxicology, including studying the actions of novel natural compounds and nanoparticles
- Human reproductive toxicology using *in vitro* model systems
- Development of bioassays for the detection of endocrine disruption activity in environmental samples, including wastewater and recycled water

Key achievements and outcomes

- Grants from ARC, Australian Grains Research and Development Corporation, CRC for Water Quality and Treatment, Seafood CRC, SA Government, Meat & Livestock Australia, water, nutraceutical and cosmetic industries
- Discovery and commercialising actinomycete endophyte inoculants for cereal crop production
- Identifying and commercialising plant cell culture-derived drug production
- Identifying marine-derived anticancer drugs and infertility treatments
- Identifying and commercialising plant-derived nutraceuticals and cosmeceuticals

Key collaborations within Flinders and externally

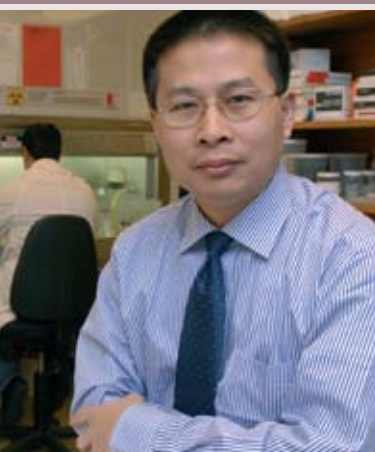
- Medical biochemistry, clinical pharmacology; medicine; biology; chemical and physical sciences
- CSIRO Divisions of Human Health; Entomology; Plant Industry; Cornell University; Chinese Academy of Sciences; SA Water; United Water



Chris Franco



Barbara Sanderson



Wei Zhang

Focus areas	Researcher
pharmaceutical biotechnology and natural product drug discovery; bioprocessing for therapeutics and biofuels; agricultural biotechnology and actinobacterial discovery and applications	Chris Franco chris.franco@flinders.edu.au
molecular plant cell-based bioprocessing; integrated bioprocessing and dynamic process optimisation for therapeutic drugs and biofuels; marine bioproducts engineering	Wei Zhang wei.zhang@flinders.edu.au
role of natural compounds in protecting human cells against toxicity and genetic damage; nature of genetic and toxic damage induced by therapeutic drugs, commercial products, nanoparticles and xenobiotics	Barbara Sanderson barbara.sanderson@flinders.edu.au
using <i>in vitro</i> cell culture bioassay platforms to test the effects of pesticides, drugs, nanoparticles and other xenobiotics and stress on human reproduction; environmental oestrogens; development of endocrine disrupting chemicals detection cell-based bioassays; marine-derived bioactives as treatments for reproductive cancers and infertility	Fiona Young fiona.young@flinders.edu.au

environmental health

Environmental health is a practical discipline. Hands-on and accountable, it makes a positive and identifiable contribution to the nation's health. The defining feature of the environmental health professional is their focus on changing or preserving the physical environment as a means of achieving goals in public health. Almost uniquely amongst the many professions and groups who, through their activities, alter and shape the human environment, environmental health professionals do so solely in the interests of human health.

Key achievements and outcomes

- Grants from ARC, Meat & Livestock Australia, Fisheries Research and Development Corporation; Aquafin CRC, Commonwealth Dept of Health & Ageing; State Health Departments and Local Government Association
- Staff are contributors to development of a range of national and international guidelines relevant to environmental health including NHMRC recreational water quality guidelines, WHO guidelines for drinking water safety and WHO guidelines for control of Legionella
- Major consultancies performed for Department of Defence, Australian Safety and Compensation Council and World Health Organisation
- Preferred providers of specialist expertise to the Commonwealth Department of Health and Ageing in issues relating to Environmental Health, particularly risk assessment, management and communication
- Staff are expert members of SA Public and Environmental Health Council and members of State and National executive for peak professional body Environmental Health Australia
- Editors of the best-selling text in environmental health in the Australasian Region: *Environmental Health in Australia and New Zealand*

Key collaborations within Flinders

- Clinical microbiology; medical imaging; biological sciences; earth sciences; Flinders Research Centre for Coastal and Catchment Environments (FR3cE)



Howard Fallowfield



Nancy Cromar

Focus areas	Researcher
health aspects of water quality; biological wastewater treatment; microbial ecology of aquatic systems	Howard Fallowfield howard.fallowfield@flinders.edu.au
health aspects of water quality; microbiological and health risk assessment and management	Nancy Cromar nancy.cromar@flinders.edu.au
environmental and occupational toxicology; effects of exposure to chemicals; health risk assessment	John Edwards john.edwards@flinders.edu.au
Legionella in water and soil systems; bioremediation of contaminated soil; solid waste management; health risk assessment	Richard Bentham richard.bentham@flinders.edu.au
effects of pollutants on organisms in the environment; health risk assessment	Kirstin Ross kirstin.ross@flinders.edu.au



Simon Brookes



Ian Gibbins



Marcello Costa

neuroscience

The Neuroscience group comprises of laboratory-based and clinical neuroscientists, with a common goal of understanding the brain, spinal cord and peripheral nerves in health and disease. Our research provides the foundation for advances in medical specialties such as neurology, neurosurgery, psychiatry, radiology, gastroenterology, cardiology, ophthalmology and speech pathology. Members of the group are researching disorders ranging from visceral and chronic pain syndromes, control of metabolism and blood pressure, cardiac disturbances, Alzheimer's and Parkinson's diseases, stroke and reperfusion injury and recovery from nerve trauma.

Key achievements

- Grants from NHMRC, ARC, NHF, Australian Spinal Research Trust, Australian Brain Foundation, Motor Neurone Disease Research Institute, Wellcome Foundation, Michael J Fox Foundation, AstraZeneca, Variety, the Children's Charity (SA Italian Golf Club Inc.)
- SA Human Brain Bank – established to study changes that occur in brain disease
- A substantial reputation in neuroscience, highlighted by awards, honours, publications in top journals, invited reviews, consultancies and plenary lectures at major international meetings
- A leading role in establishing the South Australian Neuroscience Institute (SANI)
- Co-ordination of a postgraduate course in Neuroscience, in association with SA universities
- Establishment of the Flinders Microscopy and Image Analysis Facility, a comprehensive facility for research, teaching, diagnostic and consulting purposes
- Establishment of the Flinders Proteomic Facility and laboratory; state-of-the-art laboratory for the complete analysis of proteins in disease, attracting researchers across Adelaide and interstate

Key collaborations within Flinders and externally

- Human physiology; anatomy and histology; surgery; medicine; Flinders Medical Centre; AstraZeneca; Repatriation General Hospital; numerous international researchers in the USA & Europe

Focus areas	Researcher
neural pathways between the gut to the central nervous system; neurogastroenterology; bladder control	Simon Brookes simon.brookes@flinders.edu.au
nerves controlling internal organs; neuro-imaging; neuroscience, education and the arts	Ian Gibbins ian.gibbins@flinders.edu.au
antibody-targeting vectors for delivery of neurotrophins to reverse neurodegenerative changes	Robert Rush robert.rush@flinders.edu.au
regulation of body temperature through the central nervous system	Bill Blessing w.w.blessing@flinders.edu.au
understanding the mechanisms of brain damage and dysfunction in stroke and other neurological diseases	Neil Sims neil.sims@flinders.edu.au
effecting repair of damaged neurons in trauma, Alzheimer's and Parkinson's diseases	Xin-Fu Zhou xin-fu.zhou@flinders.edu.au
understanding the changes in brain function, neurons, astrocytes and electrical discharges in epilepsy	John Willoughby john.willoughby@flinders.edu.au
peripheral lung function and regulation in inflammatory airway diseases; neuropathic pain and pain modulation	Rainer Haberberger rainer.haberberger@flinders.edu.au
identification of brain and spinal cord pathways responsible for the control of blood pressure	Ida Llewellyn-Smith ida.llewellyn-smith@flinders.edu.au
intrinsic neural networks underlying colonic propulsion and their dysfunction in diseases such as irritable bowel syndrome and chronic constipation	Nick Spencer nick.spencer@flinders.edu.au
neural communication and neurotransmission in neurodegenerative diseases, such as Down Syndrome, Alzheimer's, Huntington's	Damien Keating damien.keating@flinders.edu.au
analysis of proteins in neurodegenerative diseases, such as Parkinson's and Alzheimer's disease; proteomics	Tim Chataway tim.chataway@flinders.edu.au
oxidative stress and protective glia and astrocytes within the brain; strokes	Håkan Muyderman hakan.muyderman@flinders.edu.au
cellular and subcellular pathologies underlying neurodegenerative diseases, like Parkinson's and Alzheimer's disease	Wei Ping Gai weiping.gai@flinders.edu.au John Power john.power@flinders.edu.au
neurogastroenterology, theoretical and integrative neuroscience, public education in neuroscience and science communication	Marcello Costa FAA marcello.costa@flinders.edu.au

clinical change and health care research

This research team brings together members who focus on clinical and health services research. Research is collaborative and involves medical specialists, allied health and nursing disciplines across a range of health care settings, including primary, acute, ambulatory, transitional, rehabilitation and residential aged care facilities. The key areas of research focus and performance are summarised here:

acute and chronic condition management

The top ten causes of disease burden in Australia are chronic conditions. Our research not only attempts to help understand the complexity of chronic condition care but investigates optimal ways of improving a range of outcomes for patients with chronic disabling conditions such as heart disease, diabetes, psychiatric disease, respiratory disease, palliative care and faecal and urinary incontinence. Such outcomes include patient well being (mental and physical), resource utilisation, impacts on carers and families, and the roles of specific and multiple interventions in achieving better outcomes.

Mental health and addictions

In the area of mental health condition management, this group has established a national and international track record in innovative and ground breaking research in complex areas of human morbidity, which collectively contribute the greatest burden of disease internationally. The dominant research effort for this group has been to: investigate methods and delivery systems which translate research into practice; educating GPs and other primary care workers in the recognition and delivery of brief interventions for alcohol and drug related disorders, and the establishment of a research program into the effectiveness of cognitive behavioural therapy for problem gambling.

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, SA Health, Gamblers Rehabilitation Fund
- Establishment of the Centre for Evidence Based Clinical Practice
- Development of CareSearch, a national online resource for palliative care information, evidence and knowledge translation
- Establishment of the Statewide Flinders Therapy Service for Problem Gamblers
- Smoking Cessation Guidelines for Australian General Practice

Key collaborations within Flinders and externally

- General practice; medicine; nursing & midwifery; disability studies; psychiatry; speech pathology; Flinders Human Behaviour and Health Research; Centre for Anxiety & Related Disorders; Flinders Aboriginal Health Research Unit; Flinders Medical Centre; Repatriation General Hospital; Southern Adelaide Health Service

Focus areas	Researcher
cardiac disease; cost-effective delivery; clinical care for cardiac disease; risk assessment for coronary artery disease and evaluation of clinical outcomes	Derek Chew derek.chew@flinders.edu.au
evidence based clinical practice; clinical decision support methods; clinician's decision making	Paddy Phillips paddy.phillips@flinders.edu.au
palliative care, including medications, dyspnoea and interface; palliative oxygen	David Currow david.currow@flinders.edu.au
general practice and preventative strategies during consultation; smoking cessation; influenza vaccination	John Litt jlitt@flinders.edu.au
nurse practitioners; multi-casualty triage models and first aid in road traffic accidents; real-time surveillance and mass gathering health care	Paul Arbon paul.arbon@flinders.edu.au
Autism and Asperger disorders; social cognition and individuals with disabilities; intellectual disability; rehabilitation in the field of head injury	Verity Bottroff verity.bottroff@flinders.edu.au
chronic condition self-management; problem gambling; anxiety disorders; Aboriginal health	Malcolm Battersby malcolm.battersby@flinders.edu.au
chronic condition self-management; chronic pain; smoking in psychiatric patients; co-morbidity	Rene Pols rene.pols@flinders.edu.au
addictions; chronic condition self-management; cognitive behaviour therapy/psychosis; consumer perspectives	Sharon Lawn sharon.lawn@flinders.edu.au
community mental health nursing; absconding; restraint and seclusion of psychiatric patients	Eimear Muir-Cochrane eimear.muircochrane@flinders.edu.au



Derek Chew



David Currow



Malcolm Battersby



Eimear Muir-Cochrane



Jan Paterson



Craig Whitehead



Doug McEvoy



Peter Catchside

care for the older person

Australians 80 years and over are the most rapidly increasing segment of the population and are especially vulnerable to adverse health outcomes such as hospitalisation, disability, dependency and death. Evidence such as this continues to support the focus, direction and collaborations of the Care for the Older Person group. It is a multidisciplinary field that studies how social factors, financing systems, organisational structures and processes, health technologies, and personal behaviours affect access to health care, the safety, quality and cost of health care, and ultimately, Australia's health and wellbeing. This collaborative research team brings together unique expertise to fill critical gaps in our knowledge on later and end-of-life health care for older adults.

Key achievements and outcomes

- Grants from NHMRC, Dept of Health and Ageing, SA Health, Cancer Australia, Alzheimer's Association US, National Institutes of Health, US
- Development of the Abbey Pain Scale, a nationally and internationally recognised indicator for the assessment of pain in persons with dementia

Key collaborations within Flinders

- Flinders Medical Centre; Repatriation General Hospital.

Focus areas	Researcher
ageing; later-life care; rehabilitation; aged care	Maria Crotty maria.crotty@health.sa.gov.au
health economics	Simon Eckermann simon.eckermann@flinders.edu.au
falls and fall prevention; dementia	Craig Whitehead craig.whitehead@health.sa.gov.au
urinary and faecal incontinence; clinical nursing research; nursing workforce development	Jan Paterson jan.paterson@flinders.edu.au
ageing; chronic care; diabetes mellitus	Richard Reed richard.reed@flinders.edu.au

sleep health

The Sleep Health research group is dedicated to increasing knowledge about the nature of sleep and the causes and consequences of sleep disorders. Our group has a strong research interest spanning a broad area of sleep physiology and sleep disorders. Breathing disturbance and sleep fragmentation have important daytime consequences including severe daytime sleepiness, neurocognitive impairments and a substantially increased risk of traffic and other accidents. Obstructive sleep apnoea is also associated with cardiovascular disease (eg hypertension and heart disease). Another major focus of our research is finding new ways to manage chronic insomnia.

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, Lions Foundation and Foundation Daw Park
- International Co-ordinating Centre for SAVE an international multi-centre trial to investigate the link between sleep apnoea and cardiovascular disease.

Key collaborations within Flinders

- Psychology; Repatriation General Hospital, Flinders Medical Centre

Focus areas	Researcher
respiratory/sleep physiology; obstructive sleep apnoea; sleep deprivation/alcohol interactions; Sleep Apnoea cardio Vascular Endpoints trial (SAVE)	Doug McEvoy doug.mcevoy@health.sa.gov.au
respiratory/sleep physiology, including obstructive sleep apnoea, respiratory load sensations, cardio-respiratory responses to brief arousals from sleep, and hypoxic suppression of respiratory sensations and reflexes	Peter Catchside peter.catchside@health.sa.gov.au
circadian rhythms, sleep and insomnia; bright light therapy; non-drug treatment for insomnia; resetting the body clock	Leon Lack leon.lack@flinders.edu.au
simplified community-based diagnostic and management strategies for obstructive sleep apnoea; sleep apnoea caused by opiate medication	Nick Antic nick.antic@health.sa.gov.au

health, society and aboriginal health

Our group is recognised as one of the leading groups in Australia researching the social and economic determinants of health and considering the policy responses to address these determinants in a way that promotes overall population health and does so equitably. Flinders has been at the cutting edge of social determinants research, and the collective impact of this output has been to change thinking about policies and practices that affect health to reduce health inequities and promote population health.

Flinders Aboriginal Health Research Unit (FAHRU)

FAHRU brings together a large multidisciplinary network of Flinders University researchers and their colleagues who are committed to improving Aboriginal health and wellbeing through research. Their work spans the health and social sciences and humanities, in keeping with holistic Aboriginal understandings of health.

Key achievements and outcomes

- Grants from NHMRC, ARC, Dept of Health and Ageing, SA Health, CRC for Aboriginal Health
- Establishment of key state and national research centres, such as South Australian Community Health Research Unit (SACHRU), Primary Health Care Research and Information Service (PHC RIS) and Centre of Clinical Research Excellence in Aboriginal Health (CCREAH)
- Noarlunga Healthy Cities project: the first in Australia linked to the international Healthy Cities Movement and Flinders researchers received an international award for Healthy Cities research
- Fran Baum awarded a Federation Fellowship from ARC in 2008

Key collaborations within Flinders and externally

- Public health; SACHRU; general practice; dietetics and nutrition; paramedic and social health sciences; speech pathology & audiology; social work; geography, population and environmental management and National Institute of Labour Studies
- CRC for Aboriginal Health; Aboriginal Health Council of SA

Focus areas	Researcher
social and economic determinants of health inequities; social capital and health; healthy settings and healthy cities initiative; work and health	Fran Baum fran.baum@flinders.edu.au
consumer food trust; politics of food, food security and health promotion; food regulation and legislation; new food technologies	John Coveney john.coveney@flinders.edu.au
health care ethics; public health ethics; feminist ethics; research ethics	Wendy Rogers wendy.rogers@flinders.edu.au
clinical ethics; medical workforce	Michael Lowe michael.lowe@flinders.edu.au
public health and children; childhood obesity, physical activity and community awareness	Colin MacDougall colin.macdougall@flinders.edu.au
violence and its impact on health	Charmaine Power charmaine.power@flinders.edu.au
Aboriginal health, particularly chronic condition management, social and emotional wellbeing, coordination of care, health program evaluation	Inge Kowanko inge.kowanko@flinders.edu.au
Aboriginal health especially social determinants of health; health professional workforce	Eileen Willis eileen.willis@flinders.edu.au
Community Point of Care Testing (POCT); clinical biochemistry, Indigenous health; diabetes	Mark Shephard mark.shephard@flinders.edu.au
speech development, hearing and educational outcomes in Indigenous children	Andy Butcher andy.butcher@flinders.edu.au
rural health systems; Aboriginal health; population health; Enhanced Primary Care models	Peter Harvey peter.harvey@flinders.edu.au



Fran Baum



John Coveney



Inge Kowanko

education and training on addiction

The National Centre for Education and Training on Addiction (NCETA) was established in the early 1990's as an ARC-funded Centre of Excellence. Its original brief was to provide much needed education and training in the alcohol and other drugs field. It made important progress in that area throughout the decade of the 90's, after which it changed tack substantially to become a research centre funded through the Australian Government Department of Health and Ageing.

Today, NCETA is an internationally recognised research centre that works as a catalyst for change in relation to service systems responses to alcohol and other drugs and related issues. The Centre's core functions are the promotion of Workforce Development (WFD) principles and practices, research transfer, and organisational and systems change to facilitate best practice. The Centre undertakes a wide range of research activities related to current and topical issues. The Centre is also involved in the development of practical tools and resources to assist frontline workers and practitioners to implement evidence based change. Many of the Centre's resources are available at no cost or can be downloaded from the Centre's website: <http://www.nceta.flinders.edu.au/>

The defining characteristics of the Centre's program of work and outputs are: multi-disciplinary, creative, innovative, and original contributions to an area of great social importance.

Staff of the Centre come from diverse health and human service backgrounds including public health, psychology, sociology, nursing, medicine, social work, law enforcement, information management, administration, pharmacy and epidemiology.



Ann Roche

Key achievements and outcomes

- Diverse funding sources, with funding and grants from the Dept of Health and Ageing, SA Health, ARC, Australian National Council on Drugs, the Alcohol Education and Rehabilitation Fund, NDLERF and Drinkwise Australia
- National and international recognition for quality alcohol and other drug workforce development resources
- An innovative and high quality research program
- Key involvement in the development of state and national alcohol and other workforce development strategies and initiatives
- The production of national prevalence data concerning workplace alcohol and drug use

Key collaborations

- National Drug and Alcohol Research Centre; National Drug Research Institute; Alcohol and Drug Council of Australia; NSW Network of Drug and Alcohol Agencies; SA Network of Drug and Alcohol Agencies; Australian Centre for Child Protection; Drug and Alcohol Services, SA; SA Police



Ken Pidd

Focus areas	Researcher
alcohol and drug prevention; workforce development; organisational and systems change; research dissemination; Indigenous worker wellbeing	Ann Roche ann.roche@flinders.edu.au
workplace alcohol and drug use; worker wellbeing; workforce recruitment and retention	Ken Pidd ken.pidd@flinders.edu.au
alcohol, drugs and law enforcement	Alan Trifonoff alan.trifonoff@flinders.edu.au
research dissemination; workplace alcohol and drug use; cultural drivers of young peoples' alcohol and drug use	Petra Bywood petra.bywood@flinders.edu.au
cultural influences on young peoples' alcohol and drug use	Joseph Borlagdan joseph.borlagdan@flinders.edu.au
Indigenous alcohol and drug workers' wellbeing; inequalities and addiction; stigma and drug use	Toby Freeman toby.freeman@flinders.edu.au
alcohol and drug use and mental health comorbidity	Vinita Duraisingam vinita.duraisingam@flinders.edu.au

injury studies

The Research Centre for Injury Studies contributes to reducing the burden of human injury by adding to knowledge of its nature, causes, effects and control. Members of the Centre do this by undertaking and publishing research, statistical reports and related work on all aspects of injury, and by providing expert advice to partners and stakeholders and information to support government policy formation. The Research Centre houses the National Injury Surveillance Unit (NISU), a collaborating centre of the Australian Institute of Health and Welfare (AIHW). Work under the NISU program involves, among other things, analysis and reporting on national deaths and hospital separations data. Our staff have expertise in a range of injury topics, with key publications in the areas of alcohol and injury, falls in the elderly, traumatic brain injury, suicide and self-harm, and spinal cord injury.

Key achievements and outcomes

- The primary national provider of statistical reports on injury mortality and morbidity in Australia
- The leading centre for technical expertise on injury data sources in Australia
- An influential contributor to national and international health classifications relevant to injury, through the World Health Organization (ICECI; development of ICD-11) and the National Centre for Classifications in Health (ICD-10-AM)
- Co-leading the injury expert group in the *Global Burden of Disease and Injury 2005* project
- Contributor to the development and implementation of national policies on injury prevention, falls by older people and injury of Aboriginal and Torres Strait Islander people and has a portfolio of successful competitive grant applications and contract research
- The Flinders University representative on the SA and NT DataLink Consortium, a new system for enabling epidemiological research for health and well-being, and on the reference board of the Centre for Automotive Safety Research at Adelaide University
- The Research Centre is represented on expert groups such as National Injury Prevention Working Group, National Child Information Advisory Group and the Indigenous Road Safety Data sub-committee
- Recipient of sustained funding support from the AIHW, the Department of Health and Ageing and other Commonwealth agencies

Key collaborations within Flinders and externally

- Clinical epidemiology unit; public health; NCETA
- The Research Centre undertakes projects for and with state and national agencies particularly the National Coroners Information System; Australian Transport Safety Bureau; workers compensation and compulsory third party insurance agencies; and occupational health and safety agencies
- Academic collaborations are in place with researchers at universities including Melbourne, Monash, Harvard, Queensland, QUT, Sydney and Washington, US



James Harrison



Sophie Pointer

Focus areas	Researcher
information for injury prevention and control, especially classification; burden of injury; data linkage and the epidemiology of suicide and intentional self-harm, Aboriginal and Torres Strait Islander injury; injury outcomes	James Harrison james.harrison@flinders.edu.au
injury policy; drug and alcohol related injury; suicide and intentional self-harm; spinal cord injury; injury surveillance systems	Sophie Pointer sophie.pointer@flinders.edu.au
multiple causes of death; mortality data collections and coding; injury surveillance (morbidity), transport related injury	Renate Kreisfeld renate.kreisfeld@flinders.edu.au
fall and other injury in older people; suicide and intentional self-harm; bite and sting related injury; data linkage; injury outcomes	Clare Bradley clare.bradley@flinders.edu.au
injury severity measurement; injury surveillance (morbidity and mortality); biostatistics and epidemiology; data management	Geoff Henley geoffrey.henley@flinders.edu.au
information and knowledge management and liaison officer	Stacey Avefua stacey.avefua@flinders.edu.au



Jegan Krishnan



John Field

musculoskeletal health

Musculoskeletal disease and injury is the most common cause of disability in Australia and is the third highest area of health care expenditure. This area of healthcare is not only a major focus for government and government agencies in Australia and overseas but also industry including the health insurance, pharmaceutical, biotechnology and medical device companies. This group's major focus is on the management of musculoskeletal disease and injury, and Flinders University musculoskeletal researchers are responsible and closely associated with running a number of major national programs in this field including the National Injury Surveillance Unit database and the Australian Orthopaedic Association National Joint Replacement Registry. This group has also focused on developing research programs with industry and currently has major contracts with six major national and international companies. The ultimate aim of the musculoskeletal research group is to establish a national centre of excellence in this field of research.

Key achievements and outcomes

- Funding and grants from NHMRC, ARC, CRC, Commonwealth Department of Health and Ageing, and health related industry

Key collaborations within Flinders

- Surgery, gastroenterology, haematology, Flinders Medical Centre, Repatriation General Hospital

Focus areas	Researcher
arthroplasty design for finger, wrist & elbow joints; hand and upper limb; design of metacarpophalangeal joint prosthesis; design of tibial implant clamp	Jegan Krishnan jegan.krishnan@flinders.edu.au
hip and knee replacement; clinical outcomes; bone replacement	Stephen Graves stephen.graves@flinders.edu.au
trauma	Ruurd Jaarsma ruurd.jaarsma@health.sa.gov.au
animal models of human orthopaedic diseases; Comparative Orthopaedic Research (CORE) surgical facility	John Field john.field@flinders.edu.au
biomechanics; bone imaging	Trevor Hearn trevor.hearn@flinders.edu.au John Costi john.costi@flinders.edu.au



Karen Reynolds



Harry Owen

medical devices and technologies (hosted by Science & Engineering)

Flinders Medical Devices and Technologies (FMDAT) is a network of researchers highly skilled in the development and application of a diverse range of medical technologies, with strong collaborations across both the Faculties of Science & Engineering and Health Sciences. This collaborative approach to the research for innovative solutions and services makes FMDAT ideal as a single site for product development and testing - taking projects from fundamental concepts right through to preliminary clinical trialing.

Key achievements and outcomes

- Establishment of the Medical Device Partnering Program, supported by the Premier's Science & Research Fund, Office for the Ageing (SA Dept for Families and Communities) and local partners
- Grants from NHMRC, ARC, national foundations and industry
- Products on market, including simulation and diagnostic devices

Key collaborations within Flinders and externally

- Surgery; anatomy and histology; orthopaedic surgery; biomedical engineering; medical education; Flinders Medical Centre; Repatriation General Hospital; medical device companies

Focus areas	Researcher
biomechanics; bone imaging; medical instrumentation; medical simulation; wearable devices	Karen Reynolds karen.reynolds@flinders.edu.au
medical simulation for enhanced clinical skills medical training	Harry Owen harry.owen@flinders.edu.au
medical image analysis; computer-aided mammography screening; bone imaging; signal and image processing	Murk Bottema murk.bottema@flinders.edu.au
tools for objective assessment of superficial tissue changes in lymph and other oedemas; risk factors and risk reduction strategies	Neil Piller neil.piller@flinders.edu.au
health informatics; data mining and knowledge discovery; conceptual modelling	John Roddick john.roddick@flinders.edu.au
artificial intelligence; cognitive science; language, logic and learning	David Powers david.powers@flinders.edu.au

early career researchers

FLINDERS PHD STUDENT SELECTED TO ATTEND MEETING OF NOBEL LAUREATES IN GERMANY

Early in 2007 the Australian Academy of Science sent a delegation of seven young scientists to attend the 57th Meeting of Nobel Laureates at Lindau, Germany. Each year since 1951, 20 to 25 Nobel Prize Winners accept the invitation to a unique meeting on Lake Constance. Some 500 young students travel from all over the world to listen to the Laureates' lectures and to engage in discussions with them. I was nominated by one of my PhD supervisors, Professor Doug Coster, and I was privileged to be selected as a member of the delegation led by Professor Robert Williamson from the Murdoch Children's Research Institute. The Laureates each gave presentations on topics of their choice. Lively round table discussions in plenary sessions included the audience and specially organised student discussions gathered us



Doug Parker (far left) with other PhD students from around Australia outside the Australian Academy of Sciences building in Canberra, before leaving for Europe for the meeting of Nobel Laureates

around a designated Laureate for several hours in the afternoons. The social events were the highlight of the week, bringing us into personal contact with the Nobel Prize Winners, and giving us the opportunity to meet other students from all over the world. Whilst the science was challenging, the lectures were aimed at a basic level, and the take home lessons were simple yet profound – ask questions other people are not asking, and be certain to include good controls in every experiment. The wonderful science combined with Bavarian beer and

hospitality made this a remarkable experience. I am very grateful to the Australian Academy of Science and to Professor Coster for this unique opportunity to see my work in molecular genetics and gene therapy in a much broader international context.

Dr Doug Parker has completed his PhD studies into the use of gene therapy to improve the survival of corneal transplants. He is now undertaking specialist training in the Department of Ophthalmology at Flinders Medical Centre.



Dayan de Fontgalland in the laboratory preparing specimens for labelling nerves involved in gut pain

PHD RESEARCH LEADS TO NEUROSCIENCE GRANT

PhD candidate and surgical registrar, Dr Dayan de Fontgalland, has a rare achievement under his belt – he has gained external funding for his research while still undertaking a PhD. Together with supervisors Dr David Wattchow, Associate Professor in the Department of Surgery, and Professor Simon Brookes of the Department of Human Physiology, Dayan was the only recipient in South Australia of a 2007 Neuroscience Research Grant from Pfizer Australia. The grant provides \$50,000 to continue with research on the nerves that sense pain in the human gut.

To date, research by Dayan and colleagues in the Neurogastroenterology Laboratory of the Centre for Neuroscience has provided exciting preliminary data that may well lead to the first identification of the sites of origin of pain in the gastrointestinal tract. This information may help us develop new therapeutic strategies for treating the intractable gut pain associated with many disease conditions.

Dayan has just submitted his PhD titled *The innervation and function of human colonic blood vessels in health and disease*.



Joanne Reed in the autoimmune diseases research laboratory

A NOVEL DIAGNOSTIC APPROACH ATTRACTS INTERNATIONAL INTEREST

Autoimmune disease occurs when the immune system recognises 'self' proteins and responds to them as it would to a foreign infectious agent by producing antibodies that target tissues within their own body. The Ro 60 protein is one of the most common targets for antibody production in autoimmune diseases, such as systemic lupus erythematosus (SLE) and Sjögren's syndrome, and it has also been the focus of my PhD research for the last two years.

I began working with Professor Tom Gordon and Dr Michael Jackson in the Department of Immunology, Allergy and Arthritis, Flinders Medical Centre in 2005. We have developed a multi-parameter flow cytometry protocol which has introduced a new concept in mapping Ro 60 antibody responses that distinguished patients with SLE from those with primary Sjögren's syndrome. This finding has diagnostic potential, particularly in the early stages of autoimmune disease when patients can have similar clinical and immunological features. My findings have recently been published in the high impact North American journal *Arthritis and Rheumatism* and have received considerable interest from the international lupus research community.

Joanne is due to complete her PhD in late 2008.

scholarships and opportunities

Opportunities exist for undertaking a research higher degree (Masters, PhD or MD) in one of the many major research programs within the Faculty. Both the School of Medicine and the School of Nursing & Midwifery provide extensive research higher degree opportunities and resources.

KEY RESOURCES WITHIN THE FACULTY

- collaborative clinical, hospital and research facilities
- state of the art Dual Energy X-Ray Absorptiometry unit
- core facility for microscopy and imaging (confocal & electron microscopes)
- world class Comparative Orthopaedic Research (CORE) surgical facility
- proteomic core facility
- molecular biology core facility
- clinical trials facilities
- strong pharmaceutical-industry links
- biomedical workshops (biomedical maintenance and R&D)

FACILITIES FOR POSTGRADUATE RESEARCH STUDENTS

- strong research maintenance support (see pg 25 for more details)
- computing and infrastructure support (see pg 25 for more details)
- strong supervisor panels, guidance and management
- well-developed research training plan for facilitating timely completion of higher degrees
- active postgraduate research associations

POSTGRADUATE RESEARCH STUDENT SCHOLARSHIPS

Scholarships available include: Australian Postgraduate Awards, Australian Postgraduate Awards (Industry), Flinders University Research Scholarships, International

Postgraduate Research Awards, and a number of scholarships funded from specific sources.

Further enquiries about scholarships can be made as follows:

Higher Degree Administration & Scholarships Office
Flinders University

P: +61 8 8201 3115

E: scholarships@flinders.edu.au

W: <http://www.flinders.edu.au/scholarships-system/main-display-postgraduate.cfm>

FURTHER INFORMATION

General enquiries can be directed to:

Patricia Berry
Secretary, Higher Degree Committee
Faculty of Health Sciences

P: +61 8 8201 5470

E: patricia.berry@flinders.edu.au

areas of research focus

FLINDERS HAS CHOSEN 17 AREAS OF RESEARCH FOCUS, WHICH ARE OUTLINED BELOW.

They represent areas in which Flinders University has considerable research strength, but also where we have identified external opportunities for collaboration and partnership – in a real sense, they are where our capability meets opportunity. Faculty of Health Sciences researchers are represented in all but three of these:

HOSTED BY HEALTH SCIENCES

ABORIGINAL HEALTH

Positioning Flinders to become a leading Aboriginal health research provider in partnership with Aboriginal and other stakeholders

<http://aboriginalhealth.flinders.edu.au>

CLINICAL CHANGE

Filling critical gaps in our knowledge on chronic disease management, and later and end-of-life health care for older adults

<http://clinicalchange.flinders.edu.au>

IMMUNE STRATEGIES

Finding new and better ways to counter infectious diseases, autoimmunity and allergy

<http://immunity.flinders.edu.au>

CANCER PREVENTION AND CONTROL

Seeking to reduce the impact and burden of cancer through excellence in cancer research and its translation into clinical practice

<http://cancercontrol.flinders.edu.au>

EYE AND VISION COLLABORATIVE GROUP

Improving outcomes for patients with blinding eye conditions

<http://vision.flinders.edu.au>

MUSCULOSKELETAL HEALTH

Addressing the significant economic and social burden of chronic musculoskeletal conditions

<http://musculoskeletal.flinders.edu.au>

HEALTH AND SOCIETY

Conducting policy and practice relevant research into the social and economic determinants of health

<http://healthandsociety.flinders.edu.au>

NEUROSCIENCE

Addressing broad questions at the forefront of research into the brain, mind and nervous system

<http://neuroscience.flinders.edu.au>

HOSTED BY OTHER FACULTIES

APPLIED COGNITIVE PSYCHOLOGY

A leading group applying cognitive psychological research to a diverse array of contemporary human phenomena

<http://acp.flinders.edu.au>

CULTURAL HERITAGE AND EXCHANGE

Bringing together those who study the nature of our cultural heritage with those who study the way in which this heritage develops

<http://fhrc.flinders.edu.au>

MEDICAL DEVICES AND TECHNOLOGIES

Medical devices and technologies represents one of the most rapidly growing and dynamic sectors of the global economy

<http://fmdat.flinders.edu.au>

BIOKNOWLEDGE

Understanding and interpreting processes that affect the conservation and functioning of Australia's biodiversity and landscapes

<http://bioknowledge.flinders.edu.au>

EDUCATIONAL FUTURES

Creating a knowledge base for educational action

<http://caef.flinders.edu.au>

NANOSTRUCTURES

Research at the intersection of molecular science and nanotechnology

<http://nmi.flinders.edu.au>

COASTS AND CATCHMENTS

Research expertise which encompasses the whole of the water cycle

<http://coasts-catchments.flinders.edu.au>

FLINDERS INTERNATIONAL ASIA PACIFIC

Researching issues that impact on security and wellbeing in Australia and the Asia Pacific region

<http://fiap.flinders.edu.au>

SOCIAL MONITORING

Monitoring and analysing our community and social life to explore future options for society and policy

<http://smpf.flinders.edu.au>

research assistance

The Faculty seeks to foster research activity and development through its research support efforts, particularly the Faculty based Research Administration Unit, Faculty Research Committee and the Nursing & Midwifery Research Hub.

RESEARCH ADMINISTRATION UNIT

The Faculty Research Administration Unit resides within the Faculty Office and is headed by **Ross Forbes, Manager (Research Administration)**. This unit provides support, advice and administrative services to all Faculty researchers, grant applicants and higher degree research students.

FACULTY SUPPORT FUNDING

The Faculty offers internal support funding and grants to staff and research students:

Competitive research grants

- *Top Up* grants (additional funds subsequent to successful external grant awarded)
- *Seeding* grants (available for new projects leading the way to future possible external competitive funding)
- *Near Miss* grants (highly ranked applications that just missed funding from an external peer reviewed granting body)
- *Infrastructure* grants (provides support which benefits multiple users or multiple research projects)

- *Partnership* grants (collaboration between Schools of Nursing & Midwifery and Medicine)

Staff support

- *Establishment* grants (assists new academic staff members to establish their research activities at Flinders University)
- *Visiting research fellow* (funds to bring distinguished researchers to the Faculty to enhance research output)
- *Visitor seminar travel* grant (funds for travel expenses for a visiting researcher to present seminar at Flinders)

Student support

- *Student conference* grants (funds to assist a student presenting at a conference)
- *Research Student Maintenance* (funding for higher degree research students covering maintenance and consumables)

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FACULTY RESEARCH COMMITTEE

The Faculty Research Committee is chaired by **Professor Keryn Williams, Associate Head of Faculty (Research)**, and includes a membership with representation from the Faculty's key research groups and higher degree research students.

The Faculty Research Committee is responsible for strategic management and planning of research activities, administration of the Faculty's research budget, development of linkages and networks to facilitate research collaboration, and to advise on research education and training.

The Faculty Research Committee is responsible to the Faculty Board and much of the business of the Research Committee is managed through sub-committees across a range of specialty areas.

NURSING & MIDWIFERY RESEARCH HUB

The Hub provides a contemporary framework for the coordination and management of the School's strategic research activities, assist the School's researchers achieve full potential and afford a platform for multidisciplinary research.

The Hub offers a range of services to academic staff in the research and publication area. These include literature search and retrieval; formatting; review of ethics proposals and grants submissions. Some of these services are also available to research higher degree students.

The Hub is headed by **Professor Paul Arbon AM, Associate Dean (Research)**.

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