



SUSTAINABLE HEALTH
AND WELLBEING research theme

'Sustainable Health and Wellbeing' is one of the major themes of research undertaken within the College of Health and Science at the University of Western Sydney (UWS).

It is a rapidly expanding, dynamic area of activity at the University, as investments in infrastructure and a growing reputation for research draw Australian and international research leaders and high quality research students to Western Sydney.

The Sustainable Health and Wellbeing research theme demonstrates the University's commitment to:

- meeting the health and wellbeing needs of the people of Greater Western Sydney
- improving the capacity of the health care system to deliver services in a sustainable way
- promoting ways to meet the needs of diverse populations with attention to inclusivity, social justice and parity in health opportunities.

Research within this theme at UWS is making important contributions to regional, state, national and international programs.

college of health & science

Responding to challenges

Changes in demographics, environments, lifestyles, societies and behaviours, as well as economic pressures and extreme events raise challenges to the health of individuals and communities and to the health system.

Research in the UWS Sustainable Health and Wellbeing theme focuses on developing preventative interventions and solutions, and increasing resilience in response to current conditions and emerging and potential developments.

UWS researchers offer expertise in epidemiological, experimental and social science research methods, and use this expertise to address complex health problems. They derive strong benefit especially from their ability to develop and apply large integrated databases.

Taking account of social determinants of health brings new perspectives on the causes of poor mental and physical health and ways to improve morbidity and mortality patterns and to encourage 'healthy choices'.

The results of UWS's research are strategic, scholarly, ethical and relevant. The College of Health and Science has a strong emphasis on enabling and encouraging practitioners to take up research findings. UWS is especially known for the contribution that its research makes to policy development and models of care.

Partnerships

UWS concentrates its research on practical applications, and so the College encourages government agencies, professional bodies, hospitals, community organisations and businesses to see its researchers as a valuable resource. Commissioned research can provide information on questions as diverse as the characteristics of specific complementary medicines, the effectiveness of current and proposed programs and health and wellbeing interventions, and the effects of different forms of urban development.

UWS has strong links with researchers and institutions across Australia and around the world, and places great importance on engaging and partnering with community organisations and health care facilities. Researchers actively form collaborations with researchers at other universities as well as research agencies, medical research institutes and businesses.

Education and training

UWS's expertise in Sustainable Health and Wellbeing draws students from across Australia and around the world, as well as from Greater Western Sydney.

Research students are attracted by the depth of expertise and major new facilities in the College. Students are supported through high quality supervision and have the opportunity to conduct research in a variety of clinical, hospital, community and government settings. Students benefit from the University's strong links with local communities, industry and public sector bodies.

The University assists PhD and Masters research students with grant applications and research project funding.

The College also provides high quality postgraduate and undergraduate coursework degrees, supported through a range of scholarships. Short-term courses span various aspects of Sustainable Health and Wellbeing.

sustainable health and wellbeing research strands

The Sustainable Health and Wellbeing research theme contains eight research strands. These strands cross academic disciplines and apply a mixture of research methods and policy development approaches. They draw teams together across the University as well as linking the University with wider research networks.

Sustainable Health and Wellbeing							
Family health	Ageing	Daily life with acute, chronic and complex conditions	Community preparedness for major threats and events	Physical activity, obesity and health	Sustainable health systems and policies	Healthy environments	Complementary medicine and pharmaceuticals

Family Health

Research on Family Health focuses on key life transitions and developmental periods such as infancy and childhood, adolescence, pregnancy, parenthood and ageing in the context of family life. This research aims to improve health for families and family members, particularly those living in Sydney's Greater West.

For example, a collaborative team of researchers from the Schools of Nursing and Midwifery, Medicine and Biomedical and Health Sciences is exploring short- and long-term health outcomes from poor health and lifestyle or medical complications in pregnancy.

Researchers in UWS's Family and Community Health Research Group (FaCH) are concerned with increasing support for vulnerable families. Typically this involves partnering with other organisations in response to areas of need, such as testing and evaluating interventions.

UWS research is improving support of breastfeeding, parenting, adolescents and health, adolescent fatherhood, child protection and caring for children with chronic illness.

UWS researchers are also interested in the impact of neighbourhood and community on outcomes for mothers and children, including such factors as local area disadvantage, ease of access to health services, amount and quality of open space, and level of shared cultural background in the community.

Meanwhile new areas of research are opening up in the relationship between resilience in health and fertility.

Research at UWS's Men's Health Information and Resource Centre (MHIRC) is looking at the social determinants of health – the cultural, political, economic, psychological and spiritual contexts of our lives – including in family life. For example, its longitudinal study of men in Western Sydney provides a population and evidence based body of data that is informing planning and policy development.

The social determinants of health are also key in a study of the causes of male suicide. In addition, the Centre has been investigating the social settings that can lead to violence within couples and factors that help couples to resile from pathways to violence.

Dr Karleen Gribble from the School of Nursing and Midwifery received the biennial Australian Breastfeeding Association's Mary Paton award for her evidence based study that explored how some Australian women are able to continue breastfeeding for at least two years – a practice recommended by the World Health Organisation (WHO).





Healthy Ageing

Across the College there is diverse research on healthy ageing, retirement and dementia.

For example, UWS research has led to interventions aimed at increasing physical activity in older adults to levels that afford health gain. The way in which decisions made about ageing affect health is being examined by UWS researchers as part of the way individuals respond to major changes in their lives.

Research on dementia includes investigating neuroprotection and alternative treatment options, neurodegeneration, and developing frameworks to assess pain, constipation, agitation and weight loss in older people with dementia. The Centre for Complementary Medicine Research (CompleMED) is investigating links between cardiovascular disease and Alzheimer's Disease. Complementary medicine is showing particular promise in the prevention and treatment of many neurodegenerative diseases.

Researchers are also helping specific communities, such as the ethnic Chinese community and older men, to develop solutions to issues related to ageing.

The Ageing research strand is directly related to several other Sustainable Health and Wellbeing research strands. Families play key roles in care for the ageing, and family life is affected by such conditions as dementia. The ageing are particularly vulnerable to acute, complex and chronic conditions. Research on Sustainable Health Care Systems and Policies includes the challenges of nursing patients with dementia and development of remote care programs. Research on Healthy Environments includes the development of housing that encourages healthy ageing.

Professor Louisa Jorm, Foundation Professor of Population Health at UWS, and colleagues from the New South Wales (NSW) Department of Health have found hospital costs incurred by people aged over 65 in their last year of life equate to around 9 per cent of total hospital costs in NSW. This research, published in the *Medical Journal of Australia*, fills an important public policy knowledge gap, as population ageing is likely to significantly change the supply, organisation and funding of health services for the aged.

Daily Life with Acute, Complex and Chronic Conditions

Demand is increasing for research that describes, measures and evaluates the impact of living with acute, complex and chronic conditions in the context of daily life. No longer is it sufficient to describe a condition and treat the medical or structural aspects of the problem – there is now also a need to address the functional effects of that condition.

Commonwealth and State Governments have set the better understanding, assessment and management of acute, complex and chronic conditions in the community as a key principle. The health professions are responding to these government imperatives and community expectations.

Multi- and interdisciplinary teams are vital in the assessment, treatment and support of people in acute, community engagement and rehabilitation services. While the research evidence base to support such practice is growing, there are many gaps in description, measurement and evaluation of activity, and participation issues and interventions.



UWS has a successful record of research that helps people with acute, complex and chronic conditions toward rehabilitation and a healthier life. This builds on work in occupational health, vocational rehabilitation, management of complex chronic conditions such as cerebral palsy, severe stroke, severe traumatic brain injury, diabetes and cardiovascular conditions, and the particular health problems associated with older people living in the community.

The capacity for allied health and nursing staff to assess, measure and evaluate health outcomes in these areas is also being extended through continued instrumentation development and clinical intervention outcome studies.

Professor Anne Cusick, from the School of Biomedical and Health Sciences and colleagues from the University of Sydney have found that, despite common clinical practice, splinting the wrist after experiencing a stroke did not reduce contractures associated with this common condition. This research, published in the prestigious journal *Stroke* in 2007, challenges current clinical practices and suggests that routine splinting should be discontinued.

Community Preparedness for Major Threats and Events

The response of individuals and populations to disasters, terrorism, pandemics and other adversities ranges from resilience to coping to vulnerability.

The Science of Mental Health and Adversity Unit (SciMHA) is investigating the processes that contribute to these different responses, to enable service providers to take actions that result in optimal outcomes for individuals and populations. The Unit's research looks at preventing or mitigating adverse mental health and population outcomes, as well as responding to problems that may emerge following disaster events. Knowledge of perceptions, psycho-social factors and health behaviours associated with such events is being established through epidemiological research, drawing on large data sets on communities.

This research contributes to public policy and specific interventions. Resources that promote individual and societal resilience are also being developed by these UWS researchers via education materials, practice guidelines and service planning.

The University's Urban Research Centre is also investigating how to guarantee food security in the Sydney Basin as part of a cross-Sydney alliance of researchers, policy-makers and food activists from a variety of backgrounds and interests. The Centre's research on housing affordability also contributes to public policy decision-making about community resilience.

Climate change has emerged as one of the greatest threats facing communities. Modelling and analysis capabilities in the Urban Research Centre and in the School of Natural Sciences can be applied in assessing the potential extent of climate change while UWS's Population Health and Clinical clusters offer expertise that can be applied to assessing climate change's effects on communities and to developing appropriate policy responses.





Physical Activity, Obesity and Health

UWS researchers have established strong reputations for work on physical activity and nutrition, with particular reference to preventable or lifestyle diseases.

Such diseases are increasingly causing great concern in Greater Western Sydney, around Australia and internationally. Rates of overweight and obesity, diabetes and coronary heart disease are rising. Depression, prediabetes, metabolic syndrome and some forms of cancer are also linked to obesity, physical inactivity and poor nutrition.

Some factors are behavioural: people are increasingly sedentary and having poor nutrition due to changing dietary patterns. Population patterns include an ageing population, a large proportion of the population not being physically active enough to improve or even maintain their health, and an over representation of many ethnic groups and Australia's Indigenous population in adverse health statistics. Urban design is also a factor: too many built environments are not conducive to increasing physical activity.

Cross-disciplinary research in the College of Health and Science has been applying both statistical analysis and metrics, and developing and testing interventions to increase individuals' physical activity. Researchers are also examining the characteristics of urban environments that contribute to poor physical activity and obesity, such as transport and mobility options, and patterns of food consumption.

Professor Gregory Kolt from the School of Biomedical and Health Sciences, along with colleagues from universities in New Zealand have developed successful interventions to increase physical activity, using a range of mechanisms and aimed at diverse groups in society. They include:

- physical activity in children and youth, including school based interventions
- physical activity and nutritional behaviours in culturally and linguistically diverse groups
- physical activity in groups with disability
- interventions to improve physical activity and health-related quality of life in sedentary older adults
- interventions to improve prediabetes and metabolic syndrome
- measurement of physical activity across the life span
- analysis of nationally representative data on physical activity behaviours
- telephone based counselling to improve physical activity
- physical activity as an intervention through primary care (general practice) settings.

Sustainable Health Systems and Policies

Health care providers – both individuals and organisations – depend on a myriad of systems, practices and policies to meet the needs of the communities and people they serve, and to achieve the best possible outcomes. The Sustainable Health Systems and Policies research strand examines workforces and systems that support the provision of accessible, equitable, effective and sustainable health care.

Its work plays a vital role in health service improvement. Research in this strand seeks to address such challenges as competing demand for resources, workforce demographic changes, including ageing and international recruitment, workforce morale, establishing and improving systems and building skills in emerging economies. UWS researchers are also exploring innovative models of service delivery. Workplaces in the health sector manifest a growing number of levels of staff, increasing specialisation and emergence of new approaches to delivery of care, such as patient management systems.

Researchers from across the College are working together to:

- explore the organisation of health systems and the potential impacts of policy and system change
- evaluate the outcomes of health programs and services
- investigate the potential of health informatics (also known as e-health) and new technologies and treatment options for streamlining and improving care
- identify possibilities for inter-professional and inter-agency collaboration and service integration.

For example, researchers from UWS's School of Nursing and Midwifery and School of Medicine are studying the nature and characteristics of professional collaboration in perinatal care. The Centre for Complementary Medicine Research undertakes research on professional practice in complementary medicines and therapies. The School of Computing and Mathematics applies its expertise to the development of information and communication systems that support health care workers and the health system, such as technologies to better identify how much care an individual patient requires.

Research on Sustainable Health Systems and Policies is developed and undertaken with extensive community and industry engagement, to direct the research effort, obtain high quality information and ensure effective uptake of research results.

Financial support from industry enables specific needs to be targeted, for instance in work with government health agencies. Meanwhile UWS staff bring the independence and sensitivity that is essential in gaining workforce trust and quality data and information.

related research themes at UWS

Sustainable Health and Wellbeing intersects with several other research themes in the College of Health and Science at UWS.

- The Nano ++ research theme takes a multidisciplinary approach to research spanning nanoscience, nanotechnology, nanomaterials, biomedicine and genomics. It includes the application of characterisation techniques that allow the human body to be non-invasively investigated as well as in vivo imaging.
- A research theme focused on structural and materials monitoring includes investigations of biological systems; embedded devices that can, for example, measure blood pressure; industrial design to meet the needs of people with disabilities; and technologies to improve safety, such of drivers. Some design researchers working in this theme are applying bio-mimetic approaches such as biological sensory processes and neural structures. Many challenges in monitoring the health of structures are also applicable to monitoring the health of human beings, for example wireless communication, low power requirements, miniaturisation, systems integration, data management and analysis.
- Translational medical science is an emerging area of excellence in biomedical research. In particular, sensory neuroscience research at UWS is bringing together researchers in the School of Medicine and the School of Psychology in the College of Arts. Among the strong areas of sensory neuroscience research in the School of Medicine are visual processing and development of a bionic eye, sensory processing of tactile, proprioceptive and pain signals, and plasticity in auditory processing and tinnitus.

Healthy Environments

Given that more than half the world's people now live in cities, urban research has a major role to play in encouraging environments that are conducive to healthy lives. Industry and government partners are funding research by UWS's Urban Research Centre into issues such as sustainable infrastructure, affordable housing, quality public space and access to local jobs that affect residents' health and wellbeing.

The Urban Research Centre, UWS's Population Health and Clinical clusters and the Centre for Health Record Linkage (CHeReL, of which the University is a member), offer capabilities and resources for analysis of data and information on such subjects as social disadvantage and beneficial urban environments, such as open space.

The School of Natural Sciences has a wider interest in workplace environments, for example advising on dust in workplaces.

UWS also hosts the World Health Organisation Centre for Environmental Health, which undertakes environmental health assessments.

Complementary Medicine and Pharmaceuticals

Research on medicines and complementary medicine at UWS covers the spectrum from drug design, to efficacy and quality control. For example:

- Research at CompleMED spans biomedical, clinical, social, economic and public health fields and draws on a legacy of traditional knowledge.
- UWS's multi-million dollar nuclear magnetic resonance (NMR) facilities can reveal valuable information at a molecular level for use in drug design.
- Expertise in encapsulation is applicable to small molecules such as pharmaceuticals.
- The School of Natural Sciences is positioned to integrate its century-long reputation in animal health with UWS's expertise in pharmaceuticals and complementary medicine.



research teams

The Sustainable Health and Wellbeing research theme integrates strengths of staff across the College of Health and Science and the broader University.

Bringing together experience from a range of academic disciplines enables complex issues to be addressed in a holistic manner.

Sustainable Health and Wellbeing

Complementary medicine and pharmaceuticals	Healthy environments	Sustainable health systems and policies	Physical activity, obesity and health	Community preparedness for major threats and events	Daily life with acute, chronic and complex conditions	Ageing	Family health	Five schools
								Three university research centres
								Diverse teams based at UWS
								Membership of other centres
								Local, national and international collaborations

schools

Research on Sustainable Health and Wellbeing spreads across almost all Schools in the College:

1. Biomedical and Health Sciences
2. Computing and Mathematics
3. Medicine
4. Natural Sciences
5. Nursing and Midwifery

Biomedical and Health Sciences

Researchers in UWS's highly regarded School of Biomedical and Health Sciences are prominent in:

- occupational therapy
- rehabilitation and health outcomes for people with complex chronic conditions
- physical activity and health
- wellness and healthy lifestyles
- sport and exercise science
- social determinants of health
- prevention and interventions for a range of lifestyle diseases
- public health and health promotion
- applications of NMR
- neuroprotection, neurodegeneration and neuronal dysfunction
- biostructures, microbiology, cell and molecular biology.

Collaborators especially benefit from the integration of clinical health sciences and the biomolecular and medical sciences under a single umbrella in this School.

More information

www.uws.edu.au/biomedical_health_sciences

Professor Gregory Kolt, Head of Biomedical and Health Sciences, and colleagues from the Auckland University of Technology and the University of Auckland found that telephone based counselling increased physical activity over 12 months in previously low-active older adults. This research, published in the *Journal of the American Geriatrics Society* in 2007 and funded by the National Heart Foundation of New Zealand, provides an effective intervention for improving physical activity to levels that afford health benefits for an ageing population.

Computing and Mathematics

Capabilities in UWS's School of Computing and Mathematics contribute to Sustainable Health and Wellbeing in areas as diverse as mathematical modelling and the use of information technology in healthcare workplaces. For example, its research in health informatics includes administrative systems for admission and finances, patient journey transformation, business process modeling, clinical and physiological data collection, data warehousing, clinical analysis and research, telemedicine and telehealth, and virtual reality anatomy models. The amalgamation of strong fundamental theoretical knowledge, practical information technology capabilities and human-centered computing is invaluable in biomedical and social sciences as well as healthcare administration.

More information

www.uws.edu.au/computing_mathematics

Medicine

Staff and students in the School of Medicine undertake research across basic and applied biomedical, translational and clinical sciences and population health. Consistent with UWS's focus on application, researchers work in and with general practice and community organisations across Greater Western Sydney.

More information

www.uws.edu.au/medicine

Natural Sciences

The School of Natural Sciences plays a distinctive role in research on Sustainable Health and Wellbeing, in areas as diverse as:

- workplace health
- characterisation of drug binding
- encapsulation of small molecules and larger biological species such as enzymes, proteins and whole cells in nanostructured matrices for applications in biotechnology, biomedicine and food science
- tear formation in the human eye.

More information

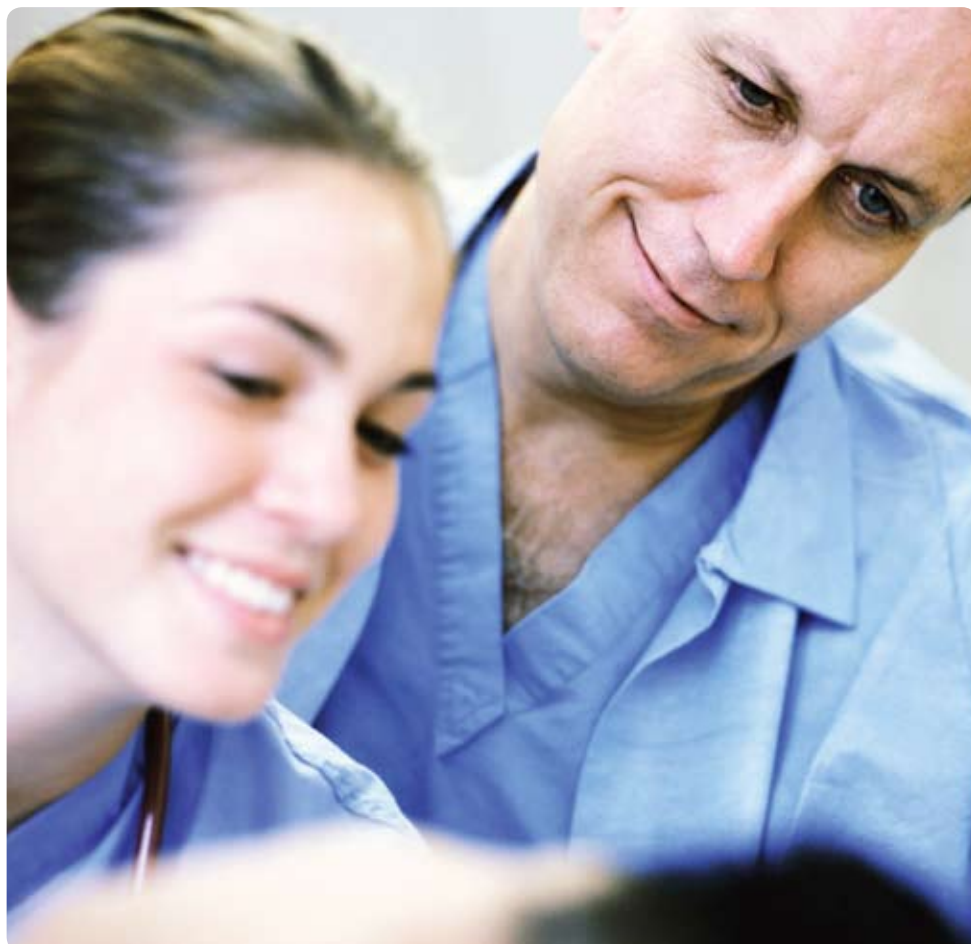
www.uws.edu.au/natural_sciences

Nursing and Midwifery

UWS is a national leader in nursing and midwifery education, research and scholarship. Its School of Nursing and Midwifery is making a major contribution to the growing field of nursing knowledge and health care research. Nursing and midwifery researchers are boosting standards and extending understanding of aged care, complex and chronic conditions, cultural diversity and health care, emergency care, families and mental health.

More information

www.uws.edu.au/nursing



research centres

Three University-designated research centres – which are research flagships of the University – are engaged in Sustainable Health and Wellbeing research.

Centre for Complementary Medicine Research

CompleMED promotes an evidence based approach to the use of complementary medicines and therapies in health care, through a research program that focuses on clinical efficacy, safety, mechanisms of action and economic value.

Clinical research, in collaboration with leading medical specialists and hospitals, concentrates on:

- women's health
- aged care
- cardiovascular health
- gastroenterology.

A landmark study by CompleMED found people over 50 who take calcium supplements suffer fewer fractures and enjoy a better quality of life. The authors analysed 29 studies from around the world that tracked the use and efficacy of calcium or calcium and Vitamin D supplements in 63,897 people aged 50 or over. The report was published in *The Lancet* in 2007. The Australian Self Medication Industry commissioned the study, which was also supported by a Primary Health Care Research, Evaluation and Development Strategy grant from the Commonwealth Government.

State-of-the-art laboratories have been established at CompleMED for identification, bioactivity and bioavailability of herbal medicines. Chemical analysis of herbal products for quality assurance provides an important extension to the clinical studies program and a wealth of opportunities for innovation in medicinal product development. Life science methods, including functional genomics and proteomics, are employed to elucidate the molecular basis of action of herbal medicines for the management of acute and chronic neurodegenerative diseases as well as other ageing related disorders.

Health policy research at UWS is making an important contribution to such policy issues as safety, industry regulation and clinical practice standards in complementary medicine. CompleMED has played a key role in the development of national policies for practitioner regulation and in the establishment of Australia's National Institute of Complementary Medicine, which is also based at UWS. The Institute connects complementary medicine researchers around Australia to provide a national, coordinated approach to research.

More information

www.uws.edu.au/complemed
www.nicm.edu.au



Urban Research Centre

UWS's Urban Research Centre is building a significant reputation within Australia and internationally for the research it is undertaking on the relationship between health and wellbeing, and urban environments.

Most prominently, the Centre is developing a suite of durable indicators that will track urban life in Sydney's newest suburban communities. Its partner in this is the NSW Growth Centres Commission, which is responsible for release of new residential lands on Sydney's fringes. The project will monitor economic performance, social conditions, cultural activity and health and environment outcomes at the neighbourhood scale over long periods of time. The indicators the Centre is developing will ensure urban managers pay greater attention to the delivery of more equitable and sustainable urban residential development that also improves health outcomes.

The Centre is also leading Sydney's first integrated study of the city's food systems, called 'Feeding Sydney'. Food is critical to health and wellbeing outcomes in several ways:

- Access to fresh local food depends on the protection of the Sydney basin's prime agricultural lands from urban development.
- The food industry is a major employer.
- Food is intrinsically linked to quality of life.

Typifying the College's approach to research, the Feeding Sydney project is interdisciplinary in focus, creative in its methodologies and engaged with the public.

More information

www.uws.edu.au/urban

Centre for Plant and Food Science

Research on food at the Centre for Plant and Food Science (PAFS) includes development of new foods that are safe and nutritious: determination of food components that are critical to human health, and establishing agricultural environments that are healthier for both food producers and consumers.

For example, fundamental research into functionality, interaction and performance of intestinal bacteria and bioactive substances and their role in enhancing immune responses contributes to health-based probiotics, prebiotics and encapsulated functional foods. Lactose, enzyme technology and food fractionation are other notable areas of expertise with significant implications for health.

PAFS researchers have extensive collaborations in the Asia Pacific region, such as working with Vietnamese citrus fruit producers to ensure pesticide residue levels are below international minimums.

More information

www.uws.edu.au/centre_plant_food_science



A photograph of a surgeon in a blue scrub suit and mask, focused on a procedure in an operating room. The surgeon is wearing a blue surgical cap and a blue surgical mask. The background is slightly blurred, showing other people in the operating room. The lighting is bright and clinical.

concentrations of expertise

Within UWS's College of Health and Science, core expertise on Sustainable Health and Wellbeing is concentrated in:

- The Family and Community Health University Research Group
- The Exploring Pregnancy Outcomes (ExPO) research node
- Population Health and Clinical Clusters
- The Men's Health Information and Resource Centre
- The Science of Mental Health and Adversity Unit
- The NSW Centre for Evidence Based Health Care, which is a Collaborating Centre of the Joanna Briggs Institute (JBI)
- The WHO Centre for Environmental Health

Family and Community Health University Research Group

The Family and Community Health University Research Group in the School of Nursing and Midwifery aims to improve the health and wellbeing of individuals, families and communities. It is identifying, implementing and evaluating research that can be applied to build resilience and health capacity. The strength-building framework used by FaCH involves identifying existing strengths and developing these so that individuals, families and communities can prepare for and meet adversity caused by health breakdown and health-related social inequity.

FaCH draws on researchers from nursing, midwifery, education, psychology and business backgrounds, and so brings a unique multidisciplinary perspective to several distinct but related research streams.

FaCH researchers head a number of professional nursing research units and play leading roles in national and international bodies. For instance, Dr Donna Gillies is a member of the Cochrane Collaboration Steering Group, which is playing a major role around the world in developing a strong evidence base for medicine and allied health, and translating that evidence base into practice.

- The **Support for Vulnerable Families** stream is contributing to the health, welfare and social capital of the people of Greater Western Sydney and beyond. FaCH conducts high quality research that responds to areas of need, and tests and evaluates interventions to build the health capacity of vulnerable families and individuals.
- The **Chronic and Complex Care** stream is expanding the base of evidence on how individuals, their families and communities can better deal with the significant and increasing burden of chronic diseases, such as cardiovascular, respiratory and mental health conditions.
- The **Workforce Education Research in Nursing** stream undertakes research into diverse areas affecting the nursing workforce including workforce supply of nurses, undergraduate and postgraduate education and training, options to improve the working lives of nurses, and practice development to enhance care delivery and the career satisfaction of nurses.

Local, national and international collaborations are a major feature of FaCH research. Researchers in this Group are ideally placed to undertake high-level research with in-patient and community patient groups.

Exploring Pregnancy Outcomes

UWS's ExPO research node is improving health for mothers and babies, particularly those living in Sydney's Greater West. It is exploring the effect that poor health, lifestyle or medical complications in pregnancy – such as hypertensive disorders, diabetes, obesity or physical inactivity – have on women as well as their infants and children, over the short and long terms.

The team is investigating the experiences of women and the way in which health services and professionals respond to their needs.

This requires expertise in epidemiological, experimental and social science methods. ExPO's research involves analysis of linked data and is complemented by in-depth research using both well established and innovative social science methods.

More information

www.uws.edu.au/fach



Population Health and Clinical clusters

Research within the Population Health and Clinical clusters in UWS's new School of Medicine focuses on major health issues for the population of Greater Western Sydney. These include:

- hypertensive disorders of pregnancy and their outcomes for mothers and babies
- eating and weight disorders
- obesity
- inequalities in the use and outcomes of health services
- health effects of climate change and food policy.

Several projects using data from the 45 and Up Study, Australia's largest study of healthy ageing, are under way. Methodological strengths include epidemiology, analysis of large, routinely collected health data sets, data linkage, cohort studies, health surveys, and the evaluation of clinical and community based interventions.

The clusters capitalise on the research strengths and interests of staff who have been appointed to the School of Medicine, as well as the new opportunities for collaborative and cross-disciplinary approaches that are made available to them from the breadth of capabilities found in the College of Health and Science.

Centre for Health Record Linkage

UWS's membership of CHeReL provides its researchers with priority access to de-identified linked data on the population of NSW from a wide range of health-related information sources.

These include data on births, emergency department presentations, hospital stays, incident cancers and deaths.

Men's Health Information and Resource Centre

The Men's Health Information and Resource Centre takes a social view of the health of men and boys, and supports men's health work across the state of NSW and beyond. Its evidence based research program contributes to men's health policy.

The centre, begun in 1999, is funded by the NSW Department of Health, with additional financial support from other State Government bodies and the Commonwealth Government.

The MHIRC plays a major role in the biannual National Men's Health Conference.

Indigenous health

A major area of work aims to improve the health of Indigenous men, who have the worst health outcomes in Australia. Centre staff draw on advice from local Indigenous elders and national Indigenous leaders and collaborate with them in running the Indigenous Male Health Convention, which is held in conjunction with the National Men's Health Conference. The Centre's work is complemented by the University's Badanami Centre for Indigenous Education.

Men's Health Research

The MHIRC has established a reputation for initiating important research projects. It established Australia's first longitudinal study of boys' and men's health (focused on Western Sydney) and the first Australian study of causes of male suicide. Other research studies are examining engaging men in health services and the health of frail elderly men.

Men's Health Services

Commonwealth Government funding enables the MHIRC and the Holy Family Centre to operate The Shed, a drop-in centre for men at Mount Druitt in Western Sydney. The Shed targets men most at risk of suicide, including many Indigenous males.

The MHIRC also works with men in prison and who have left prison.

In addition, the Centre promotes:

- a network of designated Area Health Services men's health workers across NSW
- international Men's Health Week across Australia.

More information

<http://menshealth.uws.edu.au>

Five men and one woman take their lives each day in Australia. Families who had lost loved ones through suicide and some men who had made serious attempts on their lives agreed to be part of a research project looking at the 'Why' of this tragic situation. MHIRC undertook this study in collaboration with the Central Coast Suicide Safety Network, based north of Sydney. The study presents 'social determinants of suicide'. Among its findings was evidence that labelling people as 'mentally ill' can sometimes be unhelpful in these cases.

Science of Mental Health and Adversity Unit

Research undertaken by the Science of Mental Health and Adversity Unit addresses major adversities as well as the more general processes that enable individuals and populations to be resilient against mental health problems, or vulnerable to them.

A key area of research aims to help health care and emergency services to better manage mental and population health issues caused by terrorism, disasters and other mass adversities. The Unit's scope of activity encompasses prevention, preparation, planning, response and recovery. It includes the psychosocial consequences of perceived risk of such events, as well as actual experiences. Participants in research projects include individuals whose work exposes them to the threat of mass adversities and those who have experienced such adversities, as well as the wider community.

The Unit's study of population and mental health often involves long-term trajectories. For example, mental health problems in adulthood arising from childhood problems are being investigated. This research examines costs and burdens, impact on development, relative risks, population-attributable risks, and models of disorder and trajectory.

The Unit is part of the University's School of Medicine and is partly funded by NSW Health. Collaborations are encouraged with researchers sharing a broad interest in population mental health and adversity, including community and systems management of adverse events, threat perception and health behaviours, resilience factors and trends, and training and education materials for emergency service workers.





Centre for Evidence Based Health Care

UWS and the Sydney South West Area Health Service together operate the New South Wales Centre for Evidence Based Health Care, located at Liverpool Hospital in Western Sydney.

The Centre's work focuses on the needs of practitioners in nursing, midwifery and allied areas: translating research into forms that they can apply, through:

- systematic reviews and analysis of research literature
- projects to encourage clinicians to use research in their practice
- disseminating and implementing Best Practice Information Sheets which are developed through the collaboration of expert researchers and clinicians
- short courses designed and delivered in evidence based nursing and midwifery
- fee-for-service consultancies on customised, evidence based practice training and practice manuals for agencies
- initiating primary research when indicated by the findings of systematic reviews
- promotion of evidence based nursing and midwifery practice.

The results of the Centre's work are seen in more cost-effective health practice and better health care outcomes.

Joanna Briggs Institute

The NSW Centre for Evidence Based Health Care is a Collaborating Centre of the Joanna Briggs Institute – a growing and dynamic international collaboration. JBI was established in 1996 and involves researchers from approximately 50 countries. Integral to JBI's innovative approach are multidisciplinary research teams that bring together nursing, medical and allied health researchers, clinicians, academics and quality managers.

JBI is recognised worldwide for the quality of its research and as a leader in translating research into a format accessible to clinicians.

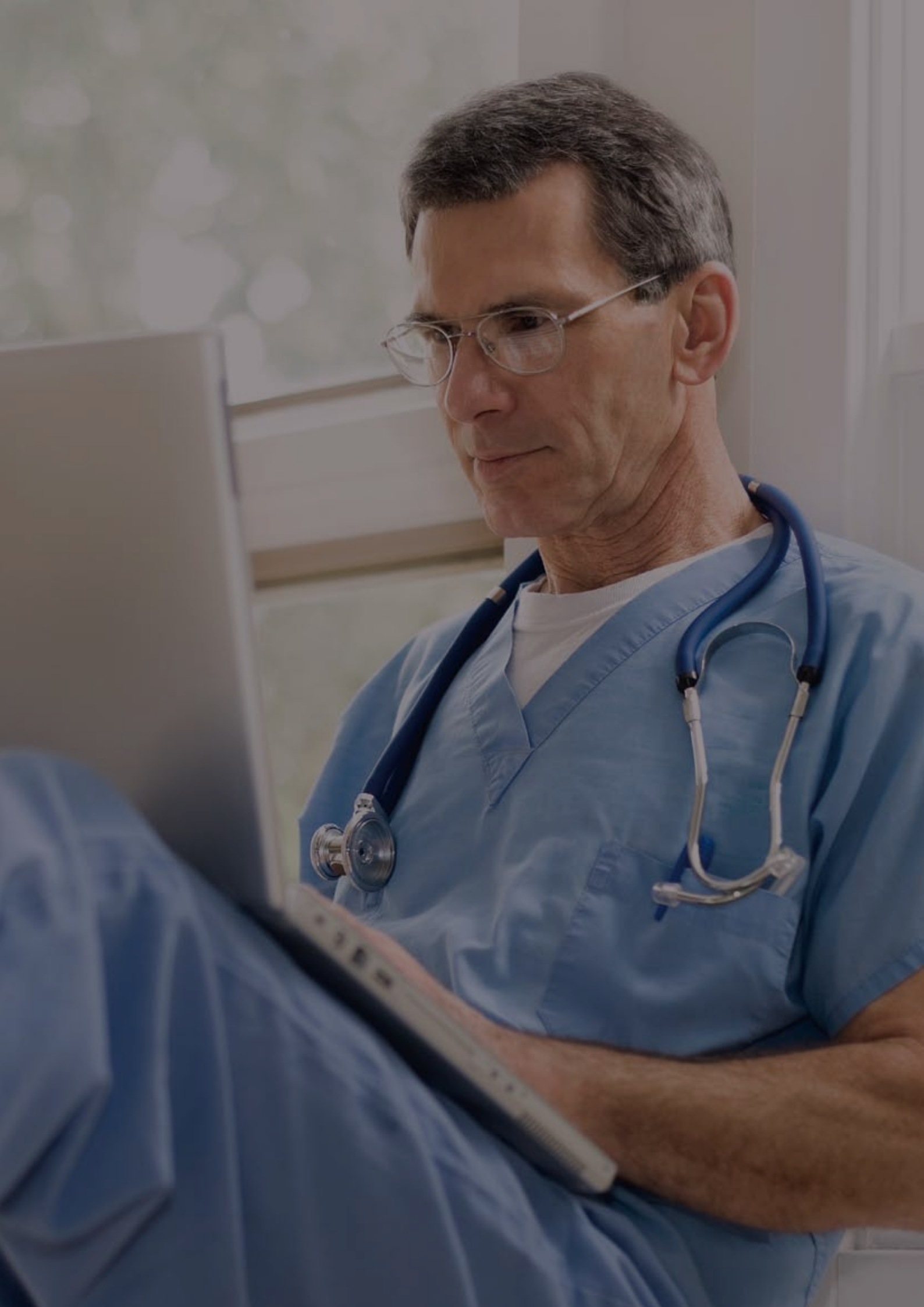
More information

www.joannabriggs.edu.au/collab_ctr/nsw.php

A systematic review published by Professor Rhonda Griffiths and Dr Ritin Fernandez titled 'Water for Wound Cleansing' is one of the top 25 available from the Cochrane Library, which contains over 2500 systematic reviews. The research is listed on the WHO database of evidence based interventions for disaster and emergency situations and the recommendations from the research have been published as an evidence based guideline by the Joanna Briggs Institute.

WHO Centre for Environmental Health Development

The School of Natural Sciences hosts a collaborating World Health Organisation Centre for Environmental Health Development. This Centre is developing and transferring environmental health technology, curriculum and knowledge to the Western Pacific region. Its outputs include distance learning materials and strategies in environmental and occupational health for application to the region, strategies to integrate environmental and health considerations into tourism policy, planning and practice, and integrative models of healthy settings, particularly in workplaces and in rural and urban environments. In particular it is transferring knowledge of sustainable water management and food safety practices for health and development, and management theory and practice for development of environmental health plans of action.



facilities

UWS is increasingly recognised for its analysis, characterisation and imaging capabilities that enable diverse problems in medicine, pharmacology, biology and biotechnology to be addressed.

These are complemented by information technology based facilities and facilities for practical experience.

Herbal Analysis and Pharmacology

Laboratories in the Centre for Complementary Medicine conduct basic and applied research that contributes to the development and provision of safe and effective herbal medicines.

The Spatial Indicators and Geographic Information Systems Laboratory

in the Urban Research Centre represents a major initiative in urban research capacity for the Sydney metropolitan area.

Biomedical science facilities

at UWS include specialist laboratories, sport and exercise science laboratories and the UniClinic, which provides health services in podiatry, osteopathy, acupuncture, naturopathy, traditional Chinese medicine and massage.

Medical laboratory facilities in the new School of Medicine include state-of-the-art animal facilities, Physical Containment 2 areas, first-rate proteomics equipment and advanced neuroscience technologies.

Nuclear magnetic resonance is an area in which UWS has become a national leader. The University's major NMR facility, comprising three systems in the School of Biomedical Science, can be used to study ligand binding and transmembrane transport, drug binding, association and association kinetics of proteins, diffusion in porous systems, biological tissues and applications of nanotechnology to medicine and biotechnology. Another NMR facility in the School of Nursing and Midwifery is used to determine structure of molecules and diffusion of biomolecules within cells.

UWS's Confocal Bio-Imaging Facility

is one of a range of characterisation facilities in the School of Natural Sciences. This state-of-the-art facility uses a suite of lasers to examine, for example, a virus crossing a cell membrane in real-time, living cells dividing and changing over days or weeks, and the effects of drugs or other chemicals at the cellular level. It draws together a dozen instruments.

- Fluorescence lifetime imaging could be used, for example, to identify a disease organism in water, examine its effects on its host and quantify the amount present.
- Fluorescence resonance energy transfer is used to quantify molecular dynamics in, for example, protein-DNA interactions.
- Fluorescence correlation spectroscopy can be used to characterise proteins, biomolecules and pharmaceuticals. It enables tracking of an individual molecule through cells and tissues.
- Confocal Raman spectroscopy can be used for microscopic examination of cells and proteins.

High-end field emission scanning electron microscopy offers ultra high resolution imaging for use in biomedicine.

Thermal analysis, using UWS's simultaneous differential scanning calorimeter thermo-gravimetric analyser coupled to an infrared spectrometer, can characterise biological systems.

Liquid chromatography-mass spectrometry enables selective and sensitive analyses of liquids used in pharmaceutical, clinical, toxicological and environmental operations.

Atomic force microscopy images surface topology of, for example, biological macromolecules and even living organisms.

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