



The University of Sydney

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Research at Sydney Medical School



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About the University of Sydney ...	2
Sydney Medical School	3
Cross-disciplinary research.....	4
Research at Sydney Medical School.....	7
Cancer.....	8
Obesity, diabetes and cardiovascular disease	10
Infection and immunity	12
Neuroscience and mental health.....	14
Lifespan research	16
Meet our most highly cited scholars	19
Research training.....	20
Research partners and collaborations	22
Achieving our vision through philanthropy	23



About the University of Sydney

Australian innovation and research is recognised on the international stage. The University of Sydney is regularly ranked in the top 50 universities worldwide.*

By uniting expertise across disciplines, we make a real difference to our understanding of today's world.

Our 60,000 students – including international students from more than 140 countries – benefit from exceptional facilities and our innovative edge and drive to challenge traditional ways of thinking. They have opportunities to contribute to research that pushes the boundaries and makes a meaningful, real-world impact.

Our partners and students join an inspiring network of leading academics and distinguished alumni. We've taught more than 140 Olympians, seven prime ministers, two Nobel laureates, three astronauts, 110 Rhodes scholars and one Pulitzer Prize winner.

Since 1850, the University of Sydney has led the way in setting new directions for society. Leadership has always been at the core of our values. Our aim is to make lives better – by producing leaders who can meaningfully serve all of our communities at every level.

The cross-disciplinary nature of our faculties allows us to offer the widest range of academic programs of any Australian university.

Key facts

- year of foundation: 1850
- student enrolments: 60,000
- academic staff: more than 3400
- All of our research performed above or well above world standard in the most recent Australian Government Excellence in Research for Australia rankings
- number of alumni worldwide: more than 300,000
- student union clubs and societies: more than 200, including 43 sporting clubs.

Sydney Medical School

Since 1856 Sydney Medical School has been working to improve human health and welfare through education, research and the provision of healthcare.

Education

Sydney Medical School is dedicated to the development of caring, clinically outstanding, research-capable and globally aware graduates who have the capabilities to become leaders in medicine, public health and research.

Each year we teach more than 2000 undergraduate students across science, medical science and health science. Another 1200 are enrolled in our specialist graduate medical program, with more than 1100 training to become postgraduate researchers.

We teach a large number of postgraduate courses that provide continuing education for medical and other health professionals.

Research

Sydney Medical School is dedicated to improving health through excellence in research, creating new knowledge and fostering innovation and research at the highest level, across the disciplines of basic science, clinical medicine and public health.

Our large research portfolio crosses the full spectrum, from the molecular basis of disease to public health measures and control of epidemics.

Our research is focused on both discovery and translating discoveries into improved healthcare, with major programs of research into diseases and health challenges of national and international significance.

Healthcare

Nationally and internationally, Sydney Medical School aims to advocate for and take a leadership role in contributing to high-quality healthcare and wellbeing.

Our staff play a major role in the provision of healthcare to the people of New South Wales, and in a number of countries in our region. They are leading clinicians who are actively involved in the evolution of care and hold key roles in government and non-government organisations, hospitals and other major health providers.



Cross-disciplinary research



Sydney Medical School produces high-impact research that addresses the most important global health issues in our areas of research strength.

Our multidisciplinary research approach brings together the complementary expertise of the University of Sydney's faculties, centres and institutes with that of our affiliated teaching hospitals, institutes and international research partnerships.

Clinical schools

Our clinical schools based at major affiliated teaching hospitals in Sydney and across NSW include:

- Royal Prince Alfred Hospital
- Royal North Shore Hospital
- Westmead Hospital
- Children's Hospital at Westmead
- Concord Hospital
- Nepean Hospital
- Sydney Adventist Hospital
- Dubbo Base Hospital
- Orange Hospital
- Lismore Hospital
- Broken Hill Hospital.

Multidisciplinary centres and institutes

Our scholars, students and partners also benefit from the facilities of our affiliated centres.

Charles Perkins Centre

This centre seeks to find solutions to some of humanity's greatest health challenges: obesity, diabetes, cardiovascular disease and related conditions. At the centre's heart is a \$385 million research and education hub.

– sydney.edu.au/perkins

Brain and Mind Centre

This centre reduces the burden of disease due to brain and mind disorders through research, education and clinical services. It develops new procedures, technologies and medicines and provides access to the most advanced treatments for mental and neurological disorders.

– sydney.edu.au/brain-mind

The Poche Centre for Indigenous Health

Following a generous donation from philanthropist and Aboriginal health advocate Mr Greg Poche, the Poche Centre for Indigenous Health was established in 2008 at the University of Sydney.

The centre works across the University's health faculties in three key areas:

- Healthy kids
- Healthy teeth
- Healthy hearts.

In each of these areas, the centre supports clinical services, training, scholarships and research with the express purpose of improving the health of Aboriginal and Torres Strait Islander people and communities. It provides specialist services free of charge to thousands of Aboriginal people each year and their program of research ensures that the work they do genuinely makes a difference.

– sydney.edu.au/medicine/poche

Boden Institute of Obesity, Nutrition, Exercise & Eating Disorders

The Boden Institute is a joint initiative of the faculties of Health Sciences, Medicine and Science, administered through Sydney Medical School.

The institute is committed to reducing the individual and societal impact of obesity, eating disorders and lifestyle-related chronic diseases such as type 2 diabetes, heart disease, hypertension, cancer, mental illness and osteoarthritis.

– sydney.edu.au/medicine/research/units/boden

Bosch Institute

This institute is a major centre for medical research at the University of Sydney. It brings together basic and clinical research scientists to tackle major unsolved questions about the human body in health and in illness.

– sydney.edu.au/medicine/bosch

Centre for Education and Research on Ageing

The centre is Australia's premier academic organisation for the study of ageing and age-related diseases. Through innovative and multidisciplinary research, the centre aims to expand and share knowledge of human ageing, so that the health and quality of life for older people can be improved.

– sydney.edu.au/medicine/research/units/cera/

Centre for Values, Ethics and the Law in Medicine (VELiM)

VELiM is a centre for academic research, teaching and learning in bioethics and the medical humanities, and for ethical consultation and discussion. The centre stimulates creative thought, dialogue and action, engaging different disciplinary perspectives, and fosters a community based on collegiality and critical inquiry.

– sydney.edu.au/medicine/velim/



Marie Bashir Institute for Infectious Diseases and Biosecurity

This institute is committed to meeting the challenge of emerging and re-emerging infectious diseases, major causes of morbidity and mortality, socioeconomic disruption and economic instability.

The institute's vision is to improve understanding of complex interactions that fuel the emergence and spread of infectious diseases, and, as a result, combat and lessen their resulting health and socioeconomic impacts.

– sydney.edu.au/mbi

Menzies Centre for Health Policy

This centre is the leading independent academic voice on health policy in Australia. It brings together scholars and practitioners with broad expertise in health policy, economics and health services research to produce high-quality analyses of current health policy issues, deliver annual public seminars, education programs and undertake comprehensive research projects. The centre's research program addresses five themes: policies for health futures, value in healthcare, serious and continuing illness, equity and governance.

– sydney.edu.au/medicine/public-health/menzies-health-policy

NHMRC Clinical Trials Centre

This centre runs large multicentre investigator-initiated clinical trials, works with Australasian and international collaborative research groups, investigates evidence, develops new clinical research methods, and offers clinical research education programs. The centre aims to translate research evidence into improved health outcomes.

– ctc.usyd.edu.au/

Pain Management Research Institute

Established in 1990, the institute is a joint initiative between the University of Sydney and Royal North Shore Hospital. The institute pursues its broad goal of improving human health by conducting basic and clinical research programs, operating a national and international education program and, in collaboration with the Pain Management and Research Centre, treating patients with acute pain, cancer pain, and chronic non-cancer pain.

– sydney.edu.au/medicine/pmri

Save Sight Institute

The Save Sight Institute is a not-for-profit organisation working with government and community to save sight. It incorporates the University of Sydney's Discipline of Clinical Ophthalmology, Lions NSW Eye Bank, Foresight Australia and Sight for Life Foundation.

The Save Sight Institute is one of the top three ophthalmic research institutes in Australia and is internationally recognised as a centre of innovative research into ophthalmology and as a centre of excellence for clinical research, learning and teaching.

– www.savesightinstitute.org.au

Research at Sydney Medical School

Tackling global health issues

At Sydney Medical School we are dedicated to improving human health through translational research and innovation at the highest level.

Sydney Medical School has a large research portfolio spanning basic science to the genetic causes of disease, clinical medicine and public health campaigns that could save millions of lives.

We are the most research-intensive faculty at the University of Sydney, generating close to half of the University's total research income. In 2015 the school's researchers published more than 4000 publications and were awarded research and fellowships worth \$170 million.

Our research strength lies in our multidisciplinary approach, which unites the complementary expertise of the University's faculties, centres and institutes with that of our major affiliated teaching hospitals and international research partnerships.

The University has enormous expertise in the enabling sciences, including physics, chemistry and biology and across the University's four other health-related faculties: Health Sciences, Pharmacy, Dentistry and Nursing.



Global rankings

Our performance in national and international rankings reflects our status as a leading medical school. We're placed:

- 17th in the medicine category of the 2016-17 QS World University Rankings by subject
- 35th in the clinical, pre-clinical and health category of the Times Higher Education World University Rankings 2016-17
- at the highest level (5) in the Excellence in Research for Australia ratings for clinical medicine, public health, and health services research.

Latest achievements

- The University of Sydney received \$22 million of the \$190 million awarded by the National Health and Medical Research Council (NHMRC) in 2016, with 34 successful applications to advance research-led discoveries and improve the diagnosis, treatment and cure of illnesses.
- In the major category of NHMRC project grants, the University was awarded \$57.2 million with 53 projects supported.
- We have more than 1100 higher degree research students and more than 1600 active researchers.



Cancer

Reducing risk, improving detection, better patient care and increasing survival

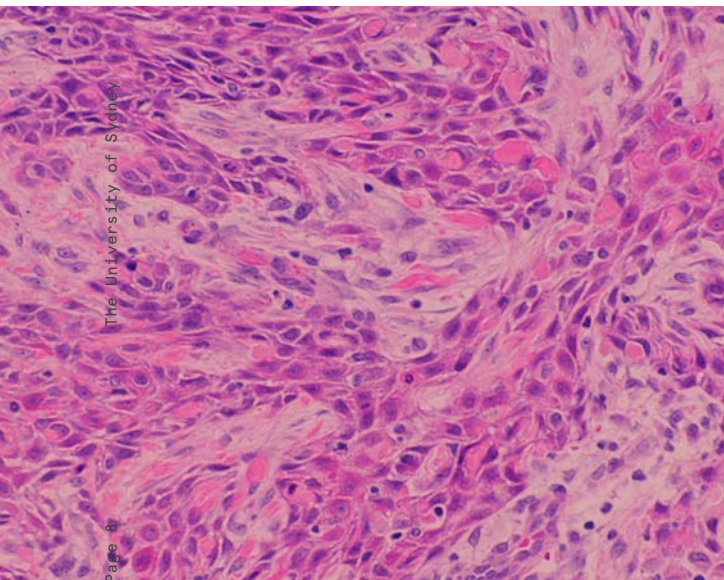
Sydney Medical School's cancer researchers cover the spectrum, from fundamental cell biology, which sheds light on cancer initiation, to cancer control and survival.

Our researchers run major programs looking at the causes of cancer, including the impact of cancer-causing agents such as chemicals, radiation, viruses and human behaviour. The school also runs programs examining biological factors that can reduce or increase cancer risk, such as inflammation and DNA damage.

The University's cancer research programs focus on clinical and translational excellence. Our current NHMRC grants highlight cancer prevention and screening, cancer genetics, and the development of new drug, cell and radiation treatments, with application in a wide number of cancers including leukaemia, melanoma, cervical, liver and breast cancer.

Research highlights

- Professor Diona Damian recently led a study which found that a year of treatment with nicotinamide, a form of vitamin B3, significantly lowered the risk of common, non-melanoma skin cancer in high-risk patients, a breakthrough that could save the nation more than \$500 million annually.
- Professor Graham Mann and his team are internationally recognised for their work on mapping and isolating new genetic risk factors for melanoma, a disease that kills about 2000 Australians annually and takes a disproportionately high toll on young adults.
- In partnership with the Northern Sydney Cancer Centre, we are leading a world-first clinical trial using a GPS-like tracking system to improve prostate cancer radiotherapy treatment. The approach could see cancer patients cured with radiation in just one to two weeks of treatment, with very low side effects.
- Our researchers are fundamentally advancing our understanding of ageing and cancer by demonstrating the structure of active chromosomal telomeres and the role of the alternative pathway for telomere lengthening.
- Researchers in the School of Public Health are leading the world in tobacco control. Evidence they gathered to support plain packaging of cigarettes was highly instrumental in introducing Australia's pioneering plain packaging legislation, which has helped reduce smoking rates in Australia to their lowest ever levels. The legislation has also been adopted by a number of other countries around the world.



Meet our researchers



Professor Stephen Clarke

Stephen Clarke is a Professor of Medicine at Sydney Medical School and a Senior Staff Specialist in Medical Oncology at Royal North Shore Hospital.

Having led research to identify how inflammatory factors impact response to cancer drug treatment and survival, Professor Clarke's work has evolved to look at how interventions before treatment might improve patient wellbeing, the effectiveness of treatment and survival.



Professor Graham Mann

Graham Mann is a Professor of Medicine at Sydney Medical School and an internationally acclaimed researcher in the field of cancer genetics.

While leading melanoma research programs for the NHMRC, Westmead Institute for Medical Research, Cancer Institute NSW and the Melanoma Institute of Australia, Professor Mann and his team have recently isolated new genetic risk factors for melanoma in the Australian population.

Professor Mann is currently investigating the molecular determinants of risk, progression and treatment response in melanoma, supported by major NHMRC program grants. He chairs the University of Sydney's Cancer Research Network.

Obesity, diabetes and cardiovascular disease

Better prevention and treatment of these conditions, with medical and lifestyle approaches

Sydney Medical School's obesity, diabetes and cardiovascular disease research programs include basic biology, clinical medicine and policy research into the most effective ways of containing risk factors.

We have a number of world-renowned programs in the causes, prevention and treatment of heart and vascular disease, and in preventative public health measures.

The Charles Perkins Centre is based in a \$385 million research and education facility at the University of Sydney dedicated to reducing the impact of obesity, diabetes and cardiovascular disease. The centre brings together research groups from the enabling sciences, biomedical sciences, bioinformatics, clinical research, clinical trials and health policy.

Research highlights

- Professor David Celermajer's research on early detection of cardiovascular disease has included the discovery of endothelial function testing by non-invasive ultrasound, enabling the detection of vascular disease in children and young adults. This methodology has since been used by hundreds of research groups worldwide to diagnose and treat early atherosclerosis.
- A study led by Professor Chris Semsarian involving genetic testing revealed new insights into the causes of sudden death in young Australians and New Zealanders. The study found a cause of death in 60 percent of cases by reviewing information from autopsies, coronial and police reports. The remaining 40 percent of cases were initially unexplained at autopsy. Further testing found that one in four unexplained sudden cardiac deaths had a clinically relevant genetic mutation, despite these people having structurally normal hearts. Identifying the hidden genetic causes of sudden cardiac deaths has important benefits. For example, genetic testing of surviving family members provides information that can inform prevention and reproductive options.
- A major clinical trial involving University of Sydney researchers changed practice by showing that the drug fenofibrate reduced the risk of amputation and need for retinal laser treatment in people with diabetes. The Therapeutic Goods Administration subsequently approved fenofibrate in diabetic retinopathy.
- A home-visiting program to new mothers in China, supported by Sydney Medical School, remains the only successful intervention, internationally, in preventing obesity in early life. The program also forms part of the Early Prevention of Obesity in Childhood (EPOCH) prospective meta-analysis of obesity prevention trials in Australia and New Zealand.
- In a world first, University of Sydney and University of Washington affiliate scientists have collaborated successfully to grow heart muscle cells in sufficient quantity to repair the damaged heart of a primate after myocardial infarction. The significant breakthrough is a major step towards solving the growing epidemic of chronic heart failure, which kills more than 20,000 Australians annually.

Meet our researchers



Professor Louise Baur

Louise Baur is Professor in Paediatrics and Child Health at Sydney Medical School and is one of Australia's leaders in the field of research on child and adolescent obesity.

Her research has looked at prevention of childhood obesity, the precursors of obesity, the complications of paediatric obesity and the effective management of obesity and related disorders.

Professor Baur is a member of numerous government and health advisory groups, including the key NHMRC Prevention and Community Care Committee, and is a consultant paediatrician at the Children's Hospital at Westmead, NSW.



Professor David Celermajer

David Celermajer is the Scandrett Professor of Cardiology at Sydney Medical School and Royal Prince Alfred Hospital and one of the few practising cardiologists who is a Fellow of the Australian Academy of Science.

Professor Celermajer's groundbreaking research has demonstrated that the earliest stages of atherosclerotic heart disease can be detected in children 10 years and younger.

More recently, he and his team have developed new ultrasound and MRI scanning techniques to enable early detection of vascular disease in children and young adults, potentially leading to prevention of heart disease later in life.

Professor Celermajer has published more than 350 papers in the area of heart research and is the Clinical Director of the Heart Research Institute.

Infection and immunity

Reducing the global impact of infectious diseases through research, capacity building and expert advice

Sydney Medical School has expertise in infectious diseases and immunological conditions, with cutting-edge programs in HIV, influenza, tuberculosis and malaria, as well as immunopathology and the mechanisms of inflammation.

Other areas of expertise include epidemic viral diseases, infections of animal origin, multi-drug resistance, and vaccine and drug development.

The University of Sydney's Marie Bashir Institute for Infectious Diseases and Biosecurity is a national, Asia-Pacific and global leader in the field of infectious diseases and biosecurity. It brings together leading research and expertise across a wide range of disciplines to increase capacity to detect and respond to infectious disease outbreaks in humans and animals.

Research highlights

- The Centre for Research Excellence into Critical Infections, led by Professor Jon Iredell and based at Westmead Hospital, has developed new rapid diagnostic tests which allow antibiotic treatment to be provided quickly to people in severe sepsis, dramatically reducing mortality of those with critical infections.
- Our researchers informed clinical practice guidelines relating to the use of intravenous immunoglobulin in suspected or proven neonatal sepsis. This international neonatal immunotherapy study saves the Australian health system \$1 million a year.
- Research by Professor Warwick Britton and his team at the affiliated Centenary Institute include programs to decrease the incidence of tuberculosis through: early recognition and treatment to reduce transmission; development of new vaccines; understanding the influence of genetic factors impacting its development; and developing biological markers that not only help discriminate between active infectious and latent non-infectious tuberculosis, but also help monitor the response to antibiotic therapy.



Meet our researchers



Professor Tania Sorrell

Tania Sorrell is Professor of Clinical Infectious Diseases and Deputy Dean at Sydney Medical School and Director of the Marie Bashir Institute for Infectious Diseases and Biosecurity at the University of Sydney.

Professor Sorrell is also the Director of the Centre for Infectious Diseases and Microbiology, Westmead Institute for Medical Research. She was a pioneer in the establishment of infectious diseases as a discipline of internal medicine in Australia and is Director of Infectious Diseases and Sexual Health Services, Western Sydney Local Health District.

Professor Sorrell serves on state and national advisory committees in infectious disease, pandemic planning for influenza, approval of therapeutic agents, and research and human ethics committees of the NHMRC.



Associate Professor Ben Marais

Ben Marais is Associate Professor in Paediatrics and Child Health at Sydney Medical School and at the Children's Hospital at Westmead and Deputy Director of the Marie Bashir Institute for Infectious Diseases and Biosecurity.

Associate Professor Marais serves on the regional World Health Organization committee that focuses on the control of drug-resistant tuberculosis in the Asia Pacific region. With colleagues, he established the NHMRC-funded Centre for Research Excellence in Tuberculosis Control (TB-CRE), which brings together research interests and skills, from basic science to public health and policy implementation.

Neuroscience and mental health

Understanding the brain and nervous system, and converting discovery into treatment

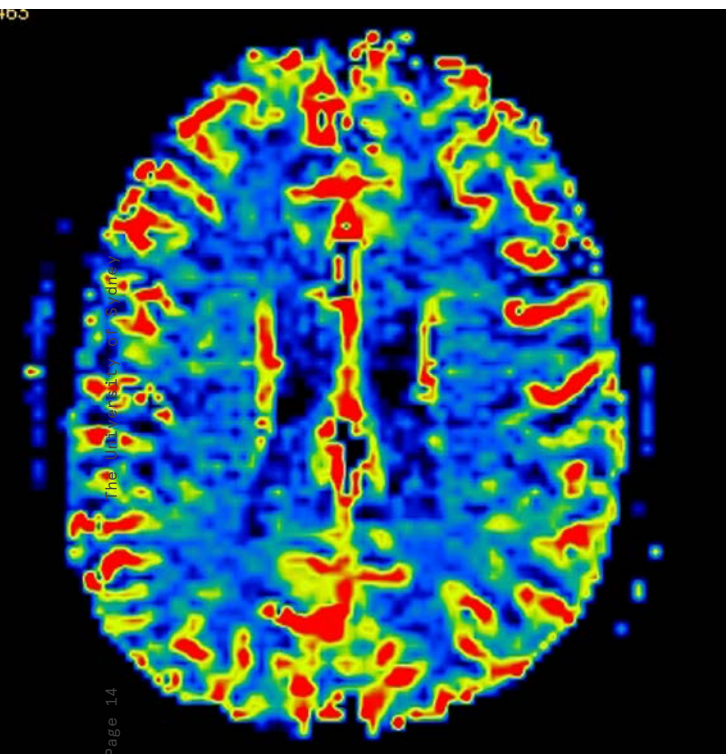
Sydney Medical School's research into neuroscience and mental health spans the structure and function of the brain, spinal cord, peripheral nerves and muscle.

The Sydney Neuroscience Network brings together a pan-university, multidisciplinary team of researchers dedicated to pursuing and developing collaborative research projects in neuroscience and mental health research and teaching across the University of Sydney.

It unites experts in genetics, biochemistry and physiology, as well as pharmacology and pathology, and includes all relevant faculties and affiliated teaching hospitals and institutes.

Research highlights

- Research led by Associate Professor Michael Valenzuela aims to understand the competing forces of neuroplasticity and degeneration in the human brain and use this knowledge to help prevent and treat dementia. His most recent research includes the use of stem cell therapy to successfully reverse the signs of canine cognitive dysfunction in dogs (similar to Alzheimer's disease in humans).
- Professor Ian Hickie and his team's research into the use of e-mental health services by young Australians to manage anxiety and depression is giving young people the power to improve their own wellbeing and protect themselves from lifelong mental health problems.
- Research by the International Multiple Sclerosis Genetics Consortium – led in Australia and New Zealand by the University of Sydney – identified more than 50 genetic variants associated with developing multiple sclerosis. Further work extended 'MS genes' to 110, refined previous associations and defined genetic overlap with other autoimmune disorders.
- Professor Tim Lambert and colleagues at the Concord Centre for Cardiometabolic Health in Psychosis are assessing the scope and severity of physical health problems in people with severe mental illness. Their research aims to identify the risk and protective factors that could be used to predict those who are most likely to develop life-limiting physical illnesses, such as cardiovascular disease, and develop ways to determine who is most likely to benefit from early intervention.
- Professor of Psychiatry at Royal North Shore Hospital, Gin Malhi has developed scans that detect early signs of depression and anxiety in young teenagers, before symptoms are apparent.



Meet our researchers



Professor Ian Hickie

Ian Hickie is Professor of Psychiatry at Sydney Medical School and Co-Director, Health and Policy at the University of Sydney's Brain and Mind Centre. He is one of the most influential voices in community recognition of the burden of mental illness and improved funding of mental health services, especially for young people.

Professor Hickie's research and clinical and health services development work focuses on expansion of population-based mental health research, improved mental health services and development of international mental-health strategies. His current research includes testing and delivering early interventions for young people with depression, and improving suicide prevention in Australia.



Professor Matthew Kiernan

Matthew Kiernan holds the Bushell Chair of Neurology at Sydney Medical School, is the Head of Clinical Neuroscience Research at Royal Prince Alfred Hospital and is Co-Director, Discovery and Translation at the Brain and Mind Centre. Professor Kiernan is also the Vice-President of the Australian Brain Foundation.

Professor Kiernan is currently investigating the mechanisms and possible prevention of neurodegeneration in motor neurone disease; chemotherapy-induced neurotoxicity; stroke; Machado-Joseph disease; spinal muscular atrophy and other inherited neuropathies. His team's research is intrinsically linked to the provision of clinical services, particularly the multidisciplinary Motor Neurone Disease Clinic and diagnostic neurophysiology clinics.

Lifespan research

A whole-of-life approach to health and medical research

Sydney Medical School's lifespan focus brings together clinicians and researchers working from one extreme of life to the other. We have specialists from antenatal medicine, neonatology, paediatrics and adolescent medicine through to geriatrics.

Each stage of life presents opportunities for interventions that save lives, establish healthy behaviours, and ensure age-appropriate management of chronic illness. Our multidisciplinary approach leads to research that improves outcomes at some of the most vulnerable stages of life.

Current highlights include: the study of maternal-to-child transmission of viruses, biological changes during puberty and their effect on adolescent behaviour, and stroke management in the frail and elderly.

Research highlights

- An NHMRC grant worth \$2.5 million was awarded to Professor Kate Conigrave to lead a Centre for Research Excellence in Indigenous Health to build Aboriginal and Torres Strait Islander research capacity and progress solutions to alcohol-related health problems.
- A global collaboration involving Sydney Medical School researchers established that low-dose aspirin reduced the risk of pre-eclampsia in pregnancy for at-risk mothers.
- A major randomised trial involving University of Sydney researchers established the benefits of blood pressure lowering for the prevention of recurrent stroke, irrespective of the presence or absence of hypertension. These results were subsequently incorporated in all major guidelines, and have altered clinical practice worldwide.
- The first systematic international review of childhood vaccinations led by researchers from the University of Sydney found no evidence of a link to the development of autism or autism spectrum disorders.
- Professor Elizabeth Elliott's research into Fetal Alcohol Syndrome Disorder (FASD) has included studies on the incidence of FASD; knowledge and attitudes of health professionals and women regarding alcohol use in pregnancy and FASD; services and treatments; birth defects associated with alcohol exposure in utero; and evaluation of educational materials for health professionals and communities. Professor Elliott was the chief investigator on the Lililwan project, the first major assessment of the impact of FASD in Aboriginal communities.



Meet our researchers



Professor Richard Lindley

Richard Lindley is a Professor of Geriatric Medicine at Sydney Medical School and a Professorial Fellow at the George Institute for Global Health.

Professor Lindley's research focuses on new treatments for older people, especially stroke medicine. He has been an investigator in many clinical trials that have changed clinical practice, such as immediate aspirin for people with acute ischaemic stroke (International Stroke Trial), statins for older people (Heart Protection Study), and clot-busting treatment for acute stroke (IST-3).

Professor Lindley's recent work includes a wide variety of projects, from vaccination trials for frail, older people to studies of influenza control in nursing homes, physiotherapy techniques after stroke, and affordable stroke rehabilitation programs in India and China. He co-leads Sydney Medical School's Healthy Lifespan Research Network and remains in clinical practice at Blacktown Hospital in Sydney.



Professor Kate Steinbeck

Kate Steinbeck is an endocrinologist and adolescent medicine physician. She is the Medical Foundation Chair in Adolescent Medicine at the University of Sydney and a Professor and Clinical Academic in the Discipline of Paediatrics and Child Health at the Department of Adolescent Medicine at the Children's Hospital at Westmead.

Professor Steinbeck's research examines adolescent health trajectories and chronic illness. She leads a research team to address gaps in evidence in the field, and is working to integrate research and teaching to promote youth health issues and educate and support doctors who treat young people. Current research interests include puberty hormones and their effects on health and wellbeing in adolescence, obesity in adolescents and young adults, the transition from paediatric to adult care, and the management of complex chronic illness.

Professor Steinbeck co-leads the Lifespan Research Network, is a member of the National Youth Information Advisory Group (AIHW), and Chair of the RACP Specialist Advisory Committee for Adolescent and Young Adult Medicine.



Professor Cheryl Jones

Cheryl Jones is a Professor of Paediatrics and Deputy Dean of Sydney Medical School. She is also a paediatric infectious diseases physician at the Children's Hospital at Westmead, where she is Head of the Centre for Perinatal Infection Research.

Professor Jones's main research interests are in the field of childhood infectious diseases, particularly mother-to-child transmission of infections, mother-to-child during pregnancy, and emerging central nervous system infections. She leads a national study of encephalitis in Australian children (the ACE study).

Professor Jones holds a number of NHMRC grants for research into critical and emerging infectious diseases, and is a chief investigator of two NHMRC Centres for Research Excellence. Professor Jones is also an executive team member of the Marie Bashir Institute for Infectious Diseases and Biosecurity.



Professor Jonathan Morris

Jonathan Morris is Director of the Kolling Institute of Medical Research and Professor of Obstetrics and Gynaecology at Sydney Medical School. He also holds a number of competitive grants in pregnancy and childbirth.

Professor Morris has been based at Royal North Shore Hospital since 1998 where he has built up and is director of the perinatal research group that extends from basic science to population health.

Professor Morris's major research interests are the prediction, prevention and management of pregnancy complications. His clinical practice specialises in high-risk pregnancies and complications.

Meet our most highly cited scholars

Four Sydney Medical School scholars are among the world's most influential scientists in their fields as determined by the Thomson Reuters Highly Cited Researchers list for 2016.

The list names 3266 scholars whose research ranked in the top one percent of most referenced papers in their field from 2004 to 2014.

Our highly cited researchers

Professor Bruce Armstrong is Emeritus Professor in the School of Public Health. A leader in cancer research, Professor Armstrong is an authority on the causes and prevention of skin cancer and melanoma. He has made important contributions to understanding the causes and control of other cancers, high blood pressure and heart disease. He has written some 400 scientific publications and has presented at numerous national and international conferences.

Professor Adrian Bauman is Sesquicentenary Professor of Public Health, Director of the Prevention Research Collaboration and Theme Leader, Physical Activity, Exercise and Energy Expenditure at the Charles Perkins Centre. For more than 30 years Professor Bauman has been a world leader in the study of chronic disease prevention and the development and assessment of prevention research methods. He was instrumental in identifying the health benefits of moderate physical activity and reduced sitting time. His research demonstrates the need for intersectoral contributions to physical activity promotion programs, including sectors such as sports, transport and urban planning.

Professor Robert G Cumming is Professor of Epidemiology and Geriatric Medicine in the School of Public Health. Professor Cumming has an international reputation for his research on osteoporosis, falls and fractures. In the last decade he has expanded his research to include non-communicable diseases and ageing in developing countries in Asia and Africa. He is the Director of the Master of International Public Health program, and has published more than 300 peer-reviewed papers. Professor Cumming is one of only 16 highly cited researchers in social sciences at an Australian university, and one of only 170 worldwide.

Professor Mark Woodward is a Professor of Biostatistics at the University of Sydney and Director of Epidemiology and Biostatistics at the George Institute for Global Health. He has led four major international studies and directed analytical research on three landmark collaborative studies. His work on cardiovascular risk scores formed the basis of national guidelines in Scotland, and his recent work on kidney disease was used to produce new staging criteria for this disease. His total career grant awards are more than \$93 million from 39 successful applications. He has written more than 400 peer-reviewed publications and two textbooks on statistical methods in medical research.

Research training

Each year, more than 200 PhD students graduate from Sydney Medical School, going on to play roles at the forefront of health fields around the world.

Research training

One of Sydney Medical School's essential roles is to provide high-quality research training and skills to our large cohort of research students.

Our students are supervised by outstanding and committed clinicians and researchers in our centres, schools and affiliated institutes and hospitals.

Research higher degrees

We offer two research degrees for both medical and non-medical graduates:

- Master of Philosophy (MPhil)
- Doctor of Philosophy (PhD).

The Doctor of Clinical Surgery and the Master of Surgery (by research) are available for medical graduates only.

Our research teaching mission is twofold:

- to train young investigators so they are well prepared to secure successful and rewarding positions in health and medical research
- to increase the number who choose careers as clinician scientists or become involved in clinical research.

In pursuit of our goal to increase the number of clinician scientists, all medical students undertake research projects as part of their medical studies. The school has also been working with the royal colleges to incorporate research as part of specialist training programs.

Sydney Medical School provides an outstanding environment for postgraduate research. With our partners in Local Health Districts and affiliated research institutes, students have access to the latest technology and up-to-date facilities.

We currently have more than 1100 research students, the majority of whom are doctoral students who have come to us from a wide range of first degrees.





Research strengths

Our research strengths encompass five main health areas, all led by internationally acclaimed researchers and clinicians:

- cancer
- obesity, diabetes and cardiovascular disease
- infection and immunity
- neuroscience and mental health
- lifespan.

Our research strengths are supported by a range of enabling disciplines:

Clinical research

- imaging
- medicine
- surgery
- paediatrics
- sleep medicine
- addiction medicine
- anaesthesia
- ophthalmology
- ear, nose and throat
- emergency medicine
- general practice
- intensive care
- psychiatry
- kidney disease and transplantation
- liver and gastroenterology
- musculoskeletal health
- obstetrics and gynaecology.

Medical sciences

- physiology
- pathology
- anatomy and histology
- pharmacology
- molecular biosciences
- brain and mind sciences
- genetics.

Public health

- biostatistics
- Indigenous health
- global health
- rural health
- clinical trial design
- bioethics
- health promotion
- health economics
- epidemiology.



Research partners and collaborations



Affiliated medical research institutes

- ANZAC Research Institute
- Centenary Institute
- Children's Medical Research Institute
- Chris O'Brien Lifehouse
- George Institute for Global Health
- Heart Research Institute
- Melanoma Institute of Australia
- Westmead Institute for Medical Research
- Woolcock Institute of Medical Research.

International research partnerships

Sydney Medical School has a wide international network. More than 40 percent of its publications have international collaborators, including:

- Boston University School of Medicine, US
- Chinese University of Hong Kong
- Fudan University, China
- Harvard University, US
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- Karolinska Institutet, Sweden
- McMaster University, Canada
- National University of Singapore
- Shanghai Jiao Tong University, China
- Stanford University, US
- University of Auckland, NZ
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- University of Cambridge, UK
- University of California, San Diego, US
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