

Medicine and Health

Western Australia has a strong base of medical research and translation supported by the State Government's significant investment in new health infrastructure, including two world-class clusters of health care delivery and research facilities in Perth's south and north. Western Australia's health system has many areas of research excellence, underpinned by extensive collaboration across the sector and positioning the State as a leader in the development of health research and its translation into health care improvements.

Collaboration

A significant collaborative initiative involving the State's major teaching hospitals, universities and research institutes has led to the establishment of the **Western Australian Health Translation Network**. The depth of this collaboration will ensure Western Australia's admirable heritage of successful medical training and research discoveries is translated into groundbreaking improvements in patient care.

Another excellent example of cross-sector collaboration in Western Australia is the **Science on the Swan Conference**, which will bring together international luminaries with research leaders from all universities and research institutes in the State. The theme of the 2015 conference, "Hot Topics in Life Course and Developments", highlights the strengths in this area in Western Australia.

The **Sarich Neuroscience Research Institute**, expected to be completed in late 2016, will accommodate five of the State's premier neurological research organisations – Curtin University's Neuroscience Research Laboratory, the Ear Science Institute of Australia,



Credit: Department of Treasury Western Australia

▲ The latest project to get underway as part of the QEII Medical Centre Redevelopment is the Sarich Neuroscience Research Facility.

The Western Australian Department of Health contributed \$5 million.

the McCusker Alzheimer's Research Foundation, the Neurofinity Surgical NeuroDiscovery Group and the Western Australian Neuroscience Research Institute.

Edith Cowan University's Health and Wellness Institute

is a cross-disciplinary alliance of research centres with extensive national and international linkages. It brings together an expert team of researchers to integrate exercise science, nutrition and clinical psychology to promote a holistic approach to health and lifestyle, with a particular focus on exercise medicine for cancer survivors.



Credit: Edith Cowan University

▲ ECU's Professor Daniel Galvao with a client of the 'Living Longer Living Stronger' program at ECU's Vario Wellness Clinic.

UWA is host to several **National Health and Medical Research Council (NHMRC) Centres of Research Excellence**, including the Centre for Aboriginal Health and Wellbeing, the Centre for Research in Childhood Early Respiratory Disease, and the Centre for Translation of Genetic Eye Research.

The establishment of a Health Precinct around the Murdoch Specialised Activity Centre will complement **Murdoch University's** collaborative initiatives and centres such as the **Institute for Immunology and**



Credit: Murdoch University

▲ The Centre for Comparative Genomics undertakes design and development of antisense compounds to modify gene expression. The Molecular Therapy Laboratory at the Centre focuses on rare inherited diseases.

Infectious Diseases, the **Centre for Comparative Genomics**, establishment of a **Chair in Translational Medicine** (jointly funded with Curtin University) and the establishment of four research practitioner Professorships co-funded by the State Government Department of Health and the University of Notre Dame Australia.

The new **WAIS High Performance Service Centre**, located at UWA's Mt Claremont Sports Precinct, plays an important role in building the health, well-being and performance of West Australians. The Centre enhances the long-standing relationship between WAIS and UWA in the area of sport science and education.

FutureHealth WA

The State Government has committed \$30 million to health and medical research through the FutureHealth WA initiative, adding to the \$58 million already committed through the Department of Health's various programs such as **the Medical and Health Research Infrastructure Fund**, the **Clinician Research Fellowships** and **Research Translation Projects**.

SNAPSHOTS OF SCIENCE IN WESTERN AUSTRALIA

Several areas have already been supported through FutureHealth WA, including support to promising early-career researchers through a "near-miss" scheme for unsuccessful grant and fellowship applications submitted to the NHMRC, providing funding to all five Western Australian universities for mentoring programs, and support for major Western Australian health-based databases.

The **Developmental Pathways Project**, led by the Telethon Kids Institute, is a landmark project that is taking a multidisciplinary and holistic approach to investigate pathways to health and wellbeing, education, disability, child abuse and juvenile delinquency outcomes among Western Australian children and youth. This project has established the process for linking data collected by State Government agencies and the Telethon Kids Institute in an anonymous manner.

Underpinning technologies have been enhanced by developments such as the Pawsey Supercomputing Centre, which provides supercomputing capacity for health and medical research. Major advances in imaging technology for research have also been established at the Harry Perkins Institute and the **UWA Centre for Microscopy, Characterisation and Analysis**.



▲ The CAMECA IMS 1280 (located at the Centre for Microscopy and Characterisation) is a versatile member of the latest generation of double focusing, magnetic-sector SIMS instruments.

New research developments

Adult Health

The **Harry Perkins Institute** will be home to the **Wesfarmers Centre for Translational Research** at Fiona Stanley Hospital. The Centre

is designed to translate the latest research discoveries into clinical practice. It will focus primarily on metabolic and vascular conditions, including cardiovascular disease, diabetes and obesity.

The **multidisciplinary Kirkbride Melanoma Treatment Centre** at Sir Charles Gairdner Hospital and St John of God Subiaco Hospital will also be developed to improve diagnosis and treatment of melanoma. This will build on the work of the **Kirkbride Melanoma Centre** based at the Harry Perkins Institute, where scientists are working on the genetic causes of melanoma, potential treatments and predictors of disease recurrence.

Child Health

Research shows that the development of many serious diseases occurs as early as in the womb. **Project ORIGINS** is a new birth cohort study that investigates how the early environment affects a child's growth, development and health.

This new study will complement the internationally-acclaimed **Raine Study**, one of the most comprehensive pregnancy / birth cohort studies in the world. This study has been going for 23 years, following the health outcomes of individuals from birth to adulthood. The study is now expanding to examine genetic, nutritional, environmental and social factors, stress, physical activity, sleep and risk-taking behaviours on health and wellbeing.



▲ The sleep assessment of the Raine Study. The Study commenced in 1989 and is one of the largest and most successful longitudinal Pregnancy Cohort studies in the world.

Indigenous Health

The **Lions Eye Institute** has recently established **Lions Outback Vision** to provide specialist comprehensive eye health services to regional and remote communities. The **Outback Vision Van**, expected to be on the road in late 2015, will provide a mobile facility with consulting rooms and specialist equipment with the capacity to treat 200 patients per week.



▲ Dr Angus Turner, Director at Lions Outback Vision, photographed with Mavis Arnott, a Martu woman from Jigalong.

At the **Telethon Kids Institute**, the **Looking Forward Aboriginal Mental Health Project** proposes to revolutionise the capacity of mental health, alcohol and other drug services to respond to Nyoongar families in the Armadale district. The **Marulu Foetal Alcohol Spectrum Disorders Strategy**, targeting the families in the Fitzroy Valley, aims to reduce the prevalence of Aboriginal women consuming alcohol; BHP Billiton has provided \$5 million for a similar approach in the Pilbara. The Institute has also established the **Centre of Research Excellence in Rheumatic Heart Disease** with the goal of eliminating the disease in Aboriginal children in Western Australia over the next 10 years.

The **Poche Centre for Indigenous Health** at UWA supports and conducts a range of research programs aimed at improving the health and well-being of Indigenous people. In recognition of the centrality of culture to good mental and physical health, the Poche Centre uses Aboriginal knowledge systems as the cultural lens and framework for research and education.