

Health Innovation and Transformation Centre (HITC)





Transforming the future health and wellbeing sector

Federation University Australia's Health Innovation and Transformation Centre (HITC) aims to bring together local, national and international researchers to answer complex healthcare questions.

HITC has been established to improve the health and wellbeing of regional and rural populations and ensure that people get the right care, in the right place, at the right time.

Established in late 2020, HITC brings together dynamic Federation University researchers from different disciplines and career stages, in addition to national and international collaborators.

HITC's multidisciplinary research team aims to answer complex global healthcare questions by:

- translating basic and applied research to understand the distinct mechanisms of disease and individual responses to treatment
- bringing together a diverse, multidisciplinary critical mass of researchers, who collectively focus their research efforts on
 - > chronic disease, mental health and ageing
 - > health workforce and quality and safety concerns
- addressing Federal government and international health-related research priorities

HITC'S RESEARCH STREAMS

HITC focuses on six research streams aiming to improve health and wellbeing locally, nationally and globally.

PERSONALISED/INDIVIDUAL HEALTH

This stream emphasises an understanding of the epigenetic factors that contribute to chronic disease and ageing.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

This stream brings together research expertise from the field of computational intelligence, machine learning and big data analytics.

DIGITAL HEALTH AND MODELS OF CARE

This stream creates and evaluates digital health products, develops personalised health interventions and trains healthcare professionals.

WORKFORCE DEVELOPMENT

This stream creates and applies innovative education, training and support interventions and programs.

PATIENT SAFETY AND CARE QUALITY

This stream focuses on enabling the development of clinical practice and patient and workforce safety.

POPULATION HEALTH

This stream aims to improve the health and wellbeing of regional and rural populations.

Research with **real-world impact**

Our focus is on applied research that makes a difference in the communities we serve. The following case studies present just some examples of how this Centre's research is having a positive impact in the world.



Case study: Happy Life Club – an outstanding opportunity for Victorians, Australians and the global community

The Happy Life Club is an evidence-based, coach-driven method of delivering effective interventions to people with chronic illness, enabling them to better manage their conditions with structured guidance from clinicians. The Happy Life Club has been very successful in training clinicians (primary health doctors and nurses) to coach their patients to better manage their chronic conditions.



The Club was founded in Australia and over the last decade has been the subject of a major research and development program under the direction of Federation University Professors Colette Browning and Shane Thomas. The program won China's national health program innovation award, associated with its major successful clinical trial in Beijing and subsequent rollout in many Chinese provinces and major population centres. A major program of work is proposed to enhance Victoria's chronic illness prevention and management capabilities.

The Happy Life Club is enhanced through contemporary digital delivery technology. This initiative will greatly expand the impact of the Club, which has massive reach in face-to-face clinical delivery in China but is being delivered to a fraction of those people who need it. In this next stage, the Club is being brought back to Australia to allow for technological and value chain updates and enhancements to be included, with the intention of making Victoria a world leader in chronic care.



Case study: Kidney gene discovery unlocks door to high blood pressure answers

An international team of scientists has discovered kidney genes that are responsible for high blood pressure, paving the way for new opportunities to treat the disease.

The team, led by the University of Manchester and supported by Federation University's Professor Fadi Charchar, found 179 kidney genes responsible for high blood pressure.

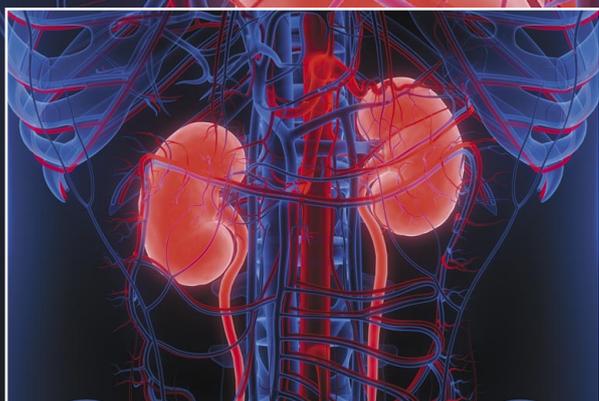
About 84 per cent of these genes had never before been associated with high blood pressure and some can be targeted by existing medicines.

Professor Charchar, a senior author of the study, says this opens the door for new treatment opportunities for high blood pressure, which is one of the most common human diseases and is the primary risk factor for strokes and heart attacks.

It is known to run in families, but the exact mechanisms through which genes influence individuals' predisposition to hypertension are not clear.

The discoveries, published in *Nature Genetics*, one of the world's leading journals, shed new light on researchers' understanding of genetic predisposition to high blood pressure.

The study, funded primarily by the British Heart Foundation and Kidney Research UK, was possible through access to huge datasets of human DNA and RNA of possibly the world's largest repository of human kidney tissue.



Centre leadership

HITC has two centre co-directors as well as leadership teams for each of its research streams.



Professor Fadi Charchar

CO-DIRECTOR
HEALTH INNOVATION
AND TRANSFORMATION
CENTRE

Professor Fadi Charchar is a Director of HITC, Professorial Research Fellow at the University of Melbourne and Visiting Chair at the University of Leicester, UK.

Professor Charchar is the Vice-President of the International Society of Hypertension and President of the International Society of Heart Research.

Professor Charchar previously completed a Wellcome Trust Fellowship, an NHMRC Career Development Fellowship and a British Heart Foundation Lectureship in the UK.

Professor Charchar is an internationally recognised expert in understanding the genetic mechanisms of cardiovascular disease, with publications in *The Lancet*, *Nature* and *Nature Genetics*. His research includes findings that the human Y chromosome contributes to hypertension and coronary artery disease.

Professor Charchar is on the research team for Federation's recent \$3.62 million research project to transform chronic health outcomes.



Professor Simon Cooper

CO-DIRECTOR
HEALTH INNOVATION
AND TRANSFORMATION
CENTRE

Professor Simon Cooper is an experienced health professional and senior manager, with a PhD in leadership studies and 40 years' work in the clinical and academic fields. Professor Cooper has worked in emergency care in the UK and Australia.

Professor Cooper has led innovative educational and research programs across the world in the field of advanced practice development, patient safety, emergency care, leadership, teamwork, education and clinical simulation.

Professor Cooper has published over 150 peer reviewed papers, books and reports, and has secured a range of competitive grants to the value of approximately \$6 million.



Research stream leaders

PERSONALISED/INDIVIDUAL HEALTH

- Professor Fadi Charchar

PATIENT SAFETY AND CARE QUALITY

- Professor Simon Cooper

POPULATION HEALTH

- Professor Colette Browning

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

- Associate Professor Madhu Chetty

WORKFORCE DEVELOPMENT

- Associate Professor Danny Hills

DIGITAL HEALTH AND MODELS OF CARE

- Professor Britt Klein



Find out more

For research queries and to find out more about HITC's research, visit the Centre website: federation.edu.au/hitc

Federation.edu.au

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