Health and the built environment: Case Study

Cities are powerhouses of the economy, providing access to employment, opportunities and resources. Yet when poorly planned, cities foster unhealthy and unsustainable lifestyles, exposing residents to environmental stressors such as air-, noise- and light-pollution, heat and motor vehicle traffic. NHMRC-funded researchers have advanced knowledge about how urban environments can be designed to positively affect health, informing public policy both domestically and internationally.

Origin

In 1986, the World Health Organisation (WHO), through the Ottawa Charter for Health Promotion, launched five international actions aimed at improving health. These included Build Healthy Public Policy (including in non-health sectors) and Create Supportive Environments (including both natural and built environments).[1]

In 1987, the United Nations (UN) released *Our Common Future*, a sustainable development strategy which linked improved global health to environmental sustainability.[2]

In 1990, informed by international developments led by the UN and WHO, the Australian Government commenced a process of inter- and intra-governmental cooperation to create a National Strategy for Ecologically Sustainable Development.[3] Consultation with industry and the public recognised the close linkages between public health and the environment. Consequently, in 1991, NHMRC made a submission to the process, focused on the urban environment.

NHMRC's submission noted that urban growth resulted in a healthier lifestyle "... when sufficient resources had been devoted to providing the infrastructure and services on which health and a healthy environment depend. ... When community infrastructure and social support are inadequate ... poor health or illness frequently result." [4]

The submission also recommended "that priority areas for research ... should include the impacts of development and the environment on the physical and social health and well-being of the community, with emphasis on the urban setting."

The submission noted, however, that urban development and management strategies had been based on inadequate and possibly faulty assumptions and that improved data were needed.

Grants and Investment

In 1999, Billie Giles-Corti was awarded an NHMRC Project Grant to support research – directed towards achieving the Ottawa Charter goals – into physical environmental factors that influence transport-related and recreational walking and cycling. This grant was the first of a number awarded to Giles-Corti and her collaborators – including Matthew Knuiman, Fiona Bull, Gavin Turrell and Takemi Sugiyama – to investigate the relationship between urban planning, physical activity and other aspects of health.

Key NHMRC support

- a Capacity Building Grant (2007–2012) that established the Centre for the Built Environment and Health (CBEH) at The University of Western Australia (UWA)
- Project Grants for the longitudinal HABITAT study of older adults (2005, 2008, 2013)
- an NHMRC Centre of Research Excellence (CRE) in Healthy Liveable Communities (HLC) (2013–2020)
- The Australian Prevention Partnership Centre (TAPPC) (2013-2023).

Other Australian Government funding

- The National Collaborative Research Infrastructure Strategy (NCRIS) provided funding for the Australian Urban Research Infrastructure Network, National eResearch Collaboration Tools and Resources project and the Australian Research Data Commons.
- The National Environmental Science Programme (NESP) provided funding for the Clean Air and Urban Landscapes (CAUL) Hub which funded health-related liveability indicators.
- Australian Research Council (ARC).

Other funding

- State governments, industry and philanthropy, including through Healthway (the Western Australian Health Promotion Foundation) and the National Heart Foundation (NHF).

Collaboration

The CRE-HLC investigated cost-effective built environment interventions to create healthy, liveable and equitable communities in Australia. This project was led by the Healthy Liveable Cities Lab (HLCL) at the RMIT University Centre for Urban Research (CUR), with research nodes at UWA, Griffith University, Queensland University of Technology (QUT), The University of Queensland (UQ) and the Australian Catholic University (ACU).

TAPPC is headquartered at The Sax Institute and its leadership executive includes researchers from the Universities of Sydney and Newcastle, RMIT, Deakin University and NSW Health.

CAUL, which aimed to assist decision-makers to understand, manage and conserve Australia's environment, was based at The University of Melbourne (UoM) and involved researchers from RMIT, UWA, the Australian National University and the Universities of Sydney, Tasmania and Wollongong.

The Perth-based and Healthway-funded RESIDential Environment (RESIDE) study, undertaken by CBEH, was based at UWA, and the Brisbane-based HABITAT study was led by QUT and then by ACU.

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Results and Translation

RESIDE involved surveying people relocating into new homes before they moved in and three times after relocating: a unique natural experiment. It found that adults living in highly-walkable neighbourhoods were more than twice as likely to walk 60 minutes/week for transport as those who did not. It also found that proximity to shops and services was a critical determinant of residents' walking, as was access to quality public open spaces, and it endorsed a shift away from low-density suburban development.

The Creating liveable cities in Australia study – co-funded by TAPPC, the CRE and CAUL – assessed liveability urban policies in four Australian capital cities on seven key issues: walkability, public transport, public open space, housing affordability, employment, food environments and alcohol environments.

The team found that higher residential densities and street connectivity, mixed land-uses and high-quality pedestrian infrastructure are all needed to achieve walkable cities. It recommended that measurable spatial standards be included in state government urban, transport and infra-structure policies, regulations and guidelines.

Supported by TAPPC and the CRE, researchers at RMIT established the Australian Urban Observatory in 2020 to make health-related policy-relevant liveability indicators available to policymakers, practitioners and researchers.

They led the Global Healthy and Sustainable City Indicators Collaboration in 2018, which published a second series on Urban Design, Transport and Health in *The Lancet Global Health*. They produced scorecards and reports for 25 cities internationally, disseminated through the Global Observatory of Healthy and Sustainable Cities, and have now launched the 1000 cities challenge to upscale the benchmarking and monitoring of cities.

Outcomes and Impact

Urban development guided by specific and measurable policies and standards can positively influence city productivity, the provision of new dwellings to meet increases in population, air quality, human, eco-system and planetary health, efforts to reduce greenhouse gas emissions and other efforts to mitigate and adapt to climate change.

The work of Giles-Corti, her colleagues and partners has been recognised by awards from the Planning Institute of Australia and has influenced the development of urban policy, including:

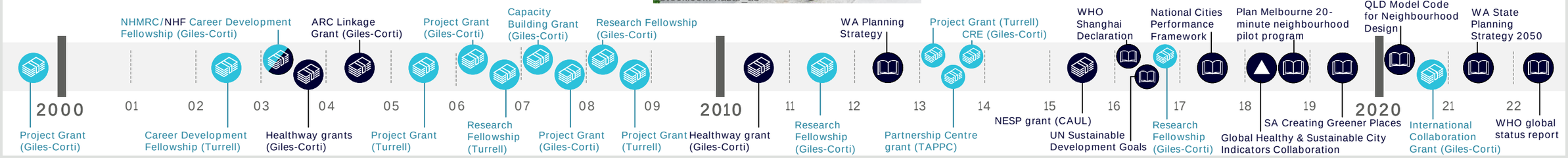
Australia: 2017 *National Cities Performance Framework*; **Queensland:** 2020 *Model Code for Neighbourhood Design*; **South Australia:** 2019 *Creating Greener Places*.

Victoria: Plan Melbourne (2014, 2017)**;** *Public Health and Wellbeing Plan* (2015–19 and 2019–23); 2018 Plan Melbourne's 20-minute neighbourhood; local government Municipal Health Plans for 2017-2025; Victorian Planning Authorities' *Precinct Structure Plan Guidelines* (2021).

Western Australia: 2021 *State Planning Strategy* 2050; all new WA Metropolitan Redevelopment Authority projects; Review of the WA Liveable Neighbourhood Guidelines.

Other: Heart Foundation's Healthy Active by Design principles.

Creating health-enabling urban environments is also consistent with the WHO's *Shanghai Declaration* on promoting health (2016)[5] and *Global Action Plan on Physical Activity* (2018-2023) and the UN's *Sustainable Development Goals* (2016)[6]. The WHO 2022 status report on physical activity cites *The Lancet Global Health* series as evidence to create geospatial indicators in cities to identify inequities in access to health-enabling environments.



Note: NHMRC grants are dated by their start year

Prof Billie Giles-Corti

Billie Giles-Corti directed the RMIT's HLCL (2017-2022), UWA's CBEH (2007-2011) and CRE-HLC (2014-2020). Giles-Corti is an Honorary Fellow of both the Planning Institute of Australia and the Public Health Association and is a Fulbright Senior Scholar (2008).

Prof Matthew Knuiman

Matthew W Knuiman worked in the Department of Biostatistics at Harvard University before returning to the Department of Public Health at UWA where he was Head of Department (1998-2002). Since 1990, he has been the Biostatistician/ Epidemiologist for the Busselton Health Study.

Professor Fiona Bull

Fiona Bull was Professor of Public Health and Director of CBEH at UWA. Bull was Director of the UK National Centre of Physical Activity and President of the International Society of Physical Activity and Health. She is now Head of the WHO's Physical Activity Unit.

Prof Gavin Turrell

Gavin Turrell has a PhD in sociology from UQ. He was a senior research fellow at QUT (1996-2015) Professor and Social Epidemiology and Inequalities Research Leader at ACU's Institute for Health and Ageing (2016-2017). Turrell is now Professor in the HLCL within RMIT-CUR.

Prof Takemi Sugiyama

Takemi Sugiyama has qualifications from The University of Sydney, Virginia Polytechnic Institute and State University and Nagoya University. Sugiyama is based at the Centre for Urban Transitions (CUT) at Swinburne University of Technology.

A/Prof Sarah Foster

Sarah Foster worked at CBEH at UWA and is now based at the HLCL at RMIT-CUR. Foster was awarded a Healthway Health Promotion Research Fellowship (2012) and a RMIT Vice-Chancellor's Research Fellowship (2017) and is now an ARC Future Fellow (2021).

A/Prof Paula Hooper

Paula Hooper studied Sport and Exercise Science at the University of Birmingham and has a PhD focused in Urban Planning and Public Health from UWA. Hooper is a Healthway Research Fellow and is co-Director of UWA's Australian Urban Design Research Centre within the School of Design.

Prof Hannah Badland

Hannah Badland has a PhD in Public Health from Auckland University of Technology in 2007. She is now an RMIT Principal Research Fellow and Deputy Director of RMIT-CUR. Badland was awarded an RMIT Vice Chancellor's Senior Research Fellowship in 2017.

Dr Lucy Gunn

Lucy Gunn has a PhD in econometrics from Monash University and was a Research Fellow at UoM (2012-2016). Gunn leads the TAPPC liveability program at the HLCL at RMIT-CUR and has been a research consultant with the Environment Protection Authority in Victoria.

Dr Melanie Lowe

Melanie Lowe has a PhD from UoM (2016) and has been a lecturer at ACU and postdoctoral research fellow at UoM and RMIT. In 2021, Lowe joined the Melbourne Sustainable Society Institute and is currently a Resilience Research Fellow at the Centre for Cities at UoM.

Other researchers

Professor Anna Timperio and Dr Venurs Loh, Institute for Physical Activity and Nutrition, Deakin University; Dr Bryan Boruff, School of Agriculture and Environment, UWA; Dr Jerome Rachele, College of Health and Biomedicine at Victoria University; Dr Lennert Veerman, School of Medicine and Dentistry, Griffith University; Dr Belen Zapata-Diomedi, RMIT-HLCL; Dr Karen Villanueva, RMIT-CUR; Dr Maureen Murphy, UoM; Dr Geoff Browne, UoM; Dr Manoj Chandrabose, CUT, Swinburne University; Dr Fatima Ghani United Nations University; Carl Higgs, RMIT-HLCL; Associate Professor Melanie Davern, RMIT-CUR; Dr Iain Butterworth, RMIT-CUR; and Associate Professor Hayley Christian, Telethon Kids Institute

Australian Government
National Health and Medical Research Council

NHMRC

References

This case study was developed with input from Professor Billie Giles-Corti and in partnership with RMIT University and The University of Western Australia.

The information and images from which impact case studies are produced may be obtained from several sources including our case study partner, NHMRC's internal records and publicly available materials.

The following sources were consulted for this case study:

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Partners/Collaborators

The research described in this case study was undertaken with several Australian and international partners and collaborators.

Australian partners include:

- Victorian Government Department of Health, North-West Region
- National Heart Foundation
- Planning Institute of Australia
- Australian Government Department of Infrastructure.

International collaborators include:

Hong Kong
- University of Hong Kong

New Zealand
- Auckland University of Technology

Nigeria
- University of Maiduguri

Spain
- Barcelona Institute for Global Health
- Pompeu Fabra University, Epidemiology and Public Health Network

United States
- University of Washington
- Washington University
- University of Southern California
- University of California
- Northeastern University
- Carolina State University

United Kingdom
- University of Cambridge

Thailand
- Bangkok Metropolitan Administration

Partner/s

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