CAMBRIDGE CARES CAMBRIDGE CENTRE FOR ADVANCED RESEARCH AND EDUCATION IN SINGAPORE LTD.

PRESS RELEASE 9 December 2024

Reimagining our urban futures: Health-Driven Design for Cities (HD_4) research programme launches in Singapore

December sees the launch of **Health-Driven Design for Cities (HD_4)**, a groundbreaking Singapore-based research collaboration seeking to discover how best to design urban environments that enhance the health of their residents.

HD_4 is a partnership between Nanyang Technological University, Singapore (NTU Singapore) the National University of Singapore (NUS), and the University of Cambridge. It has received funding from the National Research Foundation, Singapore, and is hosted and co-led by the Cambridge Centre for Advanced Research and Education in Singapore (CARES).

Health challenges of urbanisation

Cities around the world face increasing challenges in managing issues such as heat islands, noise and air pollution, stress, and limited access to healthy food and physical activity. These environmental factors contribute to a growing burden of non-communicable diseases (NCDs), such as diabetes, obesity, cancer and cardiac disease. With urban populations growing rapidly around the world, there is an urgent need to rethink how cities are designed to promote health and well-being.

Prof Nick Wareham, HD_4 Programme Lead at the Medical Research Council (MRC) Epidemiology Unit, University of Cambridge said:

“As a city with ambitious plans for improving its citizens’ health, and a burgeoning research sector and rich health data, Singapore offers a unique setting for this work. HD_4 will not only be studying the challenges of a growing city in the twenty-first century, but doing so in a city eager to implement strategies and tools to address them.”

International, interdisciplinary team

The HD_4 programme brings together a world-class team of epidemiologists, clinicians, scientists, engineers, and architects. They will investigate how individuals live and move in Singapore, how the urban environment shapes their exposure to health risks, and how this influences their behaviour and health.

A key element in this process is HD_4’s collaboration with Singapore's SG100K cohort study, which is analysing the factors influencing NCDs in a representative and fully consented sample of 100,000 Singaporeans. All data that HD_4 will analyse is fully de-identified and securely processed.

Professor of Cardiovascular Epidemiology (President’s Chair), John Chambers, Programme Lead of the HD_4 Programme and SG100K study at NTU Singapore’s Lee Kong Chian School of Medicine, said:

“By integrating environmental data with the health and behavioural data from SG100K, this research will deepen our understanding of how environmental and social factors shape health outcomes, and how we might change the built environment to reduce health risks and burdens.”

Interlocking research for a healthier Singapore

HD_4 will undertake research in the following key areas:

- characterising the features of the environment that potentially impact health in Singapore
- understanding the links between environmental factors, individual behaviour and health outcomes
- observing the impact of environmental change on health in Singapore
- simulating the impact of potential changes on the health of Singaporeans
- working with government agencies to co-develop data-rich public health tools

HD_4 co-leads Dr Ronita Bardhan (University of Cambridge) and Dr Rudi Stouffs (NUS College of Design and Engineering), said:

“This project will develop the science of connecting the environment with health at multiple scales, from how individual Singaporeans experience the city, to how planners and policymakers shape our urban futures. The techniques, technologies, tools and knowledge gained through the programme will create a comprehensive system-level view of how the environment affects population health.”

HD_4 will provide the basis for a data-rich public health approach, and through partnership with government agencies will ensure that findings can be translated into actionable policy recommendations that can guide Singapore’s urban planning and health strategies in the years ahead.

Learning from this programme also promises to be valuable to those shaping sustainable and health-focused cities the world over. The programme also promises to enrich Singapore’s research ecosystem by training the next generation of researchers, equipped with both local expertise and international perspectives.

- END -

Media Contact

Mrs Olivia Lee (based in Singapore)
Communications & External Affairs Manager
CAMBRIDGE CENTRE FOR ADVANCED RESEARCH AND EDUCATION IN SINGAPORE
Email: olivia.lee@cares.cam.ac.uk

Mr Oliver Francis (based in the UK)
Head of Strategic Communications
MEDICAL RESEARCH COUNCIL EPIDEMIOLOGY UNIT, UNIVERSITY OF CAMBRIDGE
Email: comms@mrc-epid.cam.ac.uk

About CARES

The Cambridge Centre for Advanced Research and Education (CARES) was established in 2013 as the University of Cambridge's first overseas research centre, bringing together researchers from Cambridge, Nanyang Technological University, and the National University of Singapore as part of the CREATE (Campus for Research Excellence and Technological Enterprise) programme. The flagship programme at CARES is the Centre for Carbon Reduction in Chemical Technology (C4T) programme which focuses on decarbonising Singapore's chemical industry and expanded in recent years to include additional themes such as digital transformation, and sectors such as the maritime industry.

A further large programme began in October 2020 called the Centre for Lifelong Learning and Individualised Cognition (CLIC), bringing together researchers from Cambridge and NTU to focus on the science of learning. CARES recently launched two projects on hydrogen and ammonia combustion (HYCOMBS) and the sustainable manufacturing of molecules and materials (SM_3), as part of a large Decarbonisation programme announced in July 2024, supported by the National Research Foundation in Singapore.

www.cares.cam.ac.uk LinkedIn: Cambridge CARES

About CREATE (Campus for Research Excellence and Technological Enterprise)

CREATE is an international collaboratory housing research centres set up by top universities. At CREATE, researchers from diverse disciplines and backgrounds work closely together to perform cutting-edge research in strategic areas of interest, for translation into practical applications leading to positive economic and societal outcomes for Singapore. The interdisciplinary research centres at CREATE focus on four areas of interdisciplinary thematic areas of research, namely human systems, energy systems, environmental systems and urban systems.

More information on the CREATE programme can be obtained from www.create.edu.sg."

About the Medical Research Council (MRC) Epidemiology Unit

The MRC Epidemiology Unit is a department at the University of Cambridge. It is working to improve the health of people in the UK and around the world. Obesity, type 2 diabetes and related metabolic disorders present a major and growing global public health challenge. These disorders result from a complex interplay between genetic, developmental, behavioural and

environmental factors that operate throughout life. The mission of the Unit is to investigate the individual and combined effects of these factors and to develop and evaluate strategies to prevent these diseases and their consequences. www.mrc-epid.cam.ac.uk