ESSAY

Designing for Health

Secrets to Healthier, Happier Citizens

Shaping the urban environment has a significant impact on citizens' physical and mental health. Yet, the complexity of cities and human behaviours means a linear planning approach has its limitations. **Elly Chiu** and **Denise Tan** explore new, human-centric approaches adopted by leaders and planners to shape their cities for health.

Urban living contributes to a range of health issues, from disease and death caused by air pollution, to heightened risk of disease outbreaks. Ageing, mental health issues and the rise of chronic illnesses further weigh on the health outcomes of citizens.

To keep citizens healthy, the typical approach of many cities has been to target healthcare delivery and devote most resources to building better healthcare institutions and equipping healthcare practitioners, where treating diseases and containing the spread of infection is the focus. Yet evidence shows that a healthy city is more than good healthcare delivery. It is in fact people's behaviours, and the environments they live in, that contribute most significantly to their health. Such notions are the foundations for healthy city initiatives that have grown rapidly in the last few decades.
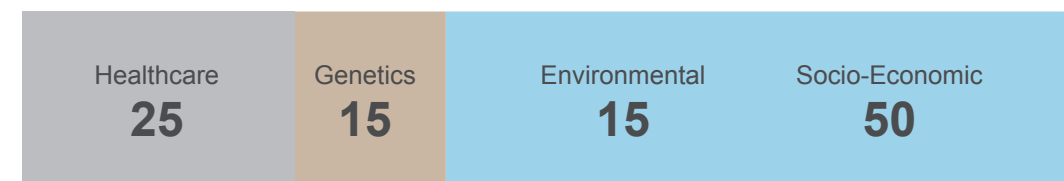
Specifically, Dahlgren and Whitehead's seminal paper provided a framework that outlines the influence of genetic and physiological factors, individual lifestyles, and wider socio-environmental conditions on population health. Subsequent studies in different parts of the world have since established the relative influence of these factors on health outcomes. Socio-economic and environmental factors account for more than half the variation in population health outcomes, followed by healthy behaviours, healthcare, and finally genetic and physiological factors.

Elly Chiu is a researcher at the Centre for Liveable Cities.

Denise Tan is trained in architecture and works at the Ministry of Health Singapore's Office for Healthcare Transformation.

Proportion of Impact of Major Determinants on Health

Bunker et al 1995	Healthcare **43**	Other Factors **57**	
Canadian Institute of Advanced Research 2012	Healthcare **25** / Genetics **15**	Environmental **15**	Socio-Economic **50**
Booske et al 2014	Healthcare **20** / Health Behaviours **30**	Environmental **10**	Socio-Economic **40**
McGinnis et al 2002	Healthcare **15** / Health Behaviours **40**	Social and Environmental **45**	

Adapted from Buck D, Baylis A, Dougall D, Robertson R (2018)

Socio-economic and environmental factors have the greatest influence on population health outcomes.

Place-Based Approaches to Population Health

Armed with this understanding, cities around the world have successfully developed health-promoting neighbourhoods and districts, which integrate the planning and programming of the built and social environments to bring about improved health outcomes.

Barcelona introduced the *superilles* (superblocks) system, which channels traffic to a smaller number of larger roads, creating mini neighbourhoods around which traffic will flow. By cutting down the amount of pollution, congestion and noise in residential neighbourhoods, and repurposing the freed up space as "citizen spaces", the quality of the environment for residents is improved, promoting physical activity and driving better

> **Cities around the world have successfully developed health-promoting neighbourhoods and districts, which integrate the planning and programming of the built and social environments to bring about improved health outcomes.**

health outcomes. Research has estimated that, with the superblocks, almost 700 premature deaths from air pollution, noise and heat could be prevented each year, and, if the idea is rolled out across the city, residents could expect to live an extra 200 days.

In Japan, Kashiwa-no-ha Smart City—a 2.73 km² development in the north of Kashiwa—was initiated in 2000 with the aim of improving the health of its ageing population. The district was designed in a compact way to encourage walking and cycling, with mobility stations that allow residents to rent bicycles and hail buses on-demand. To further promote healthy behaviours, Kashiwa-no-ha opened a one-stop centre to provide elderly residents with information on nutrition and exercise, and non-strenuous job opportunities.

In Bowden, an inner suburb of Adelaide, South Australia, urban renewal strategies are being adopted with the explicit aim of addressing poor mental health in the area.

Strategies included the adoption of green, active, safe and "pro-social" spaces that enhance well-being. Even the preservation of heritage in the district was done with the aim of encouraging communal identity, to improve mental and community resilience.

In Singapore, the Active, Beautiful, Clean Waters (ABC Waters) programme has created public spaces for people to enjoy nature, while tackling water supply and flood management requirements. By incorporating biophilic design that strategically deploys the elements of water, flora and fauna, spaces in the city such as Bishan-Ang Mo Kio Park reconnect people with nature and provide open spaces for recreation and social activities, in turn improving users' physical and mental health.

01 Aerial view of the superblocks system in Barcelona.

02 Features at Bishan-Ang Mo Kio Park, like the popular naturalised stream, bring people closer to nature.

Limitations and Unintended Consequences

By shaping the environment, place-based approaches can have a significant impact on how people behave. Yet, it is challenging for city leaders and planners to anticipate human behaviours. Urban planning interventions and initiatives may, in fact, backfire and nudge unhealthy behaviours instead. One study by Lesser et al. (2013) reveals that a higher density of outdoor advertisements promoting food and beverage in the United States was associated with higher obesity levels. Another study by Sallis et al. (2016) showed that increasing public transport density correlated to higher physical activity, but reducing the walking distance to public transport points did not correlate with higher physical activity, suggesting that shortening distances in public transit is not a strong enough nudge for physical activity.

A linear planning approach to promoting population health in urban settings may also be insufficient. A multi-disciplinary study by the UCL-Lancet Commission on Healthy Cities showed that the complexity of cities makes it difficult to capture all the necessary information about what affects urban health in one plan or strategy. Multiple interacting factors shape population health in ways that cannot always be anticipated in advance. Changing the urban environment to improve health outcomes could thus have unintended consequences—if not managed and monitored carefully.

For example, it is widely accepted that greening a city has positive effects on people's physical and psychological well-being. Yet, a 2017 study by Cole et al. showed that successful greening efforts may inadvertently lead to the gentrification of surrounding areas, thereby reinforcing health inequalities. Socially and economically vulnerable residents were excluded from the potential benefits to health that these improvements brought due to forced economic displacement and social alienation.

New Tools to Shape Our Cities for Health

In the face of complexity and ambiguity, planning for health requires cities to adopt less conventional measures to encourage healthy behaviours, mobilise stakeholders in the community, promote experimentation, and leverage data in planning and assessing the success of initiatives.

One way to nudge users towards health behaviours is to introduce changes in the built environment. For example, in a study conducted by the Georgia Institute of Technology College of Architecture, elevators in a high-rise office building in Los Angeles were programmed to stop only at every third floor, while staircases were designed adjacent to the elevators to encourage physical activity. The adjacent staircase ended up being used 49.75 times more than enclosed stairwells or the traditional vertical circulation core. In another example in Los Angeles, new pocket parks—small green spaces in otherwise built-up areas—were placed in low-income neighbourhoods to encourage nearby residents to use the parks. A post-implementation review showed that these were useful to promote moderate-to-vigorous physical activity among low-income residents and encouraged more visits from families with children compared to existing playgrounds in nearby parks.

> " In the face of complexity and ambiguity, planning for health requires cities to adopt less conventional measures. "

01   Parklets in Los Angeles provide green communal spaces for people to gather.

01

02

Another way is for local authorities to co-create solutions with the community. In Tokyo, the metropolitan government empowers citizens to influence the design of their neighbourhoods in a process called *machizukuri*, in which they work together with urban designers to implement initiatives such as greening. Not only does access to greenery in the neighbourhood improve health outcomes, community involvement in shaping a neighbourhood's identity also fosters opportunity and belonging, which are integral to mental health. A Japanese study has shown that having green space within walking distance from home and a positive attitude towards the local community consistently increases longevity, regardless of demographic factors.

The United Kingdom's Healthy New Towns programme has also been successful in establishing a shared vision for creating healthy towns and cities of the future. The programme funded 10 towns to inject new dwelling units on greenfield sites and brought local councils, developers, architects, healthcare workers and the community together to implement integrated strategies, such as incorporating "principles of healthy living" in planning agreements in Whyndyke Farm, piloting an app for managing mental health in Cranbrook schools, and implementing 5 km "Health Routes" in Bicester.

> **By investing in place-based approaches that adopt a process of continuous learning, experimentation and fine-tuning, city leaders have a good chance to create healthier cities.**

Other cities empower people to provide care directly for their own communities. For example, the Thrive initiatives in London and New York seek to mobilise local communities to promote positive mental health. A key aspect of this is to empower individuals in the community to deliver healthcare. For example, non-specialists in community-based organisations are given the skills and knowledge to deliver mental health interventions, while city employees themselves are trained in mental health first aid.

Cities have also leveraged data to develop more targeted, granular solutions for their residents. In Campinas and São Paulo, Project CityZen is being piloted to help improve preventive health among the elderly by developing a digital platform that maps their income, dependency and frailty needs. The resulting data is used to prevent further frailty and reduce the burden on healthcare infrastructure.

An Iterative Way Forward

The popularity of place-based approaches to improve people's health outcomes in cities will likely continue. Yet, it is important to note that cities and human behaviours are complex, and relations between interventions affecting the urban environment and population health outcomes are not as linear as may be presumed. As such, cities should consider ways to leverage complexity and behavioural science in their planning and initiatives. Alongside this, urban planning for health would do well to mobilise the population and promote local experimentation, while measuring the impact of such efforts.

Singapore's Ministry of Health (MOH) Office for Healthcare Transformation has a programme to develop healthy precincts in public housing estates and public areas. The programme works with the local population, agencies and community leaders to understand the links between socio-environmental determinants in selected precincts and the health behaviours of residents. It will introduce solutions to address the socio-environmental determinants and facilitate healthy behaviours, and measure their impact.

03

Through an iterative approach, successful initiatives may be scaled up and applied in other precincts.

There is much that we have yet to learn about shaping our cities for health. But by investing in place-based approaches that adopt a process of continuous learning, experimentation and fine-tuning, city leaders have a good chance to create healthier cities that enable residents to flourish. ◐

01   Thrive London empowers individuals in the community to deliver mental health interventions.

02   CityZen is a citizen-centric digital platform that brings healthcare service right to the fingertips of the elderly in Brazil.

03   The preliminary Healthy Precinct Framework developed by MOH's Office for Healthcare Transformation (2019).